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Wombat Forestcare Newsletter

As we wait for the State Government to decide the outcome of the VEAC investigation we look at the importance of the Wombat Forest for many rare and threatened species. Read about the Wombat Leafless Bossiaea, Powerful Owls and a newly released Greater Glider report.
Gayle Osborne (editor) and **Angela Halpin** (design)

Rare, but still there

By Nat Cursio

I write this in January 2020, a time that won't be easily forgotten. Australians are reeling from the onset and continuation of an unprecedented bushfire season along the south-east of the country. The loss of lives, property and wildlife is hard to comprehend. We are hearing quite a bit about koalas, a little bit about the less iconic small mammals and birds, very little about reptiles or amphibians and even less about the plight of invertebrates, fungi and plants. With so many of our native species already corralled into limited refugia and facing multiple survival pressures, the potential for losing species altogether becomes seriously compounded by what is being called 'the new normal'. Our fiery summers.

One species holding on to life in ways that we don't yet fully understand, and that may well come under extinction threat from fire, is our local legend the Wombat Leafless Bossiaea. You may remember back to 2010 when Wombat Forestcare found the second population of this extremely rare plant, scientifically known as *Bossiaea vombata*, in the vicinity of Spargo Creek in the Wombat Forest.

As a student of environmental science, an ecology subject opened up the chance to research this fascinating plant. We were tasked with developing an Action Statement (DELWP-style) for a threatened species. I wanted to work with something local, and something a little less obvious than what most students selected (in fact I was the only person in my class who chose a plant). I had heard of the *Bossiaea vombata* but knew very little. This changed once I contacted Gayle Osborne who set things in motion by very kindly taking me to see the plants in situ. Additional information was generously obtained via great conversations with: conservation geneticist Elizabeth James (Royal Botanical Gardens, Melbourne); Natural Environment Officer Donna McMaster (DELWP); and with Gardens Collection Officer Donna Thomas (Ballarat Botanical Gardens) whose dedication to and passion for

Yellow and red/orange flowering *Bossiaea vombata*.
Photography © Gayle Osborne

Colour variants of *Bossiaea vombata*. Photography © Gayle Osborne

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Bossiaea vombata spreads by rhizomes. This photograph shows one plant. Photography © Gayle Osborne

this 'little groover' (as she referred to one of her *B. vombata* propagates) was particularly infectious.

History

The Wombat Leafless Bossiaea is a curious and elusive species of the Fabaceae family, listed as Endangered (and awaiting an official action plan) under Victoria's Flora and Fauna Guarantee Act. In 1982 a sterile specimen (temporarily referred to as *B. bracteosa*) was collected by naturalist A.C. Beauglehole in the Reference Area at Musk Creek. In 1995, in search of this plant, botanists J.H. Ross and N. Walsh, whilst not finding the original, found a different population. *Bossiaea vombata* was described formally as a new species by Ross in 2008. Thanks to the efforts of Wombat Forestcare in locating more plants, and to the recent investigations of Elizabeth James it is now known that there are five genetically distinct plants, over four sites, within a 2 km^2 area of the Wombat Forest.

So this plant is pretty special.

Take a look

Bossiaea vombata is a vascular plant; a shrub of 1-2 m in height, with upright leafless branches and rhizomatous roots (Ross 2008). The stems are flattened, grey-green or blue-green and lined with buds on which thin darkened scales reside (Ross 2008). Flowers, produced in late-spring, show colour variation, with the type specimen displaying a yellow and white combination, but later discoveries exhibiting yellow and red/orange (Thompson 2012). Knowledge of ecological interactions between *B. vombata* and other species is limited. Some chewed stem-tips that Gayle and I observed (August 2019) suggest the plant could be a food source for native herbivores such as wallabies and invasives such as goats and deer. Young plants may be eaten by wombats and hares. Past examinations of excavated rhizomes showed extensive nodules or galls on two of the populations (James 2018) and some fungi attached, but understanding of any positive, negative or neutral impacts of these root relationships is lacking. Ecological vegetation classes housing *B. vombat*a are Shrubby Foothill Forest and Herb-rich Foothill Forest (NatureKit 2019) and the plants occur close to road-sides (one patch occurs on either side of a track), so we could speculate that the plant prefers additional light that a clearing affords.

Resilience or sheer luck?

The plant's life-span is somewhat of a mystery and, so far, only clonal reproduction has been observed occurring naturally, leading to the suspicion that *B. vombata* cannot produce viable seed. This is concerning not simply because of reduced genetic diversity but also because a reliance on vegetative reproduction can make a plant more susceptible to passing on mutations that affect reproduction, leading to sterility (James, 2018). The fact that the patch found in 1995 is still persisting after 24 years is encouraging.

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Seed viability of *Bossiaea vombata* is in question.
Photography © Tibor Hegedis

Marasmius elegans growing amongst *Bossiaea vombata*.
Photography © Gayle Osborne

However *ex situ* life-span of *B. vombata* has not exceeded much over one year suggesting there may be a specific factor in a wild context which the plant requires to persist, perhaps a mycorrhizal relationship or microbial association. Artificial pollination, propagation, seed collection and germination attempts have been made and are ongoing. Royal Botanical Gardens still have one plant alive, Ballarat Botanical Gardens have several, one of which has recently passed its first birthday, so let's hope it bucks the trend and leads eventually to the establishment of 'back-up' - whether that be a population in one of the botanical gardens or a re-introduction to the wild. Fingers crossed.

The threats are multiple. Invasive flora, fauna and mould species exist in the Wombat State Forest and may bring competition for resources, reduced plant-size and growth through over-consumption, and the spread of detrimental disease. Human disturbance is possible, from track and forest maintenance to recreational activities such as 4WDing and dirt bike riding.

And of course there is fire.

It is not known how the *B. vombata* may respond to fire, or related heat stress. Whilst I don't want to make assumptions about how ecosystems of the Wombat Forest will behave as our climate changes, the broader predictions of higher temperatures, reduced rainfall and more intense fires are worrying. As we've seen with the recent bushfires in Victoria, NSW, SA and Queensland, the causes and contributors to these disasters are complex and nuanced. But it isn't inconceivable that wild fire or an imprecise hazard reduction burn could eradicate them all. With only five plants of this species in existence* in the wild our local legend is precarious.

The quest to shore up populations of rare species is challenging - not only scientifically, but also economically and culturally. The task of arguing for limited resources or special protections for a rare plant in the context of fiercely competitive anthropogenic demands is admittedly daunting. With so many species on the Action Statement wait-list it's hard to imagine appropriate protection and conservation mechanisms for this plant being implemented in the near future.

For now, the Wombat Leafless Bossiaea is indeed rare but, thankfully, still there. ■

*Whilst specimens collected from Gippsland are vegetatively similar, and were determined by Thompson (2012) to be *B. vombata* (and appear on the Atlas of Living Australia) their identification is not genetically confirmed, nor is it known whether any extant plants remain there.

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Responding to uncertainty

Words and images by Alison Pouliot

Living on the driest inhabited continent on Earth, rainfall is a blessed luxury. Crawling through the wet temperate rainforests of the USA in search of fungi recently was an extraordinary experience. Thanks to an invitation by University of Washington mycologist Steve Trudell and a grant from the Stuntz Foundation, I was fortunate to partake in a month-long mycological expedition of the majestic forests of the Pacific Northwest and work alongside some inspirational scientists and conservationists. Experiencing different environments and observing how people practice conservation elsewhere opened up new insights and opportunities to reflect on our own conservation practices – in particular, how we respond to uncertainty.

The astonishing fungal biomass of Northern Hemisphere forests.

Forests of fungi

The USA is well recognised for its long history of conservation, inspired by writers, artists and naturalists such as John Burroughs, Ralph Waldo Emerson, John Muir, Gifford Pinchot and Henry David Thoreau. As the vast American wilderness was opened up and exploited in the late nineteenth century, the conservation movement grew, as did the notion of preserving 'wilderness' areas. National parks were established, beginning with Yellowstone National Park in 1872 and Yosemite in 1890.

Today, Americans seem to have a complex and contradictory relationship with nature. The notion of wilderness has played a curious and conflicted role in American culture. Historically, 'conquering wilderness' was pivotal to the colonial narratives of progress and forests were fervently felled, rivers dammed and wildlife hunted to extinction. Others took pride in the extraordinary beauty and spectacular scenery, but conservation and preservation came at immense social cost, with nostalgia for wilderness deeply entangled within American nationalism today.

Australia and the USA share many things in common including a staggering megadiversity of fungi. Both countries are two of only 18 nations that harbour the majority of the Earth's species, many being endemic. The mountains of the Cascade Range of western North America are famous for their conifers including western red cedar, fir, spruce, pine and hemlock, as well as evergreens such as oak, maple and alder. Conifers have evolved a suite of clever adaptations to allow them to survive environmental and climatic extremes and nutrient-limited soils. Their slow growth rates and sheer size buffers them (to some extent) against environmental stress and some individual trees represent the largest and longest-lived examples of their genera. Wandering over carpets of moss beneath towering trees adorned with bryophytes,

The striking *Cortinarius violaceus*.

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A tapestry of lichens, mosses and birdsnest fungi on the forest floor.

fungi manifested at every turn. While many genera were common to Australia there were all sorts of new exciting species I'd not previously encountered. The sheer biomass of fungi found in the American (and European) forests is very different to that of Australian ecosystems. The 'biomass of *Homo sapiens*' in the USA who are interested in fungi was also astonishing. Australia, the USA and the UK were all traditionally regarded as myco-phobic (fungus-fearing), however, the USA and the UK are probably a couple of decades ahead of us in terms of public interest in and knowledge of fungi. That said, it is exciting to witness the tremendous groundswell of interest in fungi in Australia in recent years.

Uncertain times

I arrived in the USA during the Californian fires, only to return home to the devastating fires here in Australia. The fires are a reminder that the Australian climate and landscape are complex, uncertain and resist prediction – each made more extreme by climate change. The failure of the Australian government to effectively respond, govern, and orchestrate different levels of government, agencies, NGOs and others into collective action saw the Australian people take this on themselves. As always in a crisis, the adaptability and assertiveness of Australians is a reminder that collaboration is our most valuable response in times of uncertainty.

I am constantly inspired by the Australians I work with from farmers to foresters to conservationists. I admire their flexibility and openness to innovation and new ideas, as well as their willingness to embrace change – that is, their response-ability. The conservation movement urges us to take greater responsibility for our actions. 'Responsibility' is sometimes misinterpreted in the context of blame and culpability, or power and control. However, a more positive take on the word revives our response-ability, that is, our ability to respond. We live in the most highly variable and unpredictable climate in the world. We live in an ancient landscape that has shifted and shaped through time and is unforgiving. It is the challenge of uncertainty that drives creative thinking, fuels response-ability and action. Australians' resilience and response-ability could be our greatest contribution to climate change action within Australia and beyond. ■

Fungus Forays, Workshops & Other Events

Fungi are gradually working their way into our consciousness, both within ecology as well as the arts and literature. This newfound awareness is inspiring, not just their conservation but also imaginative representations of their being. Over the last two decades, ecologist and environmental photographer Alison Pouliot has been accompanying people through the bush to explore the so-called forgotten kingdom.

A range of fungus-themed events from forays to films to fungus festivals is on offer again this autumn. The full program is available at **www.alisonpouliot.com**

Treecreepers of the Wombat

By Trevor Speirs

When walking in the Wombat, regardless of the season, the chances are very high that the first bird you hear will be a White-throated Treecreeper *Cormobates leucophaea*. Should you be standing near one, the rich and resonant piping song, sometimes lasting for several minutes, is really quite captivating. During spring breeding their courting song is a lovely mellow trill, similar to the call of a Fan-tailed Cuckoo.

Mind you, they have had plenty of time to practise. Recent DNA research has shown treecreepers to be among Australia's oldest birds, their evolution going back tens of millions of years. Once referred to as woodpeckers, Australian treecreepers differ in that they don't use tail-feathers as levers or props when scaling tree trunks, and although they probe into bark they don't excavate holes. With exceptionally large toes for their size, and feet that work like callipers, one ahead of the other, treecreepers are excellent climbers. They sleep snuggled in between strips of bark or even hanging from tree trunks.

Studies in eucalypt forests in NSW have shown that a pair of White-throated Treecreepers can occupy a territory of around 6 hectares in size, which is generally smaller than the territories held by the other treecreepers of our region: the Red-browed Treecreeper *Climacteris erythrops*

Female White-throated Treecreeper *Cormobates leucophaea.* Treecreepers have remarkable feet. Photography © Gayle Osborne

Red-browed Treecreeper *Climacteris erythrops.* Photography © Gayle Osborne

and Brown Treecreeper *Climacteris picumnus*. The White-throated Treecreeper strongly defend home territories, especially against their own species, and are therefore constantly calling to advertise their presence to potential interlopers. Interestingly, pairs are solitary during non-breeding, and sometimes even defending their own space against the other, within the breeding territory. Whereas the territories of White-throated Treecreepers do overlap with the other two species in the Wombat, the Brown and Red-browed Treecreepers' territories don't overlap with each other, having different habitat requirements.

Tree hollows and stumps are used by our three treecreepers for breeding, but unlike the White-Throated, whose young are reared by the two parents, the Red-browed and Brown Treecreeper are cooperative breeders. This means some of the previous offspring, usually males, stay in their family structures to assist in the next season's breeding. Nest building, feeding and defence of young are some of the duties these family helpers provide.

There are several theories as to why some species of birds choose to stay at home once they have become independent. By staying at home there is less risk of predation (more eyes and ears on the alert), steady and reliable food supply and prospects of the future inheritance of a proven breeding territory. Studies have also shown that breeding pairs breed more successfully with three or four helpers. On the other hand, the young White-throated Treecreeper doesn't need to ponder the pros and cons of whether to stay or go, as once

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it reaches independence, it's ejected by the parents from the home territory.

Brown Treecreepers are a lot less common than the White-throated in the Wombat, preferring drier habitats with lots of fallen timber. The more open box/stringybark forest around Basalt, west of Daylesford, is one spot where they can be found. Brown Treecreepers spend as much time on the ground foraging over fallen logs, as in the trees, and are usually quite vocal with their high pitched "dink, dink" calls. As they are cooperative breeders, when you see one there are often several others not too far away.

Brown Treecreepers are another one of our declining woodland birds, impacted heavily by historical land clearing and subsequent habitat fragmentation. Because these birds have difficulty crossing treeless country, even as little as 100 metres, they can become isolated in small remnant patches of bush, heightening their risks to extinction. Here in this part of the Wombat, illegal and indiscriminate firewood collecting and too frequent burning, resulting in the loss of hollow-bearing trees, are just two of the threats they face.

The subspecies *Climacteris picumnus victoriae* is found on and south of the dividing range from SW Victoria through to southern Queensland and is on the Victorian FFGA advisory list as near threatened, and classified as vulnerable in NSW. This subspecies' range overlaps with and is replaced inland by the more abundant subspecies *Climacteris picumnus picumnus*. However the differences in appearance are subtle, making definite identification difficult. The bird pictured top right was photographed recently at Basalt. With its faint cream eyebrow, slight rufous tint and with a less white throat than the inland species, it is most probably *victoriae*. However, should a reader be able to confirm this we would love to hear from you. ■

Footnote: The Red-browed Treecreeper is not listed as threatened on the FFGA but is generally considered uncommon. Unfortunately the recent bushfires in Gippsland have impacted adversely on them, with an estimated 27% of their overall Victorian habitat in the fire zone. With the Wombat being the western extent of this treecreepers' range, it's just another reason why the forest's long-term protection is so important.

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Brown Treecreeper probably *Climacteris picumnus victoriae*. Photography © Gayle Osborne

Immature female White-throated Treecreeper *Cormobates leucophaea* showing an orange-brown rump, which disappears in adulthood. Photography © Gayle Osborne

Baby Boom?

By Trevor Speirs

Following Gayle's article in the last WFC newsletter about a pair of Powerful Owl *Ninox strenua* chicks discovered late last year near Blackwood, more chicks (and parents) have turned up closer to Trentham. A few days before Christmas, Ray, a Trentham resident and keen owl observer, came across a pair of chicks with an adult female, in a blackwood, not too far out of town. We've known about the adult owls for some time, but haven't been aware of any breeding by the pair in recent years. In fact all the signs were that they had missed again last year, often seeing adults during spring and early summer, but never seeing or hearing any chicks, until Ray's discovery.

Just under a week later there were more surprises when Ray again peered into a blackwood, this one about 3 kms from the first sighting, and saw an adult Powerful Owl. A day or so later two chicks were observed in this blackwood with an adult female. Powerful Owls, as well as being strongly territorial, have been known to have large home ranges, sometimes up to 3000 plus hectares, with prey densities and potential breeding trees generally determining the territory's size. With the sightings being reasonably close to each other, there was every chance they were the same birds.

It wasn't until mid-January this year that we started to suspect there could actually be two pairs of young. With the aid of a sound recording device (song meter), chicks, now known as juveniles (around 4-5 months old), could be heard calling from the vicinity of the first sighting, just before dawn on the 15th. On the same day, but this time just on dusk, l heard calling (trilling) close to the second sighting, three kms away. It seemed highly unlikely that a pair of juveniles would fly such a distance around dawn, but it is nevertheless possible. It took almost another month of regular looking and listening until it could be confirmed that there are indeed two pairs of juveniles - the song meter recorded trilling at the first site at 8.40pm on the 8th of February and l heard and saw two juveniles at the second site at exactly the same time.

With two adult pairs breeding reasonably close together, their home territories probably aren't overly large here in this part of the Wombat, which suggests there must be enough food (chiefly ring-tailed possums) to support raising hungry young. One of these pairs occupies a home range with a good population of Greater Gliders and it's hoped the gliders aren't impacted too heavily. A recent spotlighting survey showed the glider numbers here appeared to be stable. In the upcoming months these four juvenile owls (and the Blackwood pair) will be ejected by their parents from their respective breeding territories and have the somewhat difficult task of setting up their own home ranges or finding a prospective mate. ■

Adult Powerful Owl. Photography © Gayle Osborne

Juvenile Powerful Owl perched just below a parent. Photography © Gayle Osborne

Greater Glider report

By Gayle Osborne

Tim, Trevor and I headed up the track and then down to the gully, following the pink tapes, which Trevor had put out earlier in the week. It was 8.40pm as we started our spotlighting transect; the sky was just dark and the air warm.

For about the first 100 metres we only saw little forest bats chasing moths, and in the torchlight there did not appear to be many hollows. Then Tim spotted two Greater Gliders in a gum and a bit further on two more in a Messmate. By 10.10pm we had recorded 13 Greater Gliders and one Koala in our search along a 560 metre transect.

On returning to the car, Tim shone a light into the trees above our heads and we added another Greater Glider to our list. It is such a privilege to spend an evening observing these unique creatures. We could now add another set of completely new records to the database.

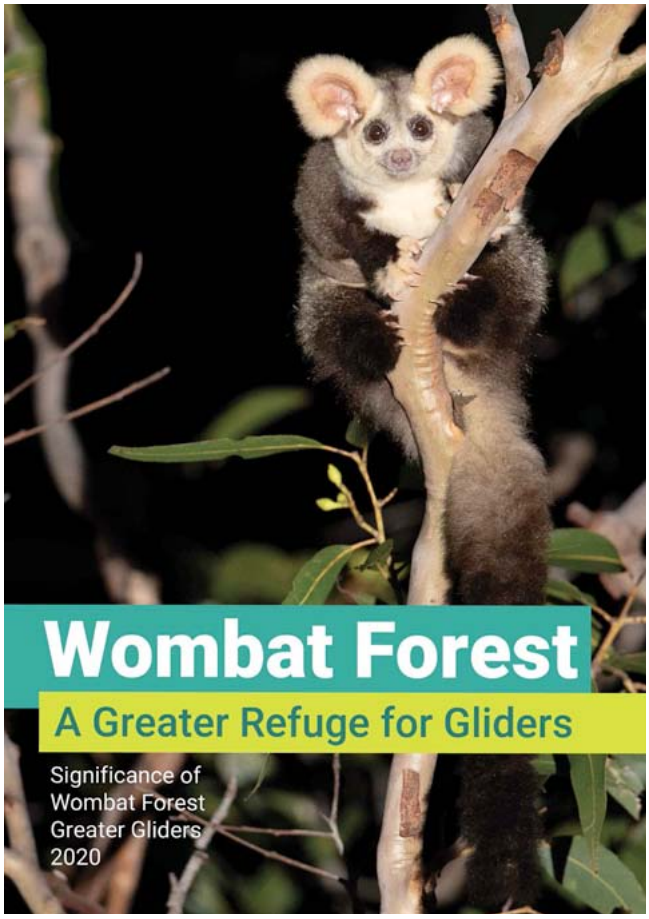
We first started looking for Greater Gliders in a fairly haphazard way after seeing two gliders, one in a hollow, while we were standing on a road listening to a pair of juvenile Powerful Owls begging to be fed (trilling) in 2015. We were relieved to see a glider (Powerful Owl prey) emerging from the same hollow on subsequent visits.

Subsequently, we began to check out a few likely locations that had no previously recorded sightings. We soon found that many of these sites did have glider populations. We then focused our attention on proposed planned burn areas that had suitable glider habitat within them.

We had assumed that the few records of Greater Gliders on the Victorian Biodiversity Atlas covered the only areas that they inhabited in the Wombat Forest, but this has not been the case. There are extensive glider populations through much of the forest, mainly along creeks and rivers, and occasionally on the ridges.

The importance of protecting hollow-bearing trees from which we have observed gliders emerging was apparent when discussing planned burns with the DELWP fire team. They have provided us with numbered tags to attach to these trees, the bases of which will then be raked and cleared of litter in the event of a planned burn.

As our primary aim was to establish where the gliders are living, we did not follow an accepted transect method of a set distance in a set time. The distances we surveyed depended on the habitat. Why survey for only 500 metres when there is access to a longer stretch of habitat with hollows? Why rush along when sometimes it takes time to establish without doubt that the creature is a



Greater Glider? And the more gliders there are, the longer it takes to record the data.

We are diligent about recording all sightings on the Victorian Biodiversity Atlas, although to protect the gliders these sensitive records are restricted to only some relevant staff in DELWP.

We were pleased that two scientists, Blake Nisbet and Conor Logan, were able to take our non-standard data and turn it into a report that showed that the Wombat Forest contains a significant and large population of Greater Gliders.

They reported that "Over 2 Greater Gliders per hectare (10+ Gliders per 1km) were found for 83% of analysed surveys, density estimates matching those found in the Strathbogie Ranges and exceeding the threshold used in East Gippsland to protect significant populations."

There have been substantial declines in Greater Glider populations throughout their range over the last 20 years and the recent bushfires have impacted at least 26% of their habitat. It is more important than ever to protect our Wombat forest population in a park structure. ■

To read the report:
http://www.wombatforestcare.org.au/documents/State-Forest/Wombat-Forest-A-greater-Refuge-for-Greater-Gliders.pdf

Our native chook: the Black-tailed Native Hen *Tribonyx ventralis*

Words and image by Lynda Wilson

Black-tailed Native Hen *Tribonyx ventralis* on the hunt – likely male (face is darker than paler grey face of female)

The Black-tailed Native Hen is a common, shy, nomadic rail, similar in size and shape to the Dusky Moorhen. Implicit in the name, the black erect tail of the Black-tailed Native Hen has a strong similarity with our domestic bantams showing off their petticoats when the wind blows.

The Black-tailed Native Hen is native to Australia, widespread throughout the country, generally following seasonal water sources. Flocks of these birds can be found near fresh or brackish water sources, for example, small parties were reported in January around the Moolort Plains and Cairn Curran Reservoir (Park, G, 2020). They can also enjoy smaller water sources such as farm dams.

A pair of these delightful birds was observed on a dam at a member's property near Denver throughout October 2019. Sadly, by the end of October only a single bird was seen. This lone bird was observed almost daily right through to late January 2020 either resting in the shade, often in the company of a number of Australian Wood Ducks, or hunting along the muddy banks of the dam. Each day it was a delight to see those tell-tale bright coral legs poking out beneath a shady shrub or running briskly along the bank to stir up its next meal of insects.

So, the next time you're near a permanent or ephemeral wetland, fresh or brackish, large or small, keep an eye out for a flash of those striking coral-coloured legs, apple-green beak and bright yellow eyes and get to know our very own native chook. ■

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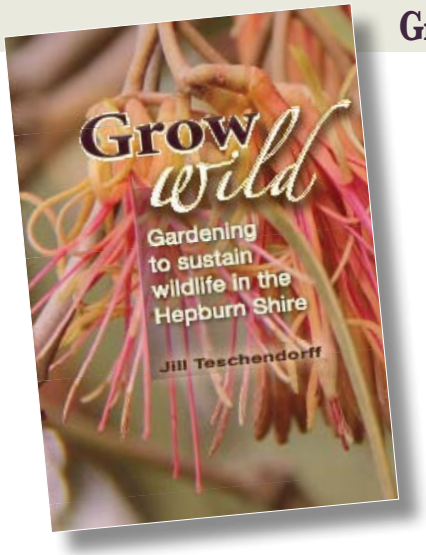
Grow Wild: Gardening to Sustain Wildlife in the Hepburn Shire



Written by local resident and avid gardener, Jill Teschendorff, and published by Wombat Forestcare, this beautiful book aims to empower people to include indigenous plants in their gardens and provide the special habitat needed by our local wildlife.

At a time when Australian flora and fauna are under increasing threat, Grow Wild offers advice on how to create habitat on your property to protect the local plants and wildlife and to help preserve the natural beauty of this region. With valuable advice for gardening in the region and a list of readily available indigenous plants selected for their willingness to grow under cultivation, it fills a niche by providing a publication specific to the shire.

Copies of the book will be available for purchase.
info@wombatforestcare.org.au

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