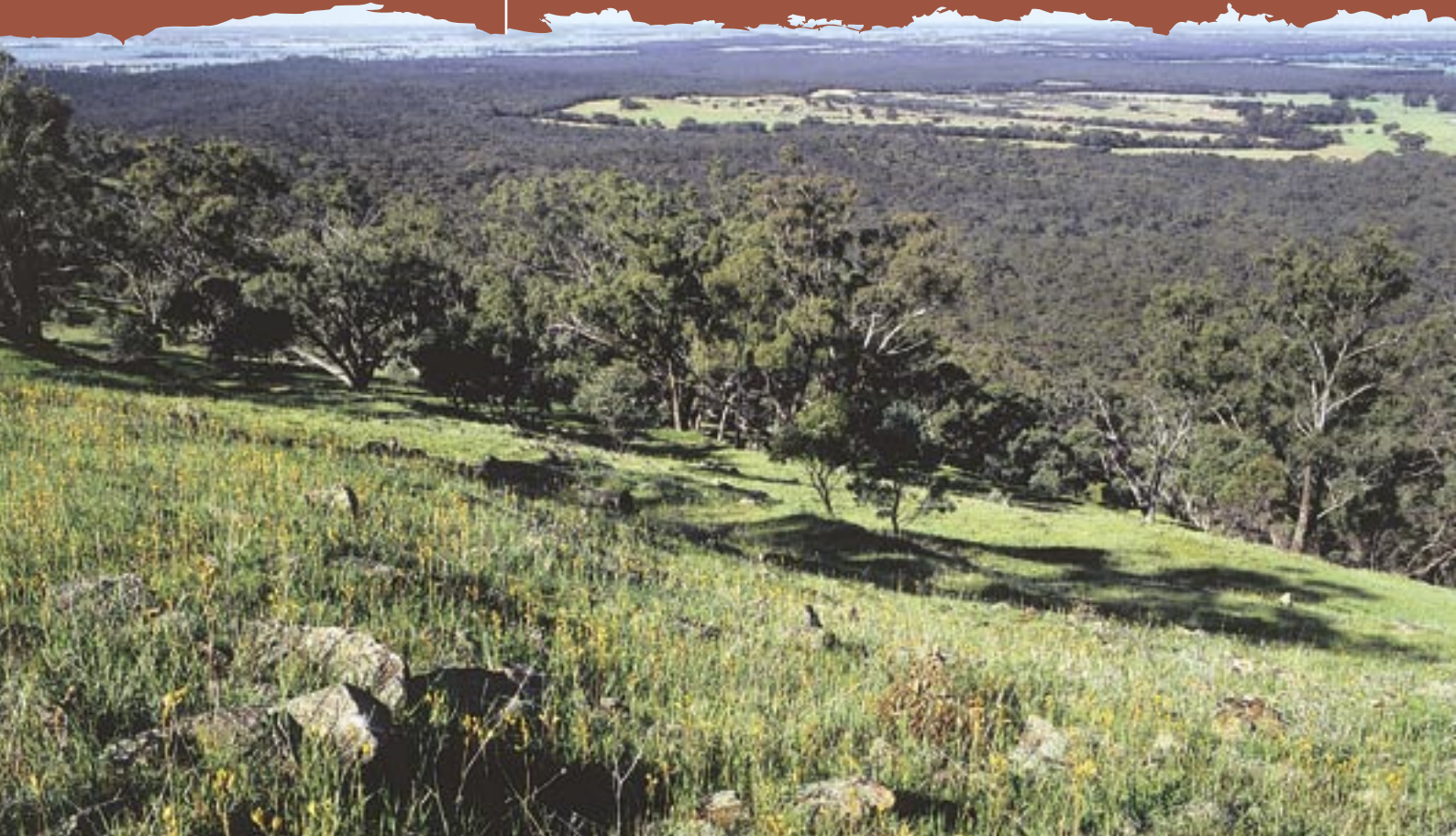




## Winter 2008

### In this issue

Bird monitoring in woodland refuge areas, Understanding the ecology of Gondwana Link, Studying a desert river, A smaller carbon footprint at Eurardy Reserve



## Bird monitoring in woodland refuge areas

**Dr Jim Radford**, Bush Heritage Ecological Outcomes Monitoring Coordinator, explains the results of bird monitoring in the South-East Grassy Box Woodland reserves

During hard times, it's good to know that there are places where food and shelter are still plentiful. Areas rich in resources have always been critical in

helping species to survive the lean times resulting from drought, fire, flood or other vagaries of nature. But, in the face of rapid climate change, such places are about to become even more important. By protecting and managing high-quality, highly productive habitats, Bush Heritage is helping to protect these refuge areas and increase the

chances of survival for a wide range of native species.

Not all natural areas are equal when it comes to providing habitat for native animals. The quality of habitats varies naturally with the type and condition of native vegetation, the size and distribution of the patches that remain, the abundance of introduced species



Clockwise from top: Grassy woodlands provide vital habitat for declining woodland birds at Nardoo Hills Reserve, Vic. PHOTO: DAVID TATNALL  
Speckled warbler. Diamond firetail. PHOTOS: WAYNE LAWLER/ECOPIX





and native competitors, and the frequency and intensity of disturbances. Habitat quality also varies over time, with some areas remaining in better condition for longer than others. These areas that remain in good condition through lean times we like to call 'refuge areas'. In times of environmental stress, resource-rich refuge areas are magnets for native animals, drawing them in from the surrounding landscape as resources elsewhere become more and more scarce, then providing the springboard from which they can recolonise the landscape when these conditions improve.

As a matter of priority, Bush Heritage actively seeks to protect those parts of the landscape that have the greatest potential as refuges and to manage these areas to increase the availability of essential resources (i.e. food, shelter, mates). By alleviating external

stresses such as clearing, grazing, introduced predators and herbivores, weeds, inappropriate fire regimes and chemical additives, we can encourage the growth of native vegetation and increase the capacity of the ecosystem to withstand or absorb 'natural' shocks such as variations in climate. In so doing we make the landscape more resilient. Although only just beginning to yield results, our Ecological Outcomes Monitoring program can tell us about our progress towards these goals.

In Bush Heritage's South-East Grassy Box Woodlands anchor region, Tarcutta Hills Reserve in New South Wales and the Nardoo Hills reserves in Victoria protect high-quality, intact remnants of grassy white box *Eucalyptus albens* woodland and hillcrest herb-rich woodland, respectively. These reserves also support a high diversity of woodland bird species. Many of these, such as

the hooded robin, crested shrike-tit and diamond firetail, are currently in precipitous decline throughout much of southern Australia. A key conservation goal for both reserves is to protect and ultimately increase their populations. Since 2006, as part of our Ecological Outcomes Monitoring program, we have been systematically surveying the bird communities at both Tarcutta Hills and Nardoo Hills. Although we have data for only two years, both exceptionally dry years at the end of a decade of low rainfall in south-eastern Australia, we are already starting to see interesting patterns emerge.

Many food sources, especially nectar and seeds, are naturally patchy, with considerable variation in where and when they occur; for example, the same patch may provide food in one year but not the next. This means that the bird species that rely on these resources must be highly mobile to track them across the landscape. Thus, fluctuations in population size can be expected due to variations in the food supply. This pattern has been evident at Tarcutta Hills. In 2006 there was ample flowering and a lot of seed, whereas in 2007 there was virtually no flowering and much less seed. Consequently, the numbers of seed-eating species, such as the peaceful dove, and nectar-feeders, such as the black-chinned honeyeater and red wattlebird, declined dramatically in 2007 (see Figure 1).

In contrast, the insect-eating birds at Tarcutta Hills showed a very different response. The overall numbers of all species of insect-eaters that foraged



Clockwise from top: Fuscous honeyeater. The woodland canopy at Tarcutta Hills Reserve, NSW, is home to a number of declining woodland bird species. PHOTOS: WAYNE LAWLER/ECOPIX Ironbark and scribbly gum woodland at Tarcutta Hills Reserve. PHOTO: DAVE NEILSON

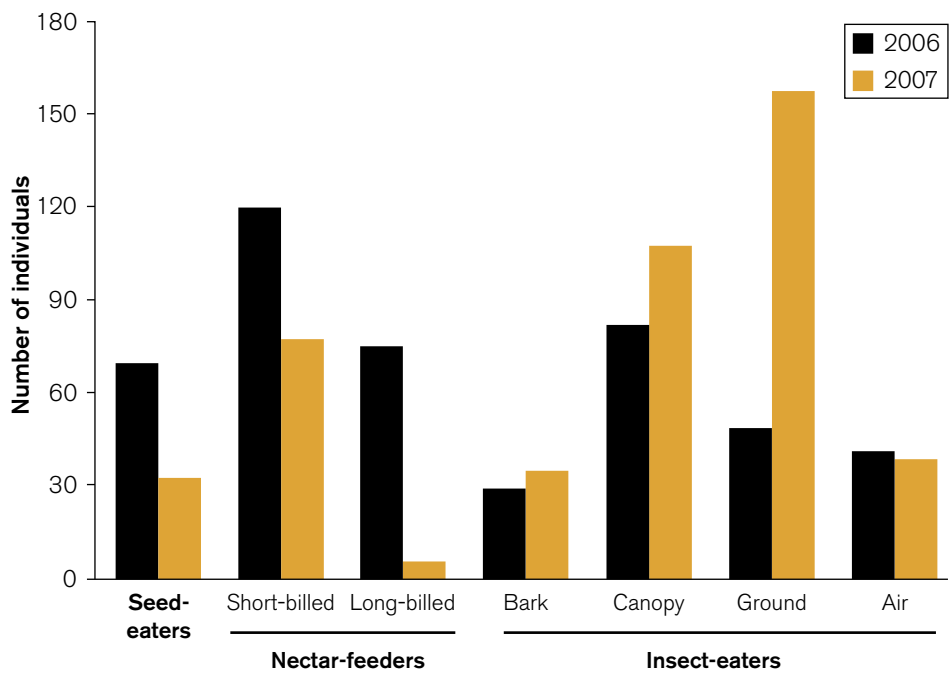
in the tree canopy, on the ground, on bark or in the air, either increased in 2007 or remained stable (see Figure 1). The number of species of insect-eaters also increased in 2007 as several species typical of the drier country to the west, for example the red-capped robin and western gerygone, moved into the reserve. That the insect-eating community was able to persist and even grow in 2007, despite several years of low rainfall, suggests that Tarcutta Hills Reserve is retaining its critical resources very well.

The results from Nardoo Hills are even more encouraging (see Figure 2). While the nectar-feeders declined slightly, the abundance of all insect-eating groups and seed-eaters increased in 2007. Insect-eaters are particularly good indicators of ecological health because they are relatively high in the food chain, and many species are year-round residents. Thus, the increase in the numbers of insect-eaters suggests that other parts of the ecosystem are also faring well. This is a strong endorsement of Bush Heritage's management actions at Nardoo Hills Reserve and it will be fascinating to see if these trends continue in the coming years.

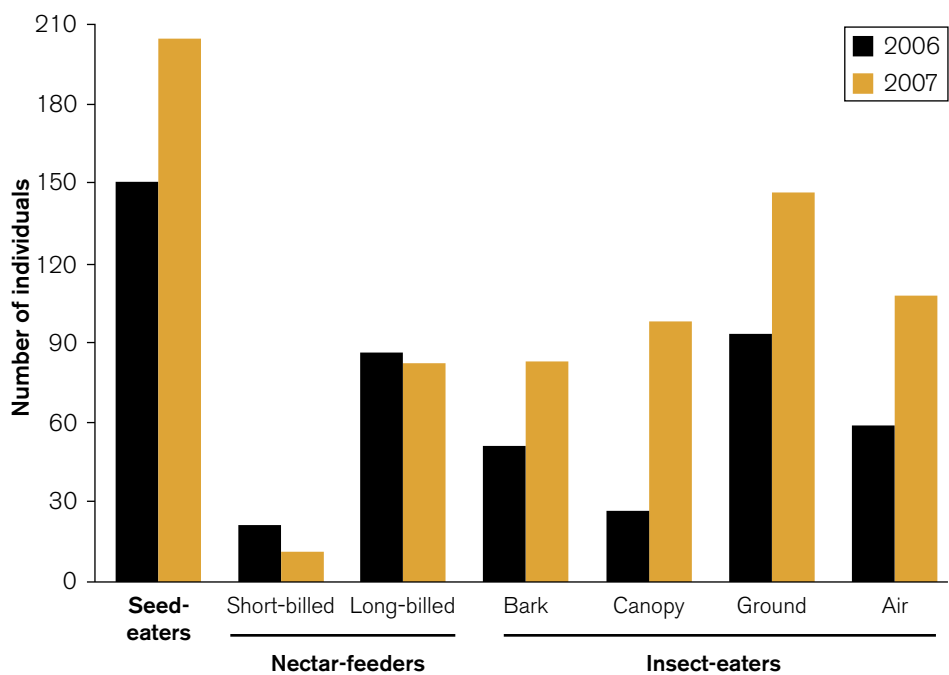
While such refuge areas are not necessarily lush, verdant oases, they are rich in critical resources. And if, as predicted, the drier and warmer climate we are now experiencing in south-eastern Australia foreshadows the future under rapid climate change, these woodland reserves and other Bush Heritage sites will be crucial to the survival of many of our native species.



Temperate grassy woodland at Tarcutta Hills Reserve, NSW. PHOTO: WAYNE LAWLER/ECOPIX



**Figure 1** Number of individuals of different types of foragers across all monitoring sites at Tarcutta Hills Reserve in 2006 and 2007



**Figure 2** Number of individuals of different types of foragers across all monitoring sites at the Nardoo Hills reserves in 2006 and 2007

The Ecological Outcomes Monitoring program is generously supported by the Macquarie Group Foundation.







## ‘Knowledge Connection’ – understanding the ecology of Gondwana Link

As Bush Heritage Australia supports work to achieve Gondwana Link, **Charlotte Francis** reports on an innovative project that will assist in the management of the Gondwana Link properties

One of the main objectives of Gondwana Link, our joint landscape restoration project in south-west Western Australia, is to significantly improve the health of the region's native vegetation. We work with Greening Australia (WA) to restore and reconnect the remaining patches of bushland by revegetating cleared farmland with local native plants. Since the beginning of the project, Bush Heritage Australia

and Greening Australia (WA) have acquired five properties between the Stirling Range and Fitzgerald River national parks. Bush Heritage owns the Monjebup and Chereninup Creek reserves, Greening Australia (WA) owns the Nowanup Reserve, and the two organisations are joint owners of the Yarrabee Wesfarmers and Peniup Creek reserves. These holdings collectively protect almost 6000 hectares of important conservation land. In addition, we have begun working with private landholders to protect and restore native vegetation on their land.

The conservation and restoration work of Gondwana Link is being supported

by the ‘Knowledge Connection’ project. Funded by Lotterywest, and managed jointly by Greening Australia (WA) and Bush Heritage, Knowledge Connection is a comprehensive information-gathering and assessment project designed to provide a better understanding of the ecology of this special landscape. Paula Deegan of Greening Australia (WA), who manages the project, explains: ‘As our Gondwana Link vision is to restore habitats on a large scale, we need to better understand the ecology that underpins this conservation work. We also want to make sure we have sensible goals and clear ways of measuring our progress.’



Clockwise from top: Flat top yate and flowering wattle line a waterhole on Chereninup Creek Reserve, WA. Leaves and flower-caps of the moort. A freshwater pool on granite at Chereninup Creek Reserve. PHOTOS: CHINCH GRYNIEWICZ





with her work. At Nowanup Reserve, over 30 volunteers, including school students and Noongar people, helped out with animal trapping using a combination of pitfall and Elliott traps (collapsible aluminium boxes, each with a trapdoor). A number of community members have also been trained to record frog calls as a technique for identifying suitable freshwater sites. Volunteers have also helped to assess and monitor 25 kilometres of creek systems.

'Knowledge Connection will ensure we can measure our progress and improve our understanding of how these complex landscapes work,' says Paula Deegan. 'The knowledge gained from the project will be shared with the local community, others interested in learning about Gondwana Link and the broader scientific community.'

The project brings together current knowledge and collects data on six carefully selected conservation 'targets'. These include creeks (and freshwater systems in general), three vegetation communities (banksia heath, mallet and moort woodland, and yate woodland) and two wildlife species (black-gloved and Tammar wallabies). The knowledge gathered will be used to refine the management practices necessary to save and restore these target communities and species. Progress will be regularly monitored. As the condition of each target community or species improves, so should that of the entire ecosystem.

One of our techniques is to use aerial photographs to map the distribution

of mallet and moort woodlands, and to map sites chosen for the monitoring of banksia heath and freshwater systems. The mapping shows where fires have occurred, which will help us to develop longer-term fire-management plans. Another technique is to measure certain 'indicators' (such as numbers of wallabies recorded or frog calls heard) at monitoring sites to evaluate the health and viability of all six target communities or species. The data recorded is compared over time to determine whether our management actions are helping to improve the health of the area and restore ecological resilience.

Volunteers have assisted Knowledge Connection's ecologist, Angela Sanders,

Knowledge is being shared through the Gondwana Link website, as well as through the distribution of information sheets on the six conservation targets, a booklet describing the conservation management approach, animal observation record sheets and identification notes.

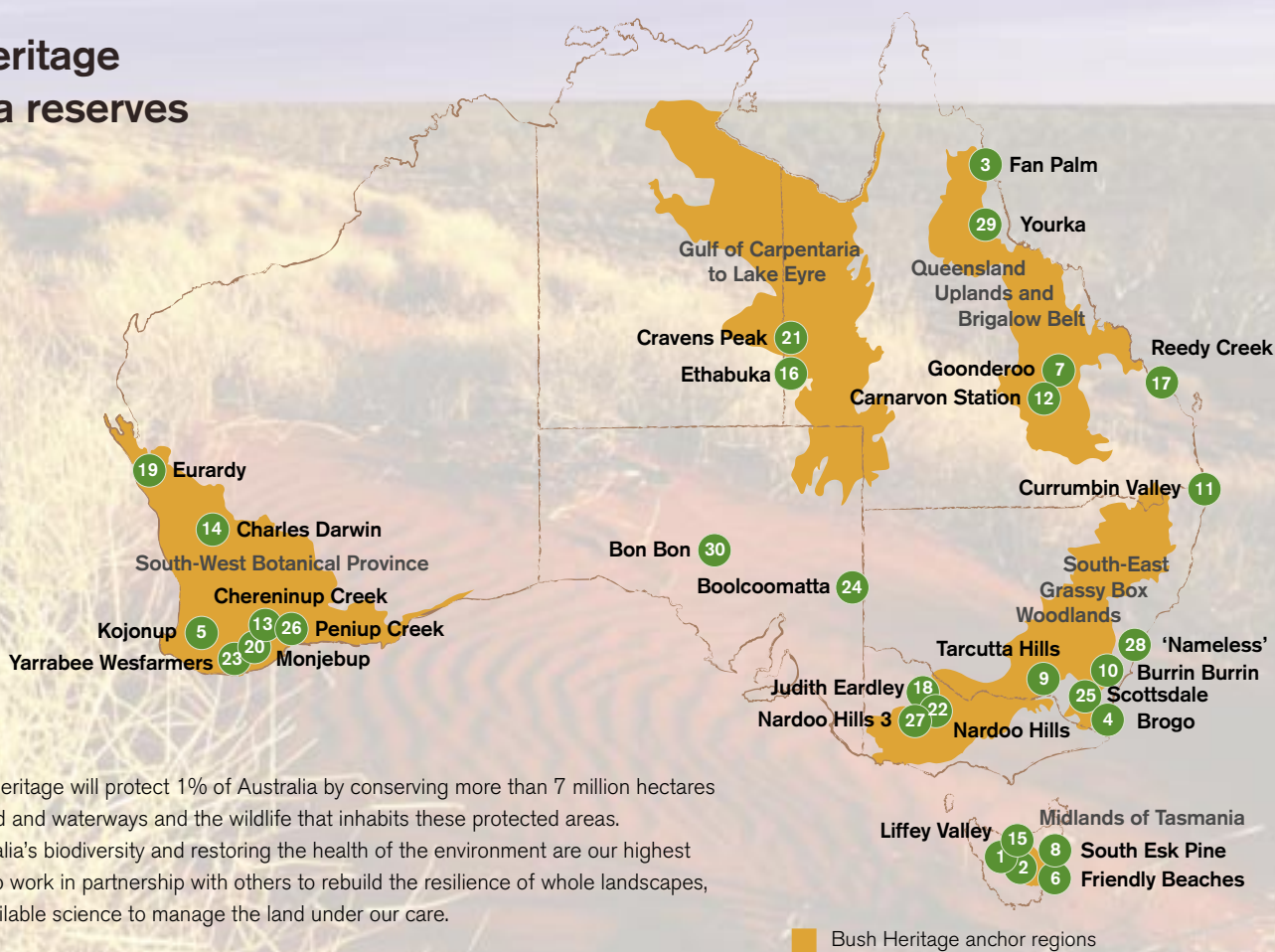
By guiding the setting of priorities for restoration work and other conservation activities, Knowledge Connection will help us to identify which properties we want to purchase next, and to refine the management of current properties. As habitats are restored and become more viable, we can expect to see major improvements in the health of the ecosystems and in the number of animals and different species recorded.



Clockwise from top left: Ecologist Hugh Pringle assesses revegetation at Chereninup Creek Reserve, WA. PHOTO: CHINCH GRYNIEWICZ  
Black-gloved wallaby. PHOTO: JIRI LOCHMAN/LOCHMAN TRANSPARENCIES  
Flowering mallee heath shrubland on Peniup Creek Reserve, WA.  
A dwarf bearded dragon at Peniup Creek Reserve. Revegetation at Chereninup Creek Reserve. PHOTOS: CHINCH GRYNIEWICZ



# Bush Heritage Australia reserves



By 2025 Bush Heritage will protect 1% of Australia by conserving more than 7 million hectares of Australia's land and waterways and the wildlife that inhabits these protected areas. Protecting Australia's biodiversity and restoring the health of the environment are our highest priorities. We also work in partnership with others to rebuild the resilience of whole landscapes, and use best available science to manage the land under our care.

## South-West Botanical Province



**26 Peniup Creek Reserve, WA – purchased jointly with Greening Australia (WA) 2007**  
This new 2409 ha reserve will protect intact riparian, woodland, mallee and heath vegetation. The property includes a section of Hegarty Creek, which is in good condition. Some of the reserve is currently regenerating and a significant area will be actively revegetated. It protects habitats for the Tammar and black-gloved wallabies. The endangered red-tailed phascogale has been recorded here in the past.



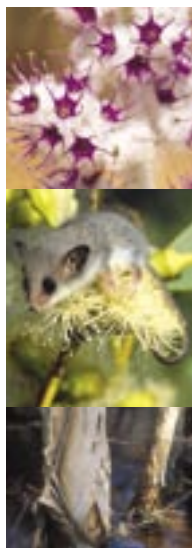
**23 Yarrabee Wesfarmers Reserve, WA – purchased jointly with Greening Australia (WA) 2006**  
This reserve is a key acquisition for the Gondwana Link pathway in WA. It lies on the eastern boundary of the Stirling Range National Park and boasts a varied topography which supports tall marri/jarrah woodlands to low mallee and banksia-rich heathlands. About 600 ha of the total area of 923 ha is being revegetated.



**20 Monjebup Reserve, WA – purchase completed 2007**  
This reserve protects 956 ha of highly diverse remnant bushland in south-west WA. Its landforms, ecosystems and natural waterways are some of the most diverse in the region and are in good condition. It is a key property for Gondwana Link.



**19 Eurardy Reserve, WA – purchased 2005**  
This 30070 ha reserve helps to build a protected habitat corridor between the Kalbarri National Park and the Toolonga Nature Reserve on the central coast of WA. Together these reserves protect one of the most diverse endemic plant communities on the planet, including york gum woodlands and banksia heathlands. Over 600 plant species have been recorded at Eurardy, including 38 plant species that are declared rare flora.

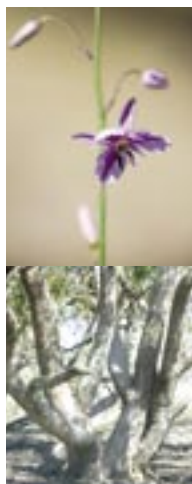


**14 Charles Darwin Reserve, WA – purchased 2003**  
This reserve protects 68615 ha of york gum, salmon gum, gimlet, and sandplain vegetation on the junction of the wetter South West and the arid zone. The york gum woodlands occur on the more productive soils and provide drought refuges for many species. The reserve protects twelve regional ecosystems and habitat for threatened malleefowl.

**13 Chereninup Creek Reserve, WA – purchased 2002**  
This 877 ha reserve protects some of the most floristically spectacular and globally important land in south-west WA. It was the first property purchased for Gondwana Link. The 60 ha that was replanted in 2003 is flourishing and animal species have moved back in. The reserve safeguards at least twelve major plant communities, and threatened species such as the western whippbird and Tammar wallaby.

**5 Kojonup Reserve, WA – purchased 1996**  
This 389 ha reserve is an important remnant of wandoo woodland in south-west WA. It protects at least 81 species of native birds and four threatened plant species. It has an intact understorey of herbs, heaths, sedges, orchids and other wildflowers.

## South-East Grassy Box Woodlands



**27 Nardoo Hills Reserve 3, Vic – purchased 2007**  
This 216 ha of undulating grassy woodland links the southern end of the existing Nardoo Hills reserves to a previously isolated 200 ha block of the Wychitella Nature Conservation Reserve. Its addition creates a chain of reserves extending more than eight kilometres along the Nardoo Hills. Its complex woodlands with numerous old hollow-bearing trees provide habitat for many threatened woodland species including the hooded robin, diamond firetail and tree goanna.

**25 Scottsdale Reserve, NSW – purchased 2006**  
This reserve protects 1328 ha of threatened box-gum woodlands and grassy woodlands on an untouched stretch of the Murrumbidgee River. The region has been adversely affected by clearing, grazing and irrigation, and Scottsdale will protect some of its most threatened ecosystems. Scottsdale's fertile lowlands are being rehabilitated while the threatened grassland plateaus, woodlands and springs will recover naturally with careful management.





## **22 & 18 Nardoo Hills reserves, Vic, incorporating Judith Eardley Reserve – purchased 2005 and 2006**

At 572 ha, these properties help secure some of the most threatened ecosystems in southern Australia. Five vegetation communities of conservation significance are found here, including grey-box grassy woodland, herb-rich woodland and mallee. The high-quality habitats have good populations of declining woodland birds including the hooded robin, brown treecreeper and diamond firetail. They abut the Wychitella Nature Conservation Reserve.



## **10 Burrin Burrin Reserve, NSW – donated 1999**

This reserve protects 411 ha of escarpment forest in the upper reaches of the Shoalhaven River catchment. It provides habitat for many tree-dwelling animals such as the sugar glider and threatened squirrel glider.



## **9 Tarcutta Hills Reserve, NSW – purchased 1999**

Tarcutta Hills is a 432 ha reserve of national significance. It protects the largest area of high-quality grassy white box woodland left in Australia and enjoys an unusual richness of species. It provides habitat for the nationally threatened turquoise and swift parrots and declining woodland species.

## **Queensland Uplands and Brigalow Belt**



## **29 Yourka Reserve, Qld – purchased 2007**

This 43500 ha reserve lies in one of Australia's fifteen national biodiversity hotspots. It protects 39 regional ecosystems of which fourteen are listed as threatened or 'of concern'. Tropical woodlands, eucalypt rainforest fringes and diverse river and creek systems are home to many rare and threatened animals and plants.



## **12 Carnarvon Station Reserve, Qld – purchased 2001**

This 59000 ha reserve adjoins Carnarvon Gorge National Park. It protects seventeen regional ecosystems, including six that are endangered, in a region that has seen broad-scale land clearing. The recovery of the bluegrass downs has seen the return of many species of grassland birds and small mammals.



## **7 Goonderoo Reserve, Qld – purchased 1998**

This 593 ha reserve lies in a region that has been heavily cleared. It protects nine plant communities including brigalow woodlands and native grasslands, both of which are classified as endangered. Over 140 bird species, many snakes and a wide variety of other wildlife are protected here.

## **Gulf of Carpentaria to Lake Eyre**



## **21 Cravens Peak Reserve, Qld – purchased 2005**

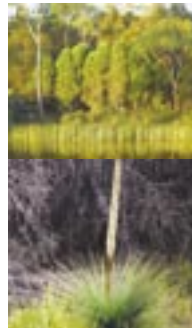
This vast property of 233000 ha lies north of Ethabuka Reserve and the Simpson Desert National Park. It encompasses the transition from the Simpson Desert dune fields through the rocky Toko and Toomba Ranges to the broad grasslands of the Mulligan River headwaters. Its nine ecosystems are home to an abundant and diverse fauna including threatened species such as the mulgara and amputa.



## **16 Ethabuka Reserve, Qld – purchased 2004**

At 213300 ha this reserve protects river flood plains, dune systems, clay pans and ephemeral and semi-permanent wetland systems of national significance adjacent to the Simpson Desert National Park. Most of these ecosystems are not protected in the adjoining park. Ethabuka has a remarkable diversity of mammals, birds and reptiles.

## **Midlands of Tasmania**



## **8 South Esk Pine Reserve, Tas – purchased 1998**

Located on the banks of the Apsley River on Tasmania's east coast, this 6.8 ha reserve protects the last large stand of the South Esk pine. A Tasmanian endemic, the pine is considered to be vulnerable, with only 10000 trees remaining.

## **6 Friendly Beaches Reserve, Tas – purchased 1997**

Fringed by Saltwater Lagoon and the sand dunes of Friendly Beaches, this reserve protects 140 ha of coastal heathland with dry sclerophyll forest, black gum and marsh-plant communities. It retains some of the last examples of natural dune systems in Tasmania.

## **Reserves outside the Bush Heritage anchor regions**



## **30 Bon Bon Reserve, SA – purchased 2008**

This 216810 ha property was purchased with the assistance of the Australian Government's National Reserve System Program and the South Australian Department for Environment and Heritage. It lies between the Great Victoria Desert and the salt lakes of Eyre, Torrens and Gairdner. Bon Bon's scenic desert landscape is dotted with salt lakes, freshwater wetlands, mulga shrublands, bluebush plains and arid-zone woodlands, a rich diversity of habitats for wildlife. Bon Bon protects seven regional ecosystems, three of which are listed as threatened at the state level.



## **28 'Nameless' Sylvan Reserve, NSW – donated 2007**

This reserve of 55 ha is situated on the steep slopes of the Illawarra Escarpment in NSW. It protects one of the few remnants of endangered Illawarra subtropical rainforest. There are species from cool and warm temperate rainforest, and at lower altitudes warm temperate and subtropical species dominate. Irwin's Creek flows through the reserve.



## **24 Boolcoomatta Reserve, SA – acquired 2006**

This 64337 ha reserve was purchased with funds provided by the Nature Foundation SA and the Australian Government's National Reserve System Program. Its ten vegetation communities were previously poorly protected because the vast saltbush plains and grasslands were used for grazing. The threatened plains-wanderer and thick-billed grasswren are safeguarded here. The yellow-footed rock wallaby may return once goats and foxes are controlled.



## **17 Reedy Creek Reserve, Qld – donated 2004**

This 452 ha reserve abuts the Deepwater National Park in one of the most intensely used and depleted natural environments in eastern Australia. Nine vegetation communities including pandanus-lined wetlands and threatened vine forests are safeguarded. Bush Heritage also manages adjacent land and helps to protect loggerhead and green turtles that breed on adjacent beaches.



## **11 Currumbin Valley Reserve, Qld – donated 1999**

Although only 4 ha, this regenerating rainforest reserve is highly diverse. Together with the adjoining Nicholl Scrub National Park, the reserve contributes to the protection of a significant area of habitat and at least seven threatened species.



## **4 Brogo Reserve, NSW – purchased 1995**

At 120 ha, Brogo is one of the largest viable remnants of bushland in the Bega Valley in south-east NSW. It is a haven for native mammals including the sugar glider and long-nosed bandicoot, and many bird species including the powerful owl.



## **3 Fan Palm Reserve, Qld – purchased 1993**

Lowland tropical rainforest is one of the most threatened habitats in Australia. This 8.17 ha of fan palm forest adjacent to the Wet Tropics World Heritage Area was threatened by subdivision. It provides habitat for the cassowary and threatened plant species.



## **1, 2 & 15 Liffey Valley reserves, Tas – acquired 1990 and 2003**

Combined, the Liffey River, Dyer Bluff and Coalmine Creek reserves protect 261 ha of fern gully, rainforest and wet and dry sclerophyll forest. The reserves lie on the edge of the World Heritage Area and are a haven for wildlife, including the pygmy possum, Tasmanian devil, threatened Tasmanian wedge-tailed eagle and white goshawk.





## Unlocking the secrets of an inland river

**Carissa Free**, PhD student at the University of Queensland, writes of her three-year study of the Field River which flows through Ethabuka Reserve

Australia's inland rivers have the most variable flows of any rivers in the world. Many remain dry for several years, or even decades. But when they do flow, some, like the Cooper Creek in central Queensland, can create floodplains covering 100 000 square kilometres. There have been very few studies of these ephemeral dryland rivers and how they affect local biodiversity, particularly the types and quantity of vertebrate fauna that live along them. It was with this question in mind that I set out on a three-year study of the Field River in the Simpson Desert.

Desert rivers such as the Field River, which runs through Bush Heritage's Ethabuka Reserve in far-western Queensland, are refuges rich in nutrients and moisture in an otherwise dry landscape. Large trees, grasses and shrubs grow along them, creating corridors that provide a habitat for

species that are less tolerant of desert conditions. My study aimed to quantify the differences in habitat and diversity of fauna along the river and on the adjacent dunes. Lastly, I wanted to establish if and how the abundance of small vertebrate populations was affected by the river.

To monitor changes in the populations of small mammals and reptiles over the duration of the study, I established lines of pitfall traps at three sites along the river. Pitfall traps are created by burying PVC pipe vertically in the ground, the top of the pipe level with the ground surface. Each pipe is 600 mm long and 300 mm in diameter and is fitted with a base of wire mesh so that animals cannot dig their way out. The pipe is closed with a PVC cap when not in use. The traps are positioned along a drift fence up to 20 metres long, which guides small animals towards the pits. The animals trapped were identified, measured, weighed and then released unharmed. I caught and released 47 species and

over 1500 individual animals from March 2006 to May 2008.

Although there was no significant difference in richness of species between the dune and riverine habitats, several species – including the desert tree frog, excitable delma (a small legless lizard), long-nosed dragon, desert burrowing frog, Burton's legless lizard and western hooded scaly-foot (a large legless lizard) – were found exclusively along the river. Many of these species spend a large amount of time either in the trees or foraging in the leaf litter below. I caught 76 introduced house mice along the river, whereas only ten were caught in the dunes. This suggests that the river and the associated floodplain may be a refuge for this species.

I also measured changes in the climate, habitat complexity, plant cover and availability of food over the study period. The riverine corridor had significantly more grass, leaf litter, tree cover and soil moisture than the dune habitats.

Although my research is still ongoing, it is suggesting that inland rivers provide a unique habitat within the surrounding desert environments, offering shelter and foraging opportunities to species that depend on trees. This is despite the fact that rivers in arid areas have traditionally been overgrazed or diverted for irrigation and to provide water for livestock. I hope this research will add to the information already available about inland rivers, and enable better management strategies to be developed for their conservation.



Clockwise from top: The dry riverbed of the Field River, Ethabuka Reserve, Qld. Low grassy woodland along the Field River. Mature coolibahs arch over the dry riverbed. PHOTOS: WAYNE LAWLER/ECOPIX





## A smaller carbon footprint at Eurardy Reserve

National Operations Officer **Glen Norris** waxes lyrical about Eurardy's new remote area power supply

Since we purchased Eurardy Station in June 2005, Bush Heritage has achieved many positive ecological outcomes in this fascinating and diverse environment. Eurardy is located about one and a half hours' drive north of Geraldton on the North-West Coastal Highway in Western Australia and adjoins the Kalbarri National Park. It has been extremely rewarding to see our conservation goals progressing in this fragile landscape, from increased malleefowl sightings and new additions to our flora and fauna species lists, to the recovery of priority vegetation communities following the removal of feral herbivores. As we work to

achieve our goals and grow as an organisation, it is imperative that we do so with minimal environmental impact, playing our part as responsible global citizens. With this responsibility comes the need to implement policies and strategies to minimise our environmental footprint, particularly in an age of climate variability.

In light of this, and as one example of how we are reducing our environmental impact, it is with great pride that Bush Heritage announces the installation of a 15 kva solar photovoltaic remote area power supply (RAPS) at Eurardy Reserve. The RAPS system will provide clean, renewable energy for our conservation activities on the reserve. 'We've had a lot of great things to celebrate over the past couple of years

at Eurardy,' say reserve managers Paul and Leanne Hales, 'but from an operational perspective, none of them can quite compare to the installation of clean, reliable and sustainable power.'

The advantages of renewable energy sources like sunlight are numerous. Not only can we now produce emission-free electricity, but we can do it silently and much more cost-effectively. By no longer being wholly dependent on diesel generators, we will now significantly reduce our expenditure and reliance on fossil-based fuels such as diesel. This will mean more funds being directed to on-the-ground conservation activities. In addition, this investment supports the solar photovoltaic industry and assists Australia's transition to a clean, renewable energy future.

From the moment the decision was made in 2006 to purchase a solar-powered RAPS system at Eurardy, our dedicated staff, supporters and volunteers have worked hard to make the plan a reality. Given the significant costs involved in the purchase, we would like to acknowledge The Nature Conservancy for their valued financial contribution. Furthermore, this project, and others like it, would not be possible without the rebate provided through the Remote Area Power Supply Program, which is supported by the Australian Government and administered in Western Australia by the Sustainable Energy Development Office.



Clockwise from top: Arrays of photovoltaic cells track the sun and harness solar power. Cables connecting the solar panels to the battery bank are laid in trenches. Deep-cycle lead-acid batteries store solar energy and provide clean power 24 hours a day. Reserve managers Paul and Leanne Hales inspect the new generator that provides back-up in times of high power usage. PHOTOS: PAUL AND LEANNE HALES





## Our volunteers – we can't do without you

**Katrina Blake**, Conservation Partnerships Coordinator, reports on the increasing opportunities for volunteers at Bush Heritage

Volunteers play a vital role in assisting Bush Heritage to achieve its conservation goals. More and more, we see enthusiastic individuals and groups offer their assistance, lending a hand on one of our many properties throughout Australia, or undertaking projects or day-to-day tasks at our Conservation Support Centre in Melbourne. We cannot thank you all enough for helping us to protect our precious environment.

It is exciting to see the volunteer program and its achievements continue to grow. In the past twelve months we have benefited from the work of over 230 volunteers, 60 per cent of whom were volunteering at Bush Heritage for the first time. Collectively, in this past year, these volunteers have contributed over 2500 days of work, which equates to approximately \$480 000 dollars in wages saved. This is an outstanding achievement.

In recent months we have undertaken a review of the program to accommodate its ongoing growth and to shape its future direction. One of the many

things we have implemented is the advertising in advance of at least six months' worth of office and field-based projects. Included in the description of each project is a list of the essential skills required of participants. This will help you to choose a project that is appropriate to your skills and interests. In many cases, all that will be required is enthusiasm and a willingness to help, but other tasks may need specific qualifications or experience.

Some of the projects recently undertaken by volunteers have included the setting up of an in-house digital image library, the restoration of a creek at Eurardy Reserve, mapping of rabbit burrows at Boolcoomatta Reserve, the 'stabbing' of wheel cactus at the Nardoo Hills reserves, working as locum managers on reserves, and an energy audit for our office sustainability project. These are examples of just some of the things you can help out with as a volunteer.

If you are interested in joining one of our many working bees, becoming a volunteer ranger, assisting with research projects, putting your specialised skills towards a worthy cause or helping in our Conservation Support Centre, then there are several ways to find out more. See 'Getting involved' on the back page of this newsletter or on our website at **[www.bushheritage.org.au](http://www.bushheritage.org.au)** or contact Bush Heritage on 1300 628 873.



Clockwise from top: Volunteers Margaret and Peter Calder, Trevor Blake and Richard Alcorn repair a gate on Boolcoomatta Reserve, SA. PHOTO: MARGARET ALCORN Local supporters Isobel and Wybe Reyenga have been a great asset at Scottsdale Reserve, NSW. PHOTO: PETER SAUNDERS Volunteer Amy Bennett stabbing wheel cactus at Nardoo Hills Reserve, Vic. PHOTO: GEOFFREY DENANS



## From the CEO

I have often written about the importance of the Australian Government's National Reserve System Program. It provides \$2.00 for every \$1.00 we receive from your donations towards acquiring new reserves. This support has helped us to purchase and establish the Bon Bon (South Australia), Cravens Peak (Queensland), Charles Darwin (Western Australia), Nardoo Hills (Victoria) and Tarcutta Hills (New South Wales) reserves.

This program is unparalleled in the world. Independent assessments have consistently rated it as one of the most cost-effective and efficient of all the natural resource management programs in Australia. There is also evidence to show that it is up to seven times more effective to acquire land that is essentially intact, as Bush Heritage usually does. To secure the best of our most intact systems is now critical, particularly in the face of global climate change, regional extinction of species and the threats posed by inappropriate fire regimes, pest plants and feral animals.

With all of this in mind, Bush Heritage Australia congratulates the Australian Government on its recent announcement that it will increase, by almost five times, the amount of funding for the National Reserve System Program over the next five years. Although the \$180 million pledged is less than the \$250 million we were seeking, it will nonetheless give a tremendous boost to Australia's national estate of protected areas, and I hope it will also encourage us all to support the Bush Heritage land acquisitions program. It will help us to achieve our vision of owning and managing one per cent of Australia by 2025 to protect our most important ecosystems and threatened species.

I am confident that together we will reach this goal. But as we strive to do this, please continue to support the critical ongoing management, maintenance and monitoring of our reserves and those of our partners. This is very costly but it is vital. We are working hard to be as effective and efficient as we can be in reaching our

management goals and working with partners, including research institutions and volunteers, to deliver security to the places we protect and steward.

As we approach the end of the financial year, you may be reflecting on your capacity to support our work. Please join me in helping our management programs, the work our staff and volunteers do to actively manage and care for the land. This will enable us to secure, to the best of our ability, the land systems, plants and animals that your funds have enabled us to protect in the first instance. Then, with the extraordinary leverage of the National Reserve System Program, we can continue our strategy of securing additional land and waterways, knowing that these areas too will receive the effective management they need.

Doug Humann



**Paul Evans**, our Donor Relations Coordinator, is enjoying a two-month stay at Cravens Peak Reserve as locum reserve manager. Seen here in a bush shirt supplied by the Gondwana Clothing Company as part of a corporate sponsorship agreement, one of his first tasks was to rescue a tangled diamond dove, one of the many species that flocks to the waterhole near the homestead. PHOTO: GLENN CAMPBELL

## In memory

Hellen Cooke donated in memory of her friends **Margaret and Bernard Harding**, Colin Hutchinson has honoured the life of **David Chinner**, Christine Perrers donated in memory of her cousin **Marion Hawley** and Gillian Watkinson donated in fond memory of **Pat Weston**.

Roslyn Brooks remembered her cousin **Glen Jones**, Julie Felton remembered her brother **Steve Felton**, and Sheila Boston donated in memory of her parents, **Edna and Harry Boston**.

Jenny Whyte honoured her friend **Judy Hagen**, 'a true lover of the Australian bush', and family and friends have remembered the late **Donald Harrie Stitt**, 'a keen enthusiast of the Australian bush'. Ron and Sue Smith have honoured **Dr Scott Piper**, 'whose death was not only a tragedy for his

family and many friends but also for the environmental movement'.

## In celebration

Phillip Cornwell donated in celebration of **Celia Rice's** birthday, and **Belinda Christie** encouraged friends and family to make donations to Bush Heritage in lieu of presents for her birthday.

Cathie Plowman and David Butler celebrated the wedding of **Matthew Plowman and Susan Burrows**, the Douglas family celebrated the wedding of friends **Anke and Jörg Ziegerbel**, and family and friends celebrated the weddings of **Miranda Hunt and Ian Lundy** and **John Kelly and Katrina McKay**. Maggie Rice donated in honour of her brother and sister-in-law, **Rob and Pam Cheesman**, on their 40th wedding anniversary.

Many supporters donated in celebration of their **mums** for Mother's Day.



