

# bushtracks

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## **Nursing our natives**

A new state-of-the-art nursery at Scottsdale will help grow up to 10,000 native plants per year.

## **Bringing back Bilbies**

Rita Cutter and her fellow Birriliburu rangers refuse to lose the Bilby from their country.

## **Wallabies return**

The revegetation of 420 hectares in Western Australia has seen the return of the Western Brush Wallaby.





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*Bush Heritage Australia acknowledges the Traditional Owners of the places in which we live, work and play. We recognise and respect the enduring relationship they have with their lands and waters, and we pay our respects to elders, past and present.*



## CONTRIBUTORS

Jane Lyons  
Bron Willis  
Shannon Verhagen  
Gerard O'Neill  
Amelia Caddy

## DESIGN

Viola Design

## COVER IMAGE

A young Western Brush Wallaby, also known as a Black-gloved Wallaby or *Kwoora*. Photo by Georgina Steytler [georginasteytler.com.au](http://georginasteytler.com.au)



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**Nursing our natives**



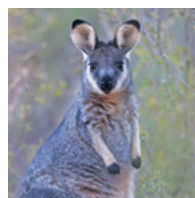
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This special first-edition of the new-look *bushtracks* is dedicated to the countrywide effort being undertaken on our reserves to protect vital Australian species from extinction.

Together, we can keep native species thriving in our landscapes.



**W**elcome to the new-look *bushtracks*. Our team has been hard at work freshening up the layout and content of this magazine. In doing so, we hope to provide a platform from which stories of our work and the bush can find more space to engage and inspire you. In an age in which so many different issues are constantly vying for people's attention, it's vital that we make sure the plight of the bush doesn't get lost. *Bushtracks* is part of our dedication to ensuring that doesn't happen.

Scientists are telling us the 'sixth great species extinction' is underway. Thousands of plants and animals, both common and threatened, are suffering population declines as their habitats shrink. Australia is one of the worst offenders – it is now ranked second in the world for biodiversity loss. If we are to reverse, or at least halt this decline, we need to be smarter about our approach to conservation.

In this edition of *bushtracks*, we look at 'preventative conservation', and how it is being implemented across our reserves and partnership lands. Attempting to rebuild a landscape from scratch or save a species that is already on the brink of extinction requires an enormous amount of resources. Sometimes this is necessary, particularly in the case of keystone species such as the Bilby, which if removed from a landscape would throw the metaphorical ecological scales out

of balance. But a much more effective approach is to secure entire landscapes, return them to good health, and in doing so help to secure the futures of a whole host of species. We're seeing the benefits of this approach all over the country, from the return of the Western Brush Wallaby to our Fitz-Stirling reserves in Western Australia, to the success our partners have seen in transplanting the Stuart Mill Spider-orchid to J.C Griffin Reserve in Victoria.

I hope you enjoy the new *bushtracks* and the stories within.



**Gerard O'Neill,**  
Chief Executive





# Nursing our natives

A new state-of-the-art nursery at Scottsdale Reserve will generate up to 10,000 native plants a year with almost no environmental footprint, thanks to solar technology, wetland filtration and a waste water recycling system.





← Woolly Tea-tree seedlings.  
Photo by Anna Carlile.

Sometimes it's the meeting of minds that turns an idea into reality. In the case of Scottsdale Reserve's new state-of-the-art native plant nursery, it began with three minds: Ian Sharp, a philanthropist with a passion for innovation; Phil Palmer, an experienced reserve manager with a background in nursery design; and Field Officer Brad Riley, a water planning specialist. These three minds, with the help of many others, devised innovative solutions to tricky problems.

Over 30,000 native seedlings have been planted on Scottsdale Reserve since Bush Heritage purchased it in 2006. The long-term aim of this revegetation is to restore degraded grasslands and reconnect habitats so that native species – from endangered woodland birds to the region's diverse reptile population – have the best chance of survival. But sourcing all those seedlings has been a resource-intensive operation. Many of the herbs and forbs were grown on-reserve in a small nursery requiring year-round maintenance, while most trees were purchased from project partners such as Greening Australia, or commercial growers.

With aspirations to significantly increase the diversity and extent of restoration efforts on Scottsdale, it was clear a more sustainable and cost-effective way of growing native plants was needed. The challenge lay in designing a nursery that could produce enough plants to meet all these needs, without also being a drain on Phil and Brad's time.

**With aspirations to significantly increase the diversity and extent of restoration efforts on Scottsdale, it was clear a more sustainable and cost-effective way of growing native plants was needed.**

"I know what it takes to run a plant nursery," says Phil, referring to his childhood spent helping out on his uncle's remote native plant nursery. "It requires constant attention; you can't have a day off without fear of losing water and valuable plants. It was only thanks to some incredibly dedicated volunteers that we were able to keep the old Scottsdale nursery running as well as we did. That level of dedication is hard to find though."

- ↓ The new nursery mid-construction. Photo by Phil Palmer
- ↘ Gang-gang Cockatoos are one of the many species that will benefit from Scottsdale's revegetation. Photo by Graeme Chapman
- A 'smart system' monitors and automatically adjusts the input of water at Scottsdale's new nursery. Photo by Annette Ruzicka

With that in mind, Bush Heritage's vision for Scottsdale's new nursery was for one that could self-monitor and be controlled remotely, so that staff and volunteers could focus on other work, such as getting the plants in the ground.

Enter Ian Sharp. A philanthropist and environmentalist with a specific interest in renewable energy, Ian approached Bush Heritage almost two years ago, looking for a meeting point between conservation and technology. The Scottsdale nursery was the obvious project for him to get involved in, and his interest in renewable energy soon resulted in the inclusion of solar-powered heat beds into the nursery designs.

With Ian contributing his technological expertise, and volunteer builder John Gain joining the project team, the project soon evolved "into something that perhaps neither Bush Heritage nor I ever imagined at the beginning," says Ian.

**S**ituated on the Monaro high plains, some 75 kilometres south of Canberra, Scottsdale is subject to long hot summers and bitterly cold winters, making plant propagation a difficult and slow process. Ian's heat beds – powered by photovoltaic panels on the nursery's roof – sit underneath the young plants to stimulate seed germination and maximise growth rates, thus essentially extending the growing season.

True to the original vision, the heat beds are controlled by a 'smart' system that monitors their temperature and adjusts them as needed. The same smart system also monitors and automatically

adjusts the input of water (pulled from the nearby Gungoandra Creek) to maintain optimum moisture levels and further improve growth rates.

The nursery's efficiency doesn't stop there though. Once the water has circulated through the plant beds, the excess is captured and gravity-fed to a purpose-built wetland designed by Field Officer Brad Riley, which filters out nutrients such as nitrogen and phosphorous. The clean water can then be used to irrigate revegetated parts of the reserve, and the wetland itself becomes a nursery for wetland plant species, "which will be used in the future to rehabilitate Gungoandra Creek," says Brad.

It's a system in which every element has been carefully considered to maximise opportunities for sustainability and improved efficiency.

"Thanks to this nursery, we're aiming to propagate and plant up to 7000 native trees and shrubs every year for the next five years on Scottsdale," says Phil.

"We'll also be able to propagate some 3000 extra plants to support revegetation efforts at other Bush Heritage reserves in south-east NSW, as well as those of our key partners and neighbours.

"Our hope is that the nursery will help to attract even more people to Scottsdale who share our passion for land restoration, and inspire other local landholders to join in our efforts to re-connect the region." ●







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# Bringing back the Bilby

Rita Cutter and her fellow Birriliburu rangers  
refuse to lose the Bilby from their country.

Ever since Bush Heritage ecologist Dr Vanessa Westcott has known Rita Cutter, the Birriliburu ranger has spoken about the land where she was born: Mungarlu, where the red dirt of the Gibson Desert formed the backdrop to her childhood.

“When I’m on country, it’s part of me, that ground, that *ngurra* [home],” says Rita. “When I touch my country, when I put my foot on that land, I have tears.”

Mungarlu is in the northern part of the Birriliburu Indigenous Protected Area, a 6.6 million-hectare tract of central West Australian desert that is managed by Martu Traditional Owners in partnership with Bush Heritage Australia and the Desert Support Services.

Vanessa has walked beside Rita on many parts of her country, watching and learning about the land and the species that call it home. But she has yet to visit Mungarlu.

Now, thanks to a federal government grant awarded to Bush Heritage and Birriliburu through the Threatened

Species Fund, she, Rita and other Birriliburu rangers will have the chance. Among other things, they will be searching for signs of the endangered Bilby, known as *Muntalngaku* in Rita’s language.

Once widespread throughout Australia, Bilby numbers fell significantly in the early twentieth century and the current population is thought to be fewer than 10,000. Today, Aboriginal people own or manage about 70 per cent of the Bilby’s remaining range – and they are at the centre of the species’ national recovery plan, which is a first for any such plan in Australia.

“The grant was highly competitive and we are thrilled we were successful. It means we can now reach this special and remote part of Birriliburu country and undertake this important work,” says Vanessa.

The grant will allow the team to extend the Bilby conservation work that they’ve been successfully





↑ Photo by Kathy Atkinson/AUSCAPE

↘ Photo by Bruce Thomson

undertaking further south-west in Birriliburu's Katjarra (Carnarvon Range) region. This includes traditional patchwork burning to maintain the Bilby's habitat, monitoring feral cats and foxes and using traditional tracking techniques to find and monitor Bilby burrows.

"The rangers will also have the chance to learn new skills," says Vanessa. "For example, they'll learn to set up motion-sensor cameras to help monitor Bilbies."

The grant is welcome news to Rita, whose joy at returning to Mungarlu is tangible.

"I get to go right back to my country where my parents were living and where I was born. When I'm out bush all the young people sing out to me. I am happy to teach them. It's been good learnin' them up."

The team's determination to save the Bilby received a huge injection of fresh energy in 2016 at the inaugural Bilby Festival held in the desert community of Kiwirrkurra, Western Australia.



**Vanessa's hope is that by working together, Aboriginal rangers will be able to stop the decline in Bilby populations.**



→ Birrillburu ranger and Martu Elder Rita Cutter.  
Photo by Annette Ruzicka

**Today, Aboriginal people own or manage about 70 per cent of the Bilby's remaining range – and they are at the centre of the species' national recovery plan.**

“The festival was the first of its kind,” says Vanessa. “It was such a powerful experience. Rangers from dozens of Indigenous ranger groups attended to coordinate efforts and share knowledge... It got them fired up.”

A number of ranger groups that attended the festival, including the Birriliburu rangers, are now working together to better monitor the species through projects such as the ‘Bilby Blitz’, which aims to collate monitoring data collected by ranger groups across the remote areas where the species remains. Data from the blitz will inform the National Bilby Recovery Plan, which is being updated to include input from Aboriginal people.

“I’ll never forget hearing senior Kiwirrkurra Rangers talk at the festival about the species they’ve lost in their lifetime or species they can remember hearing stories about. They reeled off a list: ‘The Brush-tailed Possum is gone,’ they said. ‘The Burrowing Bettong, the Rufous Hare-wallaby, the Northern Quoll – all gone.’ It reminded us that the Bilby is one of the last species left in the desert that is in that small to-medium size bracket, making it even more important to protect it.”

Vanessa’s hope is that by working together, Aboriginal rangers will be able to stop the decline in Bilby populations. And there is plenty of reason to hope.

“People like Rita who are knowledgeable about the Bilby and speak from the heart, they infect everyone around them with their energy. People can see how important the Bilby is to her, and it makes them want to do something to help.”

Rita has good reason to speak from the heart. The Bilby resides in it as strongly as her homeland, Mungarlu does.

“Me and the Bilby got one country,” she says, with characteristic flair. ●

*Two-way science: protecting the Bilby is supported through funding from the Australian Government's National Landcare Program Threatened Species Recovery Fund Open Round.*











# Orchid rescue

Some may call them fickle, but Julie Radford sees native orchids as sentinels of an unseen world and reminders of a delicate web.



← A Stuart Mill Spider-orchid.  
Photo by Matthew Newton

“The thing that really captivates me about orchids is that they highlight those intricate relationships that happen in our environment that we don’t see with the naked eye or that we’re not aware of around us,” says Julie, an orchid expert from Amaryllis Environmental.

“And I think that’s why I’ve become an orchid conservationist; because they’ve helped highlight that nothing is isolated, and if you lose one element of an ecosystem, then gradually over time everything becomes lost.”

Julie has turned her attention to Bush Heritage’s John Colahan (J.C.) Griffin Reserve, a rare remnant of box-ironbark and grassy woodlands in north-central Victoria. There, she has helped to increase the number of threatened Stuart Mill Spider-orchids from 12 plants in 2008 to around 186 last year.

The Stuart Mill Spider-orchid (*Caladenia cretacea*) is a “very elegant, beautiful, dainty little orchid” that is endemic to Victoria and listed as threatened. Like its bush orchid brethren, the Stuart Mill Spider-orchid has a complex, interconnected relationship with its surrounding environment and is a good indicator of ecosystem health: healthy ecosystems beget healthy orchid populations.

However, land clearing, grazing by stock and feral herbivores, and weeds have pushed the Stuart Mill Spider-orchid close to extinction and continue to challenge the species.

“If you look at the box-ironbark country across central Victoria, we’ve actually only got about 13 per cent of our native vegetation remaining. So the species that are trying to exist in these tiny little isolated, remnant patches of vegetation are really struggling,” says Julie.

To grow Stuart Mill Spider-orchids, Julie needs to replicate a germination process that relies on a delicate dance between a particular pollinator, a symbiotic relationship with fungi, and the right environmental factors.

First, she needs to go out at flowering time and pretend she’s a bee. She hand-pollinates by taking pollen parts from one plant and inserting them into another.

A few months later she collects the seed capsules containing thousands of tiny, microscopic seeds that look like finely ground pepper. She also takes plant tissue samples back to the laboratory at the Royal

“They’ve helped highlight that nothing is isolated, and if you lose one element of an ecosystem, then gradually over time everything becomes lost.”

Botanic Gardens Victoria (RBGV) in Melbourne. There, RBGV research ecologist Dr Noushka Reiter, who leads the gardens’ orchid conservation program, can isolate the fungus responsible for germinating the seeds and grow it in petri dishes.

The seeds are then sprinkled onto the fungus, which inoculates them so they grow into tiny fluffy protocorms (tuber-shaped bodies). Eventually, after many more steps and three-to-five years, the plants are big enough to be transported back to the reserve for planting.

From 2014 to 2016, Julie did three plantings of Stuart Mill Spider-orchids at J.C. Griffin Reserve, with the help of volunteers from the Australasian Native Orchid Society, The St Arnaud Field Naturalist Club and the Kara Kara Conservation Management Network.

Their success is measured not only in the number of orchids that survived (60-80 per cent) but also the flowering rates.

“Not all orchids will flower every year. Some might flower only one out of every three years, depending on weather conditions, but in 2016 I had a very good flowering rate of 50 per cent,” says Julie.

For Jeroen van Veen, Bush Heritage’s Victorian Reserves Manager, the impact of the orchids on other species can be quite stark.

“When we fence off a small area where we raise these orchids, we see the density of wattles increasing and the bush peas coming back in high numbers,” says Jeroen.

He says Bush Heritage is aiming for 1500 self-sustaining plants across the Stuart Mill district by 2030. ●

*Bush Heritage acknowledges the support of The R E Ross Trust towards our efforts to conserve orchids in central Victoria, as well as RBGV staff, who are working to reintroduce 200 more Stuart Mill Spider-orchids back into their broader range by 2020.*





# Western Brush Wallabies return

Bush Heritage's revegetation of 420 hectares on Monjebup North Reserve has seen the return of the poorly studied Western Brush Wallaby, known locally as the Black-gloved Wallaby or *Kwoora*.



- ← A Western Brush Wallaby in the nearby Fitzgerald River National Park, WA. Photo by Georgina Steytler
- ↘ Bush Heritage ecologist Angela Sanders inspects a specially-designed wallaby tunnel. Photo by Amelia Caddy

When French zoologist Claude Jourdan first described the Western Brush Wallaby in 1837 he called it a slender-bodied creature “*d’une élégance remarquable*”. Native to the south-west corner of Western Australia, Western Brush Wallabies were, at the time, widespread and common. But the species has since suffered from habitat loss and fragmentation, and their numbers have declined as a result – something Bush Heritage is working to reverse.

From 2012 to 2014, the organisation revegetated its Monjebup North Reserve, much of which was previously cleared for agriculture, with a wide variety of carefully selected native plants. With trees now standing up to three metres in height and shrubs up to two metres, native animals previously not seen in the cleared areas are returning.

“Monitoring the development of the vegetation, it’s looking pretty good,” Bush Heritage ecologist Angela Sanders says. “We’re getting good results with the birds, we have Honey Possums and Pygmy Possums and, of course, Western Brush Wallabies are now using the restored areas.”

The revegetation of Monjebup North is part of a Bush Heritage project to re-connect the Fitzgerald River and Stirling Range national parks, creating wildlife corridors for Western Brush Wallabies and other native animals.

The entire region sits within the broader ‘Southwest Ecoregion’ – one of 36 internationally recognised biodiversity hotspots – and is part of the larger Gondwana Link project, which aims to reconnect 1000 kilometres of country in the southern part of the ecoregion.

Prior to Monjebup North’s revegetation, Western Brush Wallabies, which are a priority species for conservation in Western Australia, only browsed on the edges of the cleared portion of the property. But the marsupials are now being sighted throughout the revegetation.

“They’ve been in there for about a year now,” Angela says. “There’s plenty of cover and plenty of areas to hide, which is what they like – they’re a very secretive species.”

Fauna ecologist Sandra Gilfillan has worked with Bush Heritage on its wallaby research program since its inception in 2008, and has helped devise the monitoring methods.

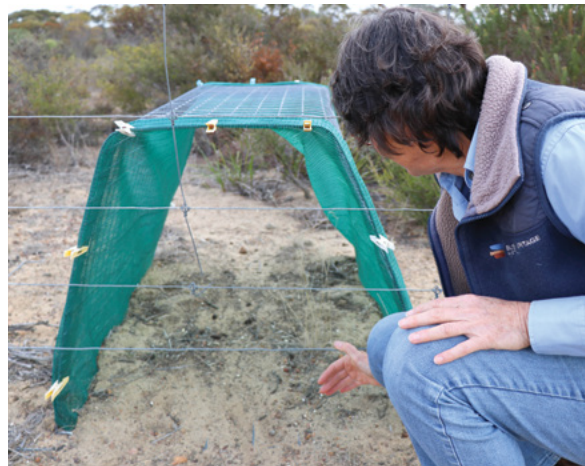
“All the revegetation that’s happened on Monjebup North has helped create prime Western Brush Wallaby habitat,” she explains. “And it has increased the connectivity of the region which is fantastic.”

Very little is known about Western Brush Wallabies (they are one of the least-studied macropods in Australia), but since they are herbivores, Angela says it’s likely the revegetation is providing them with a good food source.

“It’s a very positive result; it’s really good to create more habitat for them because it makes it easier for them to move between Corackerup Nature Reserve in the north and another of Bush Heritage’s reserves in the south,” she says.

As part of Bush Heritage’s wallaby research program, camera traps have been in place on a private property just north of Monjebup for the past six months. The wallabies access the property through specially-designed tunnels under fences, and motion-sensor cameras capture how and when the wallabies use the tunnels. Currently, volunteers are sifting through the camera trap images and gathering data that Sandra and Angela hope will inform a long-term research project.

As Angela explains, the ultimate goal of the research project is to use the tunnels to trap both male and female wallabies so they can be GPS-collared and tracked. “We want to see what their home range is and how they use this landscape. They’re very poorly studied animals, so anything we can find out about them is new information, which is fantastic.” ●



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### **Bush Heritage Australia**

Level 1, 395 Collins Street  
PO Box 329 Flinders Lane  
Melbourne VIC 8009

**T** (03) 8610 9100

**T** 1300 628 873 (1300 NATURE)

**F** (03) 8610 9199

**E** [info@bushheritage.org.au](mailto:info@bushheritage.org.au)

**W** [bushheritage.org.au](http://bushheritage.org.au)

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Help keep native species like the Western Brush Wallaby thriving in our landscapes.

