

# bushland news



Issue 107 **Spring** 2018 *Time of Djilba and Kambarang in the Noongar calendar.*



## Wildflower Society of Western Australia **60 years going strong**

Photo – Christine Curry.



Department of Biodiversity,  
Conservation and Attractions



*Bushland News* is a quarterly newsletter of Urban Nature, a Department of Biodiversity, Conservation and Attractions Parks and Wildlife Service program to support community involvement in bushland conservation.

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## Next issue

### Summer Bushland News

Summer *Bushland News* contributions should be sent to [Urban Nature](#) by **30 November 2018**.

*Bushland News* seeks original contributions. If your submission has been or may be published elsewhere please let us know. Compiled and edited by Julia Cullity.

# Wildflower Society of Western Australia: 60 years, going strong

by Bronwen Keighery

The Wildflower Society of Western Australia is celebrating its 60th anniversary this year, having begun in 1958. Since its beginning the society has brought together people who are fascinated by the State's wildflowers and hold with the society motto 'Wildflowers are our Heritage'. The society works to preserve this heritage through four areas: know, grow and conserve with the overarching approach to enjoy and celebrate our wildflowers.

Our wildflowers are the State's flora. The society philosophy of conservation of the beautiful and unique wildflowers of the west is encapsulated in 10 principles of flora conservation, each relating to: heritage, ecology, responsibility, intrinsic value, botany, preservation, rare and endangered flora and communities, human impact, education, and cultivation. A couple of these principles are reproduced below.

- **Ecology** Natural bushland is quintessential to this heritage. Human beings cannot reproduce the complexity and diversity of species and their ecology that have evolved over millions of years.
- **Education** The community has a right to know about, care about and enjoy our floral heritage. Community involvement and education are conducive to caring and enjoyment. Our children have the same rights. Furthermore, all children have the right of access to bushland within walking distance of home and school.

While officially adopted by the society in 1991, these principles have underpinned the society ethos since its inception. The complete set of principles can be found on our [website](#).



*A roadside with wreath lechenaultia (Lechenaultia macrantha). The preservation of such displays is the focus of the society's Roadside Vegetation Sub Committee. Photo – Eddie Wajon.*

*Cover photo: Northern Suburbs Branch runs a large nursery, providing hard to grow and novel WA wildflowers. They have several plant sales each year. Photo – Christine Curry.*

*Continued next page ...*

Day-to-day society activities are organised through 11 [branches](#), six in the greater Perth area – Armadale, Darling Range, Eastern Hills, Murdoch, Northern Suburbs, and Perth – and five in the south-west – Albany, York, Kulin, Merredin and South West Capes. Individual branches offer a myriad of [activities](#), including monthly talks, guided bushland walks and cultivating wildflowers, many of which are also open to the general public. All meetings and activities are open to any member of the society and no member is tied to a single branch. There are many opportunities for learning, exploration and camaraderie. We are looking forward to hosting a major event in September and October 2019, the next Australian Plant Society National Conference in Albany.

The society is an incorporated group, managed by an elected management committee. Subcommittees organise work on areas such as conservation, education, and bushland plant survey, in partnership with the management committee. Through these groups, the society provides considered, professional responses to local, State and Commonwealth governments. The society's [survey group](#) conducts original research in the form of flora surveys. Many of these areas would never be surveyed, nor their botanical worth known, if not for the rigorous work undertaken by the society.

The society is held in high regard for the quality of its work and its opinion on matters relating to the conservation of our flora. The society is fully independent, supported only by memberships and donations. The society has never accepted funds that could be seen to conflict with its conservation ethos and has a proud reputation for impartiality. To support work on bushland conservation the society has a [Bushland Conservation Fund](#) to receive tax-deductible donations. A substantial bequest to the society has allowed the organisation to offer a [grants program](#), which takes applications between July and September each year. Applications can come from within and outside the society, if they involve a member.



*A Bushland Plant Survey group re-surveying Yalgorup National Park, after a 10-year break and in the second spring after a hot bushfire. The group is walking up the hill through limestone heath, dominated by resprouting plants. This survey demonstrated the importance of long-term monitoring as it picked up a loss of both rare and defining species from these plant communities after the fire, changes that wouldn't have been recognised and acted on if the initial survey plots hadn't been established. Photo – Colin Spencer.*

The history, organisation and work of the society and each of its branches is showcased in our [website](#) including a 'members only' section for access to the newsletter, updates, branch and committee contacts, and 'members only' events.

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## Urban Nature update

by Julia Cullity

This issue sees us celebrating a number of milestone years for community conservation groups and is a testament to the passion and commitment of Western Australians in conserving, protecting and enjoying our bushlands. We feature stories on the [Wildflower Society turning 60](#), [Armadale Gosnells Landcare Group](#) at 20 and the [Friends of the Spectacles turning 10 years old](#). I'd also like to give a shout-out to the [Cockburn Wetlands Education Centre](#) on their 25th anniversary which they share with the [Friends of Hepburn and Pinnaroo Bushland](#) and the [Urban Bushland Council](#), our Winter 2018 cover story. Special mention also goes to the [Swan Alcoa Landcare Program](#) reaching 20 unbroken years of funding community groups working to protect, enhance and restore critical habitat and ecological linkages in the Swan and Canning river catchments. Congratulations to you all for your work over the years in educating and inspiring a love of bushland and all the on-ground hours spent managing and restoring your local patches.

On the other end of the spectrum, I was invited to be on a panel at the [Kids Teaching Kids](#) conference in Mandurah. Kids Teaching Kids aims to inspire future environmental leaders and empowers students to be the change they wish to see in the world. With more than 280 kids attending from Year 2 through to Year 12, there was so much energy in the room. It's inspiring to see so many new environmentalists just starting out.



*During July members of SJ Landcare joined Parks and Wildlife Service and the Richardson family planting sedges into restoration sites along the Serpentine River in Lowlands Nature Reserve. Photo – Tony Brown, SJ Landcare.*

*Continued next page ...*

Near-average winter rainfall in Perth this year has led to great conditions for planting. It's a welcome change and here's hoping everybody's restoration plantings establish well and thrive. Urban Nature has been assisting with revegetation at Maralla Road Nature Reserve near Ellenbrook, the Greater Brixton Street Wetlands in Kenwick and Lowlands Nature Reserve in Mardella.

Andrew Crawford describes in this issue how he managed to [collect seed from the pyramid mulla-mulla](#) (*Ptilotus pyramidatus*), a species once thought to be extinct that was rediscovered in the heart of the city. Urban Nature is also contributing to the recovery effort by managing threats to the only known population of this species. Trials have been established to investigate how to effectively manage the weedy South African geophyte *Sparaxis bulbifera* where it is invading the critically endangered *Ptilotus* population. Both species occupy a similar winter inundated habitat and have a similar biology, but *Sparaxis* spreads much more prolifically, by seed, forming dense infestations that appear to significantly impact the pyramid mulla-mulla population. Early results indicate hand weeding of *Sparaxis* effectively reduces cover and plant numbers of the weed in the first year, however it is too early to say what impacts its removal might have on the pyramid mulla-mulla population.



There has been a couple of updates to the Brixton Street Field Herbarium, a new [online flora identification tool](#), developed to assist managers of seasonal clay-based wetlands. Recent taxonomic work has identified a number of subspecies of white myrtle (*Hypocalymma angustifolium*) and two have been recorded from the Greater Brixton Street Wetlands. The collection in our field herbarium is from *Hypocalymma angustifolium* subsp. Dandaragan Plateau (pictured), a single-stemmed taxon with smooth leaf margins, which can grow taller, tends to flower earlier and occur on higher ground. The second subspecies in the wetlands, *Hypocalymma angustifolium* subsp. Swan Coastal Plain is lignotuberous with minutely serrulate leaf margins. While hard copies of field guides are invaluable in the field, an online resource means we can keep up with the changing taxonomy of an incredibly diverse flora and often cryptic flora. Photos – Kate Brown.

*African lovegrass invading from the roadside into the marrilkingia threatened ecological community at Bandicoot Brook reserve in Coolup. Photos – Julia Cullity.*

## African lovegrass (*Eragrostis curvula*) by Julia Cullity

While most often seen as a weed of disturbed areas, African lovegrass (*Eragrostis curvula*) can invade intact natural areas such as heath, woodlands and watercourses. Although it prefers sandy loams and well-drained fertile soils it tolerates a range of soils and will grow in semi-arid and desert areas, saline or low fertility soils. It is a large tussock grass forming tufts up to 1.2m tall and 0.4m wide. Once established it can form dense monocultures, out-competing native plants and creating large fuel loads and a fire hazard. It becomes dominant in low fertility soils and dry conditions and where there is a lack of competitors.

As its common name suggests it is native to southern Africa. It was introduced to Australia as a weed in pasture seed but also as a garden ornamental and for erosion control. In Western Australia it is common on roadsides and disturbed areas and is invading bushlands from Carnarvon to the Nullarbor Plain. It spreads mainly through seed. Roadside slashing is an important dispersal vector along with water, wind, animals and the movement of machinery and soil.

*Continued next page ...*

## Biology

African lovegrass is an erect plant but the stems can droop down, inspiring its other common name, weeping lovegrass. The flower heads are an open, much-branched panicle which produce prolific seed. It can produce seed throughout the year whenever there is warm temperatures and sufficient moisture, but flowering is most abundant in spring and summer. The seed can germinate in both light or dark conditions and keeps viable in the soil for up to five years. Cattle can excrete viable seed up to 10 days after consumption. It can also resprout after grazing or fire and fire stimulates an increase in the number of reproductive shoots.

It is a clumping grass and the fibrous roots are extensive spreading horizontally up to 1m and vertically anywhere from 20cm–5m. It also produces chemicals in its roots that inhibit the growth of other plants. African lovegrass favours warm moist conditions, so while it does brown off over the hotter parts of summer it responds to summer rainfall with rapid active growth.

## Related native grasses

There are 33 native species of *Eragrostis* in WA, with two species *E. dielsii* and *E. elongata* native to the Perth region. Mallee lovegrass (*E. dielsii*) is a small grass 0.03–0.55m high. Clustered lovegrass (*E. elongata*), is a wetland grass 0.2–0.9m, much shorter than the weed and with a spike-like contracted flower head unlike the open, much-branched panicle of *E. curvula*.

## Photosynthesis

Grasses use one of two photosynthetic pathways either C3 or C4 which differs in the way they use carbon dioxide to turn sunlight into sugars for food. African lovegrass uses the C4 photosynthetic pathway which means it is a warm season grass that photosynthesises best with full light saturation and warm temperatures. Therefore the period of active growth is in late spring and summer. Other C4 weedy grasses are the turf grasses kikuyu and couch.

## Control

Small or isolated plants can be cut out taking care to sever the roots just below the soil surface. For larger infestations carefully spot-spray glyphosate 1–2% in the warmer months when plants are green and actively growing. Two to three weeks after summer rainfall is an optimal time for control. The accumulated dead matter at the base and in the centre of old clumps absorbs herbicide diverting it from the new, green growth but this does have an advantage in helping minimise any off-target damage. This dead matter can be removed by slashing or following fire and regrowth is ready to spray when 5–10cm high. Commonly used grass-selective herbicides such as fluzifop are not effective on African lovegrass.



The open, much-branched flower spike of African lovegrass is a characteristic feature. The structure is still obvious once the seed has shed and can be used year-round as an aid to identify mature plants. Photo – Julia Cullity.

## More information

See [Florabase](#)

Weeds of Australia Biosecurity Queensland [factsheet](#)

Southern ACT Catchment Group African Lovegrass Resources [webpage](#)

EWAN Perennial Tussock Forming Grass Weeds [Brochure](#)

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## On the road to recovery from extinction: collecting seed from the pyramid mulla-mulla

by Andrew Crawford

The pyramid mulla-mulla (*Ptilotus pyramidatus*) is a small, annually renewed perennial herb, known only from a single population in a patch of remnant bushland in the midst of suburbia. The first collection was made by the botanist James Drummond in 1845, however, the location of that collection remains unknown. In 1991, the species was listed as being 'presumed extinct' as no plants had been recorded for over 140 years. Nineteen years later an unknown *Ptilotus* species was collected by Cate Tauss, while conducting a flora survey of the area.

The discovery was brought to the attention of the Western Australian Herbarium's *Ptilotus* expert, Rob Davis, who thought the find was a new species of *Ptilotus*. Rob and Cate went on to formally describe and name the species as *P. christineae*. A year later, while curating *Ptilotus* specimens at the WA Herbarium, Rob came across a line drawing of *P. pyramidatus* and realised in an instant that it was a picture of the plant he and Cate had so recently named. This was cause for much excitement, as it confirmed that after being presumed extinct and not being seen in more than 160 years, the species was still alive.

This discovery was brought to the attention of staff at the Department of Biodiversity Conservation and Attractions' (DBCA) Threatened Flora Seed Centre (TFSC) who put the species on their target list for seed collection. The centre is a conservation seed bank whose purpose is to collect and safely store seed from species of conservation significance in WA. This seed is available to help future work aimed at improving the conservation status of the State's threatened plants.



## Road to Recovery

The pyramid mulla-mulla in flower.  
Photo – Andrew Crawford.

Being at risk from a range of threatening processes, such as damage by off-road vehicles, weed invasion, grazing by rabbits and growing in bushland not managed for conservation meant that the pyramid mulla-mulla was considered critically endangered and was listed as such under both State and Federal legislation. Collection and conservation of seed was identified with other recovery actions as being of high importance.

Unfortunately, early attempts to collect seed of the pyramid mulla-mulla were unsuccessful with no evidence of seed production seen. Over the next few years several attempts at collecting seed were made, but again seed production wasn't noted. In 2017, the Western Australian Planning Commission (land manager of the *P. pyramidatus* site) provided funds for a range of conservation measures. These are being undertaken to gain knowledge about the species and to reduce its extinction risk. DBCA has thoroughly surveyed and mapped the known occurrence of the species and searched, without success so far, for additional populations. We have also established trials, to investigate the impact of weeds on the species and ways to safely control them.

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The pyramid mulla-mulla flowered well in the summer of 2017; the plants were observed to be the healthiest they had looked, and hopes were high for successful seed collection. However, initial observations of seed production burst this bubble of expectation. Although there was evidence of fertilisation and seed development beginning, closer examination revealed that these seeds were aborting prior to maturation. Not to be put off, we placed small bags over the inflorescences of a number of plants to trap any seed produced as it matured and shed from the plant.

In early 2018, the bags were retrieved and the samples were taken back to the TFSC for examination. It was with great excitement that, when the first bag was examined, not one but two seeds were found. This may not seem like much, but this was the first time seed for this species had been seen. In total 65 seeds were obtained in the collection showing that persistence pays off and seed collection of this species is indeed possible.



*A seed falling out of a mature flower of pyramid mulla-mulla.  
Photo – Andrew Crawford.*

Seed collection wasn't the only success story of the summer. A number of cuttings taken in late 2017, to establish an *ex situ* 'insurance' population, successfully struck with the resulting plants being grown at Kings Park for safe keeping. The plan is now to follow up on both the cuttings to gain better numbers and diversity in the *ex situ* living collection and to attempt to collect more seed in the coming summer. Ultimately these plants and seed will be used to establish a new population in a secure site to reduce the extinction risk of the species.

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*Bagging helps collect seed that ripens and sheds quickly or, as in this case, where very few seed reach maturity. The seed bags are a very fine gauze that lets moisture out and keeps insect predators out as well. In summer the flowerheads are still visible but the leaves and stems have shrivelled and dried. We needed to keep these bags on until the seed had shed naturally before removing them from the plants.  
Photo – Andrew Crawford.*

## New Biodiversity Conservation Regulations for Western Australia

Biodiversity Conservation Regulations have been developed to support the *Biodiversity Conservation Act 2016* and provide for the licensing and management of activities that affect biodiversity in Western Australia. These will enable the remaining provisions of the new Act to come into effect. The Regulations were gazetted last month but will not come into operation until 1 January 2019 to enable communication with the community and licence holders on the new arrangements. The majority of activities that are currently licensed will continue to require a licence under the new regulations. Some new activities will also require a licence, and there has been some simplification of the current licensing system. [Discussion notes](#) are available on the department's website to explain these changes.

The Act also provides a statutory basis for the listing of threatened species, specially protected species and the new categories of threatened ecological communities, critical habitat and key threatening processes. Refer to the [Ministerial Guidelines](#) for more details on the criteria and procedures that apply to these listings, including for nominations by community members.

## School involvement sought for Boorna Waanginy: The Trees Speak

Boorna Waanginy: The Trees Speak, the opening event of 2017 Perth Festival, was a cultural and ecological arts spectacular and a major hit with festival goers. It is returning in 2019 where Noongar culture, science, technology and artistry come together to celebrate and explore the interconnectedness of all life and the fragile beauty of the south-west landscape.

Central to its success is the Seeds of Change program which saw thousands of WA school children learn about and pledge to protect a species of flora or fauna from their area. Students contributed a seedpod lantern with an image of their species that went on to form the final glowing installation artwork. This year the project will continue to engage with students and adds an advanced component Ground Beneath Our Feet, which helps schools to bring about change in their immediate neighbourhoods to protect biodiversity. Educational [resources](#) are available to [get involved](#) with this major cultural and ecological arts event.



*Edith Cowan University and DBCA are investigating the exposure of chuditch to rodenticides, after two of the native, carnivorous mammals tested positive in greater Perth last year. This follows on from [recent research into boobook owls](#) which shows a high percentage have been exposed to rodenticides by consuming poisoned rats and mice. If you find any dead chuditch please freeze it in a plastic bag with a collection location and date and contact Michael Lohr 0407 147 901 or by [email](#). Photo – Nicole Willers.*

## Creating a national weeds website

The Centre for Invasive Species is putting together a strategy for the development of a new national weeds website/portal. They would like to hear your needs for finding and interacting with digital weeds information. [Email](#) how you would use a national weeds website both for searching and distributing weeds information, what functionalities and links you would like it to have and how you would actively participate in the site.

## Forest Management Plan mid-term review

The Conservation and Parks Commission is encouraging people to comment on the draft mid-term review of performance of the *Forest Management Plan 2014–2023* and contribute to continuous improvement in the plan's implementation. [View and comment](#) by Friday 19 October 2018.

# Prescribed burning in Perth's bushlands: where, when and how much?

By *Katinka Ruthrof*

One of the most widely used and visible tools to reduce bushfire risk is prescribed burning.

DBCA's Kings Park Science team, Murdoch University and local councils have partnered up to undertake long-term research on banksia woodland fire ecology to answer an important question: how often should we use prescribed burning, and what other tools, such as weed management, can help?

To answer this question, we identified various locations that will be subject to a prescribed burn. Native and weed species diversity and abundance are recorded in plots prior to burning. Vegetation structure, coarse woody debris (e.g. logs and larger dead branches), and fine fuels (e.g. leaf litter) are also documented along transects. After the burn plots and transects are resurveyed to determine the intensity of fire and the responses of native plants, weeds and fuels.

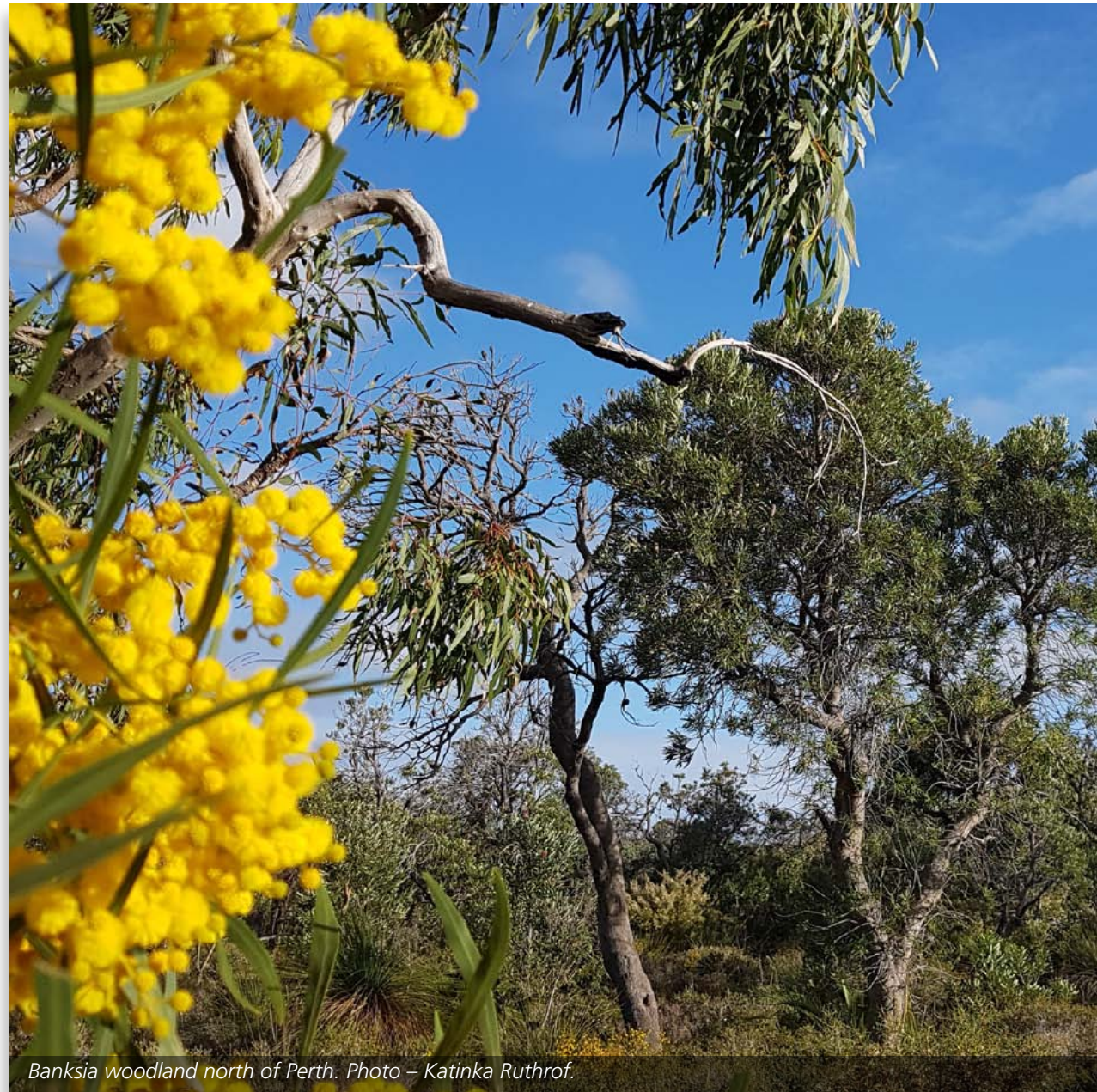
The outcomes of this research will inform bushland management across the Swan Coastal Plain about best approaches to reduce bushfire risk, and to protect and enhance our native biodiversity.

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*Banksia woodland north of Perth. Photo – Katinka Ruthrof.*

## Adopt a Spot – connecting young people to nature

by Tracey Muir

Eight primary schools from Augusta to Cowaramup have adopted sites in their local bushland, river foreshore or coastal reserves in an innovative environmental education program coordinated by Nature Conservation Margaret River Region. The Adopt a Spot Program allows students to learn about the unique values of their area and get out and plant, weed and restore their local environment.

Adopt a Spot provides Year 4 students with in-class learning about the natural values of their school's adopted site, as well as two rehabilitation excursions over the school year. In early winter, accompanied by volunteers, students revegetate their adopted sites and later in the year return to assess plant survival rates and undertake follow-up weeding and clean-up activities. Students also enthusiastically undertake fauna surveys for species like the critically endangered western ringtail possum.

Before and after surveys indicate that students have gained a deeper understanding of their local area and a strong sense of having contributed to caring for the natural environment. A student from Karridale Primary School described the experience as "like giving birth and creating new life".

Ann Ward, a landowner along the Margaret River, joined students from the Margaret River Primary School planting over 1000 native seedlings. Ann was so inspired, she and other volunteers planted a further 1000 seedlings on her property adjacent to the site. An area that was once overrun with arum lily is now a sea of native seedlings. Ann noted that "it was an extraordinary team effort and an amazing transformation".

Currently funded through the State NRM Program, and supported by the Shire of Augusta-Margaret River, Adopt a Spot aims to establish long-term links between schools and their environment and community volunteers to foster our future environmental stewards.



*Connected with community volunteers, schools care long term for their adopted spot undertaking restoration and conservation action. Here students from Year 4 at Margaret River Primary School are revegetating their spot on the banks of the Margaret River. Photo – Tracey Muir.*

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### Report in!

*Please send us your regional report (200 words) and a photo by **Friday 30 November 2018**. Text may be edited in response to volume of submitted reports.*



Linda DuBoulay (left to right), Donna Turner, Gary Allen, Anne Allen, Lynda Smith, Meg Littlejohn, Jason Preo, Graeme Lockhart with the newest sign. Photo – Angela Jakob.

## Friends of The Spectacles 10th anniversary

by Lynda Smith

Recently the Friends of The Spectacles celebrated their 10th anniversary with the unveiling of new signs followed by an outstanding two-hour bushwalk.

Through a generous grant from Alcoa Kwinana we were able to replace two signs that had been damaged by vandals and install one new sign. The new signs provide accurate track information and provide advice on preparing for the walks adequately. The signs were unveiled on Sunday 26 August in front of representatives from Alcoa Kwinana, Parks and Wildlife Service, the City of Kwinana and past and present volunteers. Following the unveiling of the signs (in three different areas, which moved us

from the carpark to the amphitheatre) we celebrated with one of the Friends' traditional morning teas.

We then enjoyed a brilliant wildflower walk led by Eddy Wajon and accompanied by local Noongar Elder Trevor Walley. The two shared their knowledge freely and all participants came away knowing a lot more about what is growing and how it grows at The Spectacles. Because of the unexpected warm weather, we were treated to a kaleidoscope of colourful flowers that had not been visible in the days leading up to the walk.

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## Perth NRM is taking the Swan and Canning rivers on the road and into the classroom

by Jason Pitman

Perth NRM is visiting Perth schools to share knowledge on the health and management of these iconic waterways with students.

A dozen local schools and over 850 primary and secondary school students have had the opportunity to investigate water samples and learn about native and exotic plants and animals found in the river systems. Students were enthusiastic to learn about the water quality of the river systems and it has been encouraging to hear about their exceptional awareness of catchment care and knowledge of their local environment.

The school visits are subsidised as part of the Swan-Canning River Recovery Stage 2 – a program funded by the Australian Government to improve the water quality and habitats of the Swan and Canning river systems. The school presentations will be subsidised until 2020 and are available to all schools in the swan region. During the talks, students learn about concepts including catchment care, biodiversity, and active citizenry.

These school talks aim to improve environmental literacy in the classroom and enable students to consider how their actions can affect the condition of WA waterways. We then demonstrate simple everyday actions we can do at home or school to lessen their impact. It is rewarding to hear students getting involved by planting native gardens, picking up litter, or even getting the whole family to [join their local community group](#) after our visits.



Brookman Primary School learning about the Swan River with Jason Pittman, Swan Canning River Recovery project officer. Photo – Julie Walker.

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# Bush Rangers restore a section of Helena River

Coodanup College,  
Mandurah Bush  
Rangers team planting  
on the Helena River.  
Photo – Michelle Crow.

by Alison McGilvray

Members of DBCA's [Bush Rangers](#) program from Coodanup College in Mandurah planted nearly 1800 sedges and rushes on Tuesday 14 August into a stretch of the Helena River downstream from Mundaring Weir. It was a great effort on the hard, stony riverbank in only a couple of hours.

*Bush Rangers* from Mount Lawley Senior High School completed the planting on 21 August, with an additional 1300 plants going into the ground. Another great effort and the enthusiasm wasn't dampened despite the soaking weather. It is part of a joint project under the Water Corporation's [Drainage for Liveability program](#) to restore an area of riverbank. DBCA have organised the revegetation, with the Water Corporation providing funding for plant purchase.

The aim of the planting is to improve water quality, fauna and flora habitat and stabilise the banks to reduce erosion risk. A highlight of the day was finding a [clicking froglet](#) (*Crinia glauerti*) which in a few years' time we hope will be abundant through the site.

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### How many critters are lurking in your bushland?

By Don Poynton and Sharon McArthur

Friends of North Ocean Reef-Iluka Foreshore (FONORIF) and Mullaloo Beach Community Group Inc (MBCG), groups helping care for biodiversity in Bush Forever 325, had no idea of the answer when they began an extended macroinvertebrate and herpetofauna survey in September 2015. After three successive years of sampling they now know the answer is at least 650 species.

About 40 FONORIF volunteers helped entomological consultant, Spineless Wonders, set up and monitor light traps, nets, pitfall traps and bucket traps on 14 occasions at Iluka. A total of 549 macroinvertebrates (greater than 2mm in length) and 13 reptiles were collected then photographed and released.

A complementary survey organised by MBCG in January 2018 involved over 80 volunteers in similar activities 3km to the south. This work identified 179 species, including over 90 not seen at Iluka, highlighting the importance of surveying locations with different plant communities and at different times of the year, to develop a comprehensive knowledge of the macroinvertebrate fauna of the reserve.

While flora and fauna surveys are common in bushland, the surveying of insects and other invertebrates is rarely included, or at best, is incidental to the main survey. We believe the survey is possibly the largest ever undertaken in a coastal location in Western Australia and is a very important addition to recording the biodiversity of a landform that is under constant threat from development or destruction by nature's own forces. The reports



*Our volunteers got hands-on opportunities to be involved in the macrofauna and reptile surveys. Here FONORIF are installing the trapline at Iluka. Photo – Don Poynton.*

provide a comprehensive, photographic snapshot of fauna in these coastal reserves and is an invaluable foundation document for a field guide for our groups.

We look forward to continuing our work to protect the area's important Noongar, biological and geological heritage and to maintain human connection with nature. Our projects were funded by the State NRM Office, the City of Joondalup, Coastwest, and through our groups and anonymous donors.

### Contact

**Don Poynton**

Friends of North Ocean Reef-Iluka Foreshore  
email [dpoynton@iinet.net.au](mailto:dpoynton@iinet.net.au)

**Sharon McArthur**

Mullaloo Beach Community Group Inc



## Scratching below the surface with the quenda

by Leonie Valentine and Katinka Ruthrof

Australia is home to many mammals that dig for their dinner, including bettongs, bandicoots and echidnas. While foraging for food, these digging mammals often create shallow pits with an associated spoil heap of ejected soil. This combination of digging and discarding soil disrupts the microhabitat layer by exposing soil and burying organic matter and litter under the spoil heap. Although these actions may seem small at a local scale, they are surprisingly important for broader-scale ecosystem processes, and can influence soil turnover, water infiltration and nutrient cycling in landscapes. Consequently, many of Australia's digging mammals are considered to be important ecosystem engineers.

A regularly-seen native digging mammal around Perth bushland reserves is the quenda (*Isoodon fusciventer*). Previously considered to be a sub-species of the south-eastern Australian southern brown bandicoot (*Isoodon obesulus*), the quenda is now recognised as a separate species, endemic to south-western Australia. When food resources are plentiful, but predators are few, these solitary mammals often have over-lapping home ranges and can occur at high densities. However, like many other medium-sized marsupials in Australia, quenda have suffered declines in their population and range due to a combination of predation by foxes and cats, and habitat loss, and are classified as a priority species – in need of monitoring.

*Continued next page ...*



Foraging pits created by quenda while searching for subterranean food at Craigie Bushland. Photo – Leonie Valentine.

# Scratching below the surface

... continued

*Quenda have strong forelimbs and long nails that help them dig through the dirt while they are foraging for food.*  
Photo – Alice Reaveley.



Quenda have well-developed forelimbs that they use to forage for underground invertebrates, fungi and tubers. Each night, these prodigious diggers create about 45 foraging pits as they dig for food. Research estimates that an individual quenda (weighing between 800–1,200gm) can turn over nearly four tonnes of soil annually, although in the sandy soils of banksia woodlands they may turn over more than 10 tonnes of soil. While foraging for food, the quenda manipulate and alter many soil properties, and these microscale disturbances may be incredibly important for ecosystem functioning.

The digging actions of quenda may alter the environment in many ways. By creating the foraging pit, quenda mix soil by bringing deeper soil to the surface. They also break the soil crust, that subsequently changes soil hydrophobicity (water repellency), making it much more likely for water to infiltrate the soil compared to undisturbed soil. When quenda create the spoil heap, they are moving soil on top of surface organic matter and litter. This reduces the amount of surface litter and creates an environment more conducive to litter decomposition. Litter decomposition is one of the key pathways that nutrients are returned to the soil, and often occurs more quickly if litter is covered by soil. Soil properties important for plant growth, such as potassium and electrical conductivity, have been recorded at higher levels in the spoil heaps created by quenda compared to undisturbed soil. By mixing the soil and enhancing litter decomposition, quenda may also alter soil biota and mycorrhizal associations.

At the same time, the foraging pit captures organic debris and seeds, which may increase seedling recruitment. The extra nutrients and altered soil biota, may also facilitate seedling growth. For example, research has shown that tuart seedlings grown in the soil of a quenda spoil heap grow faster, and bigger, than seedlings grown in undug soil.



*Tuart (Eucalyptus gomphocephala) seedlings grow quicker and bigger in soil from a quenda spoil heap (right) compared to soil from the pit itself (centre) or undisturbed soil (left).*  
Photo – Leonie Valentine.

*Continued next page ...*

The majority of Australian digging mammals are threatened, and their widespread decline may be linked to a reduction in key ecosystem processes. The persistence of native digging mammals, like quenda, in bushland may play an important role in maintaining the health and functioning of ecosystems. So, the next time you see a quenda, think of the many ways this little digger may be altering our world.

### More information

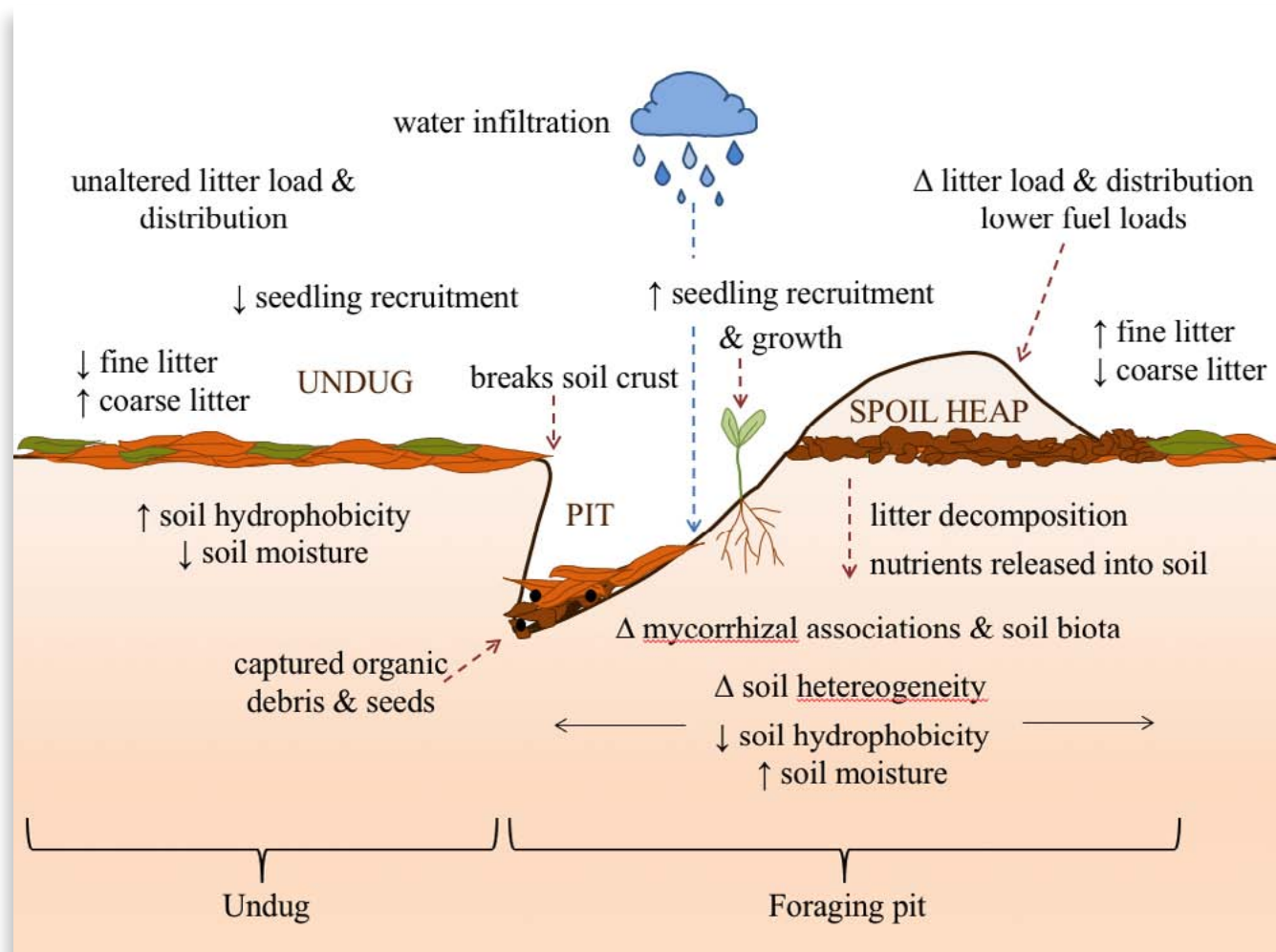
Valentine LE, Bretz M, Ruthrof KX, Hardy G and Fleming PA (2017) Scratching beneath the surface: bandicoot bioturbation contributes to ecosystem processes. *Austral Ecology* 42: 265-276.

Valentine LE, Ruthrof KX, Fisher R, Hardy G Hobbs RJ and Fleming PA (2018) Bioturbation by bandicoots facilitates seedling growth by altering soil properties. *Functional Ecology* 32:2138-2148.

### Contact

**Leonie Valentine**

The University of Western Australia  
email [leonie.valentine@uwa.edu.au](mailto:leonie.valentine@uwa.edu.au)



Schematic representation of how foraging pits created by a quenda may alter abiotic and biotic processes (modified from Valentine et al. 2017).

## Armadale Gosnells Landcare Group: Twenty years of work BY the community FOR the environment

by Narelle Mewburn and Pat Hart

The Armadale Gosnells Landcare Group (AGLG), previously called Upper Canning Southern Wungong Catchment Group, was the first community group to work with the Swan River Trust (now part of DBCA), to help restore the health of the Swan and Canning rivers.

This group of passionate community members stepped up to address big environmental issues in our catchment and adopted a whole of catchment, approach to the issues including algal blooms, silt management, weed control, nutrient use, riparian rights and land use issues within the Upper Canning Catchment. Twenty years on AGLG is staffed by one part-time and two full-time employees. The positions are funded by the two local governments to ensure the continued maintenance and management of 23 restoration sites is sustained. We also have a substantial grant portfolio kindly funded by the Australian Government's National Landcare Programme, DBCA, Alcoa, State NRM, Perth Region NRM, Cedar Woods Properties Limited, and the Department of Social Services.

To date AGLG has focussed on community awareness raising, education and the coordination and implementation of on-ground restoration of local bushlands, rivers



and associated waterways. This year AGLG continued its long term goal of restoring and connecting the river foreshore along the Canning River to create a continuous habitat corridor. The commitment and passion of our community continues to be a great motivator of the environmental work that AGLG does and we welcome new [members](#) and [volunteers](#) at each of our [Community Planting Days](#).

A total of 56 community work days have been held this year, including schools, community and regular green teams, with the major planting events being National Tree Day and Bushcare's Major Day Out.

The City of Gosnells with National Tree Day sponsors Prosser Toyota and the City of Armadale with the Lions Club joined AGLG to successfully plant approximately 11,700 plants with over 300 community members.

AGLG also invite school groups, outdoor education clubs and other community groups to participate in tree planting activities.

*Continued next page ...*



*Working with schools helps us raise awareness and educate kids about the special values of our local bushlands, rivers and waterways. Clifton Hills Primary School have helped us restore the Canning River for over eight years planting thousands of trees and understory plants to reinstate riparian vegetation. Photo – Narelle Mewburn.*

AGLG run information stalls at community workshops and events, including the WA Landcare Network annual general meeting and field trip, the Kelmscott Show, Natures Beauty Revealed, Little Scribblers, Mills Park Community Day, and Harmony Week celebrations. AGLG staff are happy to present and facilitate walks and talks to various community groups and interested parties and last year presented to the Wildflower Society, Rotary, Step into Volunteering, Friends of Brixton Street Wetlands, and Friends of Mary Carroll Wetlands.

*Roley Pool on the Upper Canning River, an example of one of our restoration sites handed back to the landowner in 2016. One of the AGLG's original restoration sites. Here we have established sedges and reeds to stabilise the banks and protect the river. Photo – Jen Francis.*



*We like to have fun when doing our bit for the environment. Having a cuppa after the community planting day at Kelmscott Fishcare site on the Canning River. Photo – Jen Francis.*

By the end of 2018 AGLG plan to have successfully planted approximately **110,000 seedlings** in the winter/spring planting season. We are very grateful to have assistance one day a week from a Work for The Dole team and one day a week from the Harry Hunter Rehabilitation Team. The continued support of dedicated Landcare volunteers ensures the resources needed to fulfil our high revegetation and restoration success.

Key achievements for AGLG in the past year were the completion and hand back of project sites, one in the City of Gosnells and one in the City of Armadale. These have been restored to a level where they can

sustain themselves and require minimal maintenance from the land managers. Adding to AGLG's project site and grants portfolio is a unique collaborative arrangement between the City of Gosnells, Western Australian Planning Commission, DBCA and AGLG. This involves the restoration and rejuvenation of a section of the Southern River, associated with the old Fremantle Bridge.

## Contact

**Narelle Mewburn**


AGLG

email [narelle.mewburn@aglg.org.au](mailto:narelle.mewburn@aglg.org.au)


**Opportunities for you to participate! Visitors always welcome but please confirm activities with contact person. Most activities are FREE!**

## Recurrent activities

### Saturdays 15 minutes before sunrise

 **Research into bird populations** with the **Herdsmen Lake** Bird Banding Group. Contact: Bill 0438 910 252 [calidris@inet.net.au](mailto:calidris@inet.net.au)


### Saturdays 8am–9am

 **Guided walks** with Friends of **Koondoola**. Second Saturday of each month. Meet Gate 2, corner Koondoola and Burbridge Ave, Alexander Heights. Contact: David 9448 9192


### Saturdays 8am–9am

 **Guided walks** with Friends of **Lake Gwelup** naturalist David Pike. Third Saturday of each month. Meet at Scout Hall carpark (near the tennis courts), Huntriss Rd, Gwelup. Contact: [friendsoflakegwelup@gmail.com](mailto:friendsoflakegwelup@gmail.com)


### Saturdays 8am–9am

 **Guided walks** and meeting with Friends of **Landsdale**. First Saturday of each month. Meet at third gate Landsdale Rd, east of Landsdale Farm School, Darch. Contact: David 9448 9192


### Saturdays 8am–9am

 **Guided walks** with Friends of **Star Swamp**. Fourth Saturday of each month. Meet at the Henderson Environment Centre in Groat St, North Beach. Contact: Christine 0430 013 364


### Saturdays 8am–9am

 **Guided walks** with Friends of **Trigg Bushland**. Fifth Saturday of each month. Meet in St Mary's School carpark, off Elliot Rd Karrinyup. Contact: David 9448 9192


### Saturdays 8am–10am

 **Bushcare activities** with Swan Estuary Reserves Action Group at **Alfred Cove** Nature Reserve. Fourth Saturday of each month. Contact: Cathie 9339 2439 [oneillc@westnet.com.au](mailto:oneillc@westnet.com.au)


### Saturdays 8.30am–10.30am

 **Bushcare activities** with the Friends of **Booragoon** and **Blue Gum Lakes**. First Saturday of each month. Meet at the boardwalk into Booragoon Lake on Aldridge Rd, Booragoon. Contact: Mary-Ann 9316 9716 [molly.olly1@bigpond.com](mailto:molly.olly1@bigpond.com)


### Saturdays 8.30am–10.30am

 **Bushcare activities** with Swan Estuary Reserves Action Group at **Pelican Point, Crawley**. First Saturday of each month. Contact: Cathie 9339 2439 [oneillc@westnet.com.au](mailto:oneillc@westnet.com.au)


### Saturdays 9am

 **Bushcare activities** with Friends of **Brixton Street** Wetlands. Third Saturday of each month. Meet Alton St, Kenwick. Contact: Regina 9459 2964 [tjrd@bigpond.net.au](mailto:tjrd@bigpond.net.au)

### Saturdays

 **Bushcare activities** with Friends of **John Forrest National Park**. Equipment, instruction and morning tea provided. Starting times and tasks change according to the season. Contact: Jan 0409 299 861 [joejanking1@bigpond.com](mailto:joejanking1@bigpond.com)


### Saturdays, Sundays 9am–12 noon

 **Koala maintenance** at **Yanchep** National Park. Contact: Ciara 9303 7771.


### Sundays 8am–10am

 **Bushcare activities** every Sunday with Friends of **Shenton Park** Bushland. Contact: Dani 0420 334 601 [bojel@inet.net.au](mailto:bojel@inet.net.au)


### Sundays 8.30am

 **Bushcare activities** with Friends of **Wireless Hill**. Second and fourth Sunday of each month. Meet at main carpark. Contact Margaret 0402 105 649 [s3mmatthews@hotmail.com](mailto:s3mmatthews@hotmail.com)


### Sundays 9am–11am

 Friends of **Lake Claremont** busy bee and morning tea, second Sunday of each month. Meet at the south end of Strickland St, Swanbourne. Gloves and tools provided. Contact 0416 614 696 [www.friendsoflakeclaremont.org](http://www.friendsoflakeclaremont.org)


### Sundays 9am–11am

 **Bushcare activities** with **Cottesloe** Coastcare. First Sunday of each month. Contact: Robyn 9384 7668, [info@cottesloecoastcare.org](mailto:info@cottesloecoastcare.org) or [website](http://website)


### Sundays 9am–12 noon

 **Bushcare activities** with the Friends of the **Spectacles** (Kwinana). Third Sunday of each month. Contact: Lynda 0419 983 956 [fotsmail@gmail.com](mailto:fotsmail@gmail.com)


### Sundays 9am

 **Bushcare activities** with the Friends of **Samphire Cove** Nature Reserve, Halls Head. Last Sunday of each month. Contact: Barry [bjsdoongin@gmail.com](mailto:bjsdoongin@gmail.com) [website](http://website)

### Sundays 9.45am–12 noon

 **Bushcare activities** with the Friends of **Piesse Brook**. Third Sunday of each month. Contact: Ken 9293 3159 [bibbulman@hotmail.com](mailto:bibbulman@hotmail.com) 0402 243 351

### Sundays 1pm–4pm

 WA Gould League's Herdsmen Lake Wildlife Centre holds **birdwalks, centre viewing and scooping**. First Sunday of each month. \$2 adults, \$1 kids & seniors, \$5 family. Corner Selby St and Flynn St Wembley. Contact: 9387 6079 [admin@wagouldleague.com.au](mailto:admin@wagouldleague.com.au)

## Activities Key



**Hands on** – bushland and wetland management activities.



**Walks and tours** – look, listen and enjoy guided walks and excursions



**Skills development activities** – talks, presentations, training courses and workshops.




**Meetings and events** – group meetings, expos, festivals and conferences.

## Recurrent activities ... *continued*


### Sundays

-  **Wilson Wetlands** Action Group undertakes regular work mornings throughout the year on Sunday mornings. Contact: 0407 135 412 [wilsonwetland@gmail.com](mailto:wilsonwetland@gmail.com)

### Mondays 7am–8am

-  Norma's Monday Morning **Weeding Group**. Friends of Lake Claremont weekly hand weeding. Learn basic weeding techniques and identification. Meet at south end of Strickland St. Contact: 0413 282 515.

### Mondays 8am–10am

-  **Litter collection** with Swan Estuary Reserves Action Group at **Milyu Nature Reserve, South Perth**. Second Monday of each month. Contact: Cathie 93392439 [oneillc@westnet.com.au](mailto:oneillc@westnet.com.au)


### Mondays 8.30am–11am

-  **Bushcare** at **Mary Carroll Wetland**, Contact Unice 0434 831 230 or [unicerobinson@gmail.com](mailto:unicerobinson@gmail.com) for the meeting place.


### Mondays, Wednesdays, Fridays 9am–12 noon

-  **Bushcare activities** and wetlands walk trail maintenance with **Yanchep National Park** Volunteers. Contact: Ciara 9303 7771


### Tuesdays 7am–9am

-  **Bushcare activities** with Swan Estuary Reserves Action Group at **Alfred Cove Nature Reserve** each Tuesday. Contact: Margaret 9330 1791


### Tuesdays 9am–11am and Saturday

-  **Bushcare** with Friends of **Allen Park** every Tuesday and first Saturday of the month. Contact: Lesley 9384 7983 Judy 9383 1501, [foapbg@gmail.com](mailto:foapbg@gmail.com) or [facebook](https://www.facebook.com/foapbg)


### Tuesdays and Thursdays, 8am–10am

-  **Coastcare activities** with **Stirling** Natural Environment CoastCare (SNEC). Contact: Sheldon 0488 190 651, Rae 0419 191 710 or [website](http://www.stirlingcoastcare.org.au)

### Wednesdays and Saturdays 7.30am–9.30am

-  **Bushcare activities** with **Bicton** Environmental Action Group. Planting, weeding and foreshore cleanup. Various dates. Contact: Peter 0439 467 855 [pneesham1@hotmail.com](mailto:pneesham1@hotmail.com) or [website](http://www.bicton.org.au)


### Thursdays 7.30am–9.30am and some Saturdays 8.30am–12 noon

-  **Coastcare activities** with Friends of **Sorrento Beach** and **Marmion Foreshore** followed by morning tea. Contact: Mike 0438 710 527


### Thursdays 8am–9am

-  **Bushcare activities** every Thursday with **Byford** Enviro-Link. Contact: Kristy 9526 0199


### Thursdays, Saturdays and Sundays 9am

-  **Morning walks** with Friends of **Bold Park** Bushland Volunteer Guides. Various dates. Contact: 9480 3996 [friendsbp@bgpa.wa.gov.au](mailto:friendsbp@bgpa.wa.gov.au) or [website](http://www.friendsbp.org.au)

### Thursdays and Sundays 10am–12 noon

-  **Kanyana Wildlife Centre**, Discovery Centre **Tours**. Close encounters with native animals and interactive Discovery Centre. \$20 or less. Bookings essential. Contact: 9291 3900 [info@kanyanawildlife.org.au](mailto:info@kanyanawildlife.org.au) [website](http://www.kanyanawildlife.org.au)

### Thursdays or Fridays 9am–4pm

-  **Wetland, bushcare and nursery activities** with **Cockburn Wetlands** Centre. Contact: Denise 0412 081 540 [denise@cockburnwetlands.org.au](mailto:denise@cockburnwetlands.org.au)


### Thursdays 7.30pm

-  **Talks** with **Murdoch** Branch of the **Wildflower Society** to share passion and knowledge of nature. First Thursday each month. Cockburn Wetlands Education Centre. Contact: Christine 0468 676 933 [murdoch.branch@wildflowersociety.org.au](mailto:murdoch.branch@wildflowersociety.org.au) or [Facebook](https://www.facebook.com/murdoch.branch)


### Fridays 8am

-  **Bushcare activities** at **Piney Lakes**. Volunteers need a site induction. Contact: [Brian.Walker@melville.wa.gov.au](mailto:Brian.Walker@melville.wa.gov.au)


### Fridays 7.30pm

-  **Talks** with **Eastern Hills** Branch of the **Wildflower Society**. Fourth Friday each month, not December/January, Octagonal Hall, 52 McGlew St, Glen Forrest. \$2 entry, visitors welcome. Also art and photography, propagation, excursions, open gardens and library. Annual plant sale in May. Contact: [eastern.hills.branch@wildflowersocietywa.org.au](mailto:eastern.hills.branch@wildflowersocietywa.org.au), [facebook](https://www.facebook.com/eastern.hills.branch) or [website](http://www.wildflowersocietywa.org.au).


### Fridays and Saturdays 7pm–9pm

-  First Friday and second Saturday every month, **Nocturnal Tours, Kanyana Wildlife Centre**. Meet nocturnal native wildlife and hear about endangered species breeding programs. \$20 or less. Bookings essential. Contact: 9291 3900 [info@kanyanawildlife.org.au](mailto:info@kanyanawildlife.org.au) or [website](http://www.kanyanawildlife.org.au)

### Check calendar

-  **Birdlife Australia** hold regular **talks** and **excursions** each month. [View](http://www.birdlife.org.au) their calendar.

### Check calendar

-  **WA Naturalists** hold regular **excursions, photo groups** and **campouts** each month. [View](http://www.wanaturalists.org.au) their calendar for the activities of the four branches.

### Check calendar

-  **Wildflower Society of WA** holds regular talks. [View](http://www.wildflowersocietywa.org.au) their calendar.

## Activities Key



**Hands on** – bushland and wetland management activities.



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**Skills development activities** – talks, presentations, training courses and workshops.




**Meetings and events** – group meetings, expos, festivals and conferences.

## October


### 3 Wednesday 10.30am–12 noon

 **Nature walk at Nine Mile Lake** Nature Reserve, West Coolup, followed by a sausage sizzle. Meet at gate (near huge dead jarrah) Birchmont Rd. RSVP's to Brenda [brendaboaden@gmail.com](mailto:brendaboaden@gmail.com).


### 4 Thursday –5 Friday 9am–4pm

 **Wildflower exhibition** Uniting Church Hall and Grounds 47 Kent St, **Busselton**. \$10, kids free. Email [bsnuca@westnet.com.au](mailto:bsnuca@westnet.com.au) or call Lynda 9752 3304.

### 6 Saturday 9–11:30am

 **Weed or Wildflower workshop** with Una Bell on some of the common plant families found in **Mundaring**. Railway Heritage Trail near Mundaring Scout Hall, with morning tea. **BSFH**.


### 6 Saturday

 All-day **botanical ramble** at **Mokine Reserve**, near Muresk with Janet and Robert Atkins of the Eastern Hills Branch of the Wildflower Society, contact [ehbtreasurer@iinet.net.au](mailto:ehbtreasurer@iinet.net.au)

### 7 Sunday 9am –12noon

 **Planting** along the **Canning River**, meet at the end of Chilcott Gardens, Gosnells. **AGLG**.

### 7 Sunday 9am –11

 **Wetland poetry walk**, stroll through **Mary Carroll Wetland** and then express your thoughts through poetry with local author Barbara Gurney. Bookings essential 9397 3000.


### 13 Saturday 10am

 **Guided walk Hepburn Heights** Conservation Area to highlight banksia woodland threatened ecological community status. All welcome, meet at the entrance gate at the end of O'Leary Rd, Padbury.

### 13 and 20 Saturdays 10am–3.30pm

 **Plant Identification** with Janet Atkins and Penny Hussey of the **Eastern Hills Branch of the Wildflower Society** designed to introduce participants to the techniques of wildflower identification. At the end participants should be able to quickly recognise the main wildflower families and genera in the south-west of WA. \$20 members, \$30 non-members. Contact Penny 9299 7024 or register at [ehbtreasurer@iinet.net.au](mailto:ehbtreasurer@iinet.net.au).


### 14 Sunday 8am

 **Birdwalk at Forrestdale Lake**. Meet at the Moore St carpark. **Birdlife WA**.


### 14 Sunday 9am–12noon

 **Planting**, meet along Gilwell Ave, Kelmscott. **AGLG**.

### 14 Sunday 9am

 **Marine Debris Project**, with **Mullaloo Beach** Community Group. Meet at Key West Parking Station, Mullaloo Beach [mbcginc@iinet.net.au](mailto:mbcginc@iinet.net.au).

### 20 Saturday 9am–11am

 **Trigger plants at Brixton Street and Beyond guided walk** with Juliet Wege, Stylidium specialist. Bookings essential 9397 3000.


### Registration/contact details

**AGLG Armadale Gosnells Landcare Group**. Look for the AGLG sign at the meeting point, BYO gloves and dress for the weather. Morning tea provided. Call 0413 883 565 or check [facebook](https://www.facebook.com/aglg).

**Birdlife WA** All walks are free, no need to book. Call 9383 7749 Monday–Friday 9.30am–12.30pm.

**BSFH Bush Skills for the Hills**. Free workshops. [Registrations](https://www.bsfh.org.au/registrations) essential. Contact 9424 2216 or [environment@emrc.org.au](mailto:environment@emrc.org.au).


### 21 Sunday 9am–11am

 **Nature's Pantry**, learn how common weeds and bush tucker can become a useful and nutritious part of your diet at **Mary Carroll Wetland**. Bookings essential 9397 3000.


### 25 Thursday 8am

 **Birdwalk at Lake Claremont**. Meet at the Lake Claremont Golf Course carpark, off Davies Rd, Claremont. **Birdlife WA**.

### 26 Friday 8am–3.45pm

 **Canoeing on the Canning** professional development for teachers, youth group leaders and community members. Indigenous connections, fresh and saltwater ecosystems and environmental issues, includes a teacher resource pack. \$55 Contact Natasha 9458 5664 or [natashabowden@sercul.org.au](mailto:natashabowden@sercul.org.au)


### 26 Friday

 **Halloween Nightstalk** at Baldvis Children's Forest details on [Facebook](https://www.facebook.com/baldvis).

### 27 Saturday

 **Spooky Halloween Family Ramble** at Baldvis Children's Forest details on [Facebook](https://www.facebook.com/baldvis).

### 28 Sunday 9–11:30am

 **Bushcare activities** with **Baigup Wetland** Interest Group, Bayswater. Contact Penny 0448 543 755 or [baigup@iinet.net.au](mailto:baigup@iinet.net.au)

### 28 Sunday 9am–12noon

 **Planting** at **John Okey Davis Park**, meet at north eastern end of Windsor Dr, Gosnells. **AGLG**.

### 27 Saturday 9–11am

 **Nature Ramble** at **Ellis Brook Valley**. Bookings 9397 3000.

*Please send us your January, February and March events by Friday 30 November 2018.*

### Activities Key



**Hands on** – bushland and wetland management activities.



**Walks and tours** – look, listen and enjoy guided walks and excursions



**Skills development activities** – talks, presentations, training courses and workshops.




**Meetings and events** – group meetings, expos, festivals and conferences.




## November

**3 Saturday 9–11am**

 **Assisting Natural Regeneration on a Granite Outcrop** a walk and talk with Una Bell at restored Throssel Reserve, Sawyers Valley. Morning tea provided. [BSFH](#)

**3 Saturday 9am–12noon**

 **Planting and weeding at Homestead Park** on the Canning River. Meet at Parkside Dr and Helena Cres, Thornlie. [AGLG](#).


**5 Thursday 7.30am**

 **Birdwalk** at Ascot Waters. Meet at end of the car park Tidewater Wy, Ascot. [Birdlife WA](#).

**11 Sunday 7am**

 **Bush breakfast at Bungendore Park** prepared by the Armadale-Kelmscott Lions Club. Contact 9394 5194.

**11 Sunday 7am**

 **Breakfast with the birds at Mary Carroll Wetland.** Bookings essential 9397 3000.


**11 Sunday 9am**

 **Wild Pollinator Count**, with **Mullaloo Beach** Community Group. Meet at Westview Parking Station, Mullaloo Beach [mbcginc@iinet.net.au](mailto:mbcginc@iinet.net.au).

**14 Wednesday 9am–12 noon**


 **Planting** with Friends of **Mary Carroll Wetlands**, meet at Eudoria St carpark, Gosnells. [AGLG](#).

**15 Thursday 2pm –16 Friday 4pm**


 **WA Landcare Network Annual General Meeting and Networking Gathering**  
Perup: Nature's Guesthouse, nature experiences, presentations and workshops in partnership with the Blackwood Basin Group. Free [registrations](#).



**17 Saturday 9.30am–7.30pm**

 **Conservation Council of WA Conference and Awards**  
2018 Biophilia: A love of life and living things, Perth Waldorf School [Tickets](#) \$10–20.

**18 Sunday 10am–2pm**

 **Erosion Control Workshop** Woodlupine Brook, 35 Lenihan Cnr Forrestfield. How to keep your soil where it is, reduce sediment movement in waterways, guidance on materials and a practical session. Light lunch provided. [BSFH](#).

### Registration/contact details

**AGLG Armadale Gosnells Landcare Group.** Look for the AGLG sign at the meeting point, BYO gloves and dress for the weather. Morning tea provided. Call 0413 883 565 or check [facebook](#).


**Birdlife WA** All walks are free, no need to book. Call 9383 7749 Monday–Friday 9.30am–12.30pm.

**BSFH Bush Skills for the Hills.** Free workshops. [Registrations](#) essential. Contact 9424 2216 or [environment@emrc.org.au](mailto:environment@emrc.org.au).


**21 Wednesday 9.30am–2.30pm**

 **The Children's Gngangara Groundwater Festival**, now in its 17th year, teaches students about groundwater through interactive and dynamic activities.


**5 Thursday 8am**

 **Birdwalk at Pelican Point**, Crawley. Meet at the gazebo at the end of Australia II Dr, Crawley. [Birdlife WA](#).

**24 Sunday**

 **20th Birthday celebration** with Armadale Gosnells Landcare Group. [AGLG](#).

**25 Sunday 9–11:30am**


 **Bushcare activities** with **Baigup Wetland** Interest Group, Bayswater. Contact Penny 0448 543 755 or [baigup@iinet.net.au](mailto:baigup@iinet.net.au)

## December

**8 Sunday 9am**

 **Beach Cleanup**, with **Mullaloo Beach** Community Group. Meet at Westview Parking Station, Mullaloo Beach [mbcginc@iinet.net.au](mailto:mbcginc@iinet.net.au).

**16 Sunday 7.30am**

 **Birdwalk at Lake Claremont.** Meet at the Lake Claremont Golf Course car park, off Davies Rd, Claremont. [Birdlife WA](#).

**18 Tuesday 7.30am**

 **Birdwalk at Clarkson Reserve**, Maylands. Meet in the car park, east of the tennis courts, off Clarkson Rd. [Birdlife WA](#).

*Please send us your January, February and March events by Friday 30 November 2018.*

### Activities Key



**Hands on** – bushland and wetland management activities.



**Walks and tours** – look, listen and enjoy guided walks and excursions



**Skills development activities** – talks, presentations, training courses and workshops.



**Meetings and events** – group meetings, expos, festivals and conferences.

## Highlights

### September–November

The **Spring Quenda Count** is in its sixth year. Observers count quenda (bandicoots) for up to a week at their chosen site. Organisers are particularly keen for past observers to take part this year, even if quendas are no longer at the site. Help us understand what is happening to quendas across urban areas and email [quenda@wwf.org.au](mailto:quenda@wwf.org.au) for your survey kit.

**Outdoors October** check out listed [events](#) or register yours.

### October

Volunteers are sought for **bird surveys** at PF Olsen Australia bluegum plantations in Albany, Denmark and Scott River to better understand how plantations contribute to biodiversity in the landscape. Year two of a five-year study comparing birds in plantations and native remnant vegetation.

Fuel and food costs are covered. Contact Shapelle 0439 668 693 or email [shapelle.mcnee@birdlife.org.au](mailto:shapelle.mcnee@birdlife.org.au).



Photo – Leonie Valentine.

### 1–27 October

**Nearer to Nature Sunlit Spring** school holiday program and weekend activities.

### 10–12 October

**2018 National Landcare Conference [Landcare Building a Better Tomorrow](#)**, Brisbane Convention and Exhibition Centre.

### 16–21 October, 27 October – 1 November, 12–17 November

The Gunduwa Project is calling for volunteers for 6-day field trips of **bird survey at Charles Darwin Reserve**. Training and accommodation will be provided. Contact Merryn 0424 735 770 or email [merryn.pryor@ccwa.org.au](mailto:merryn.pryor@ccwa.org.au).

### 19 Friday 5pm – 20 Saturday 9pm October

**Yalgorup Bioblitz** bringing together professional and amateur environmentalists and those interested in learning more about their natural environment at Yalgorup National Park. Flora and fauna survey and other activities, [bookings](#) essential.

### 22–28 October

**Aussie Backyard Bird Count** [register](#) to assist Birdlife Australia in understanding more about the birds that live where people live.

### 24–26 October

**Accelerating Connection 2018** National Private Land Conservation [conference](#), Brisbane.

### 27–28 October

**2018 Australasian Shorebird Conference [Losing their habitats](#)** – conservation and management strategies for migratory and resident shorebirds, Hobart.

### 9–18 November

**FrogID Week** to take part in Australia's biggest frog count [download](#) the FrogID app, organise an event and record frog calls.

### 11–18 November

**Wild Pollinator Count** invites you to [count wild pollinators](#) in your local environment and help build a database on wild pollinator activity. Watch any flowering plant for 10 minutes in the count week.

### 25–29 November

**2018 Annual Conference of the Ecological Society of Australia [Ecology in the Anthropocene](#)**, Royal International Convention Centre, Brisbane

### 16–18 January 2019

**Catchments, Corridors and Coasts** three-day professional development introduction to environmental education initiatives across Perth. Contact Catherine 0409 374 231 or email [c.baudains@murdoch.edu.au](mailto:c.baudains@murdoch.edu.au).

### 29 September–4 October 2019

**Australian Native Plant Society National Conference** held every two years at a different location in Australia. In 2019 the conference, [Blooming Biodiversity](#), is being held in Albany, WA.



**Landowner Biodiversity Conservation** grants in the City of Cockburn for private landowners to conserve the natural bushland and wetland on their properties. [Applications](#) close **31 October**.

**Lotterywest** Heritage and conservation [grants](#) are **open year-round**.

**Australian Geographic Society** sponsors Australian adventurers, scientific and environmental research and community projects up to \$10,000. [Applications](#) close **30 November**.

**The Coca-Cola Foundation** gives one percent of its operating income to enhance the sustainability of local communities worldwide. Women, water and well-being are priority areas. [Applications](#) accepted year-round.

**IMPACT Philanthropy** Application Program connects philanthropist and not-for-profits. [Applications](#) close **7 December**.

**Wettenhall Environment Trust** small environmental grant scheme funds research, education and conservation projects. [Applications](#) close **3 December**.

**Youth Engagement Grants Program** up to \$10,000 is available for local governments and community service organisations to implement projects that engage young people (10–18 years) in creative ways and help achieve positive outcomes. [Applications](#) close **31 December**.

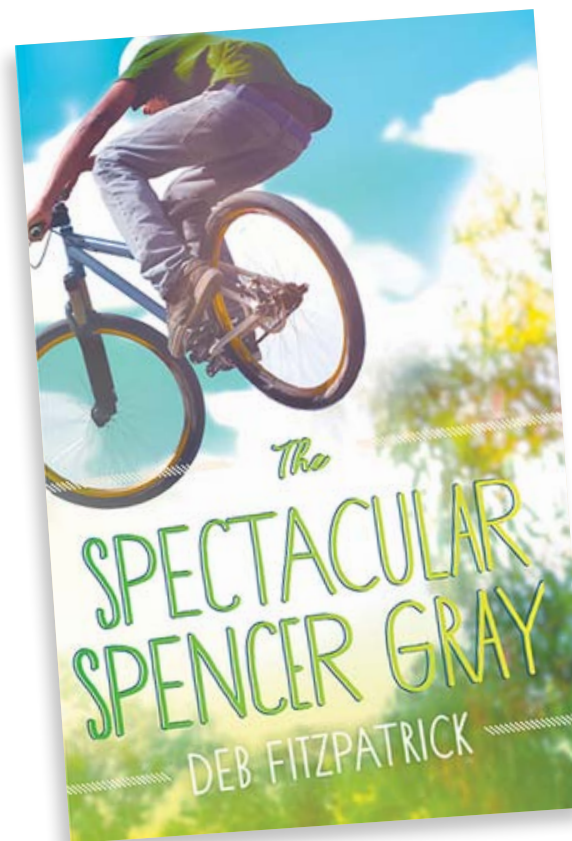
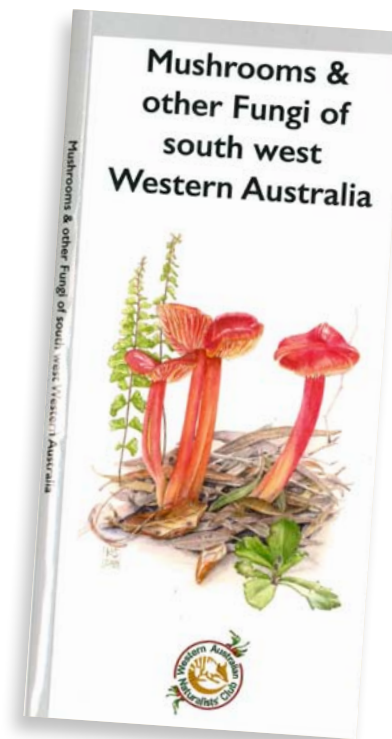
**Aurizon Community Giving Fund** up to \$20,000 for environmental projects in Geraldton, Perth, Kalgoorlie and Esperance. [Applications](#) close **26 October**.

### Local government community grants

These local governments provide small grants to their communities which can fund environmental groups' management and restoration projects. Eligibility varies. [Kwinana](#) closes **15 October** [Melville](#) opens **1 October** [Mosman Park](#) closes **12 October** [Rockingham](#) closes **23 November** [Swan](#) closes **October**.

## New publications

***Mushrooms and other Fungi of south west Western Australia*** McMullan-Fisher Sapphire and Syme Katrina Western Australian Naturalists Club 2018. \$5. An A6 pull-out brochure and field guide to more than 90 fungi. Organised in groups with similar form, structure and texture, the crisp photography and a handy key to size, spore print colour, toxicity and growth substrate will help in identification. Email [info@wanaturalists.org.au](mailto:info@wanaturalists.org.au) to purchase.



***The Spectacular Spencer Gray***. Fitzpatrick, Deb. Fremantle Press, 2017. \$14.99. A novel for middle readers about a young boy who saves Gilbert's potoroos from an animal smuggler ring. When Spencer stumbles on a sinister operation in the bush, his life goes into overdrive – midnight rescue missions, super-endangered animals, hair-raising adventures. To survive, Spencer will need to pull off something spectacular.

## Recent research

Ives CD, Lentini PE, Threlfall CG, Ikin K, Shanahan D, Garrard GE, Bekessy SA, Fuller RA, Mumaw L, Rayner L, Rowe R, Valentine LE, Kendal D (2016) Cities are hotspots for threatened species *Global Ecology and Biogeography*, 25 (1), 117–126.

Lohr MT (2018) Anticoagulant rodenticide exposure in an Australian predatory bird increases with proximity to developed habitat *Science of The Total Environment* 643, 134–144.

Lohr MT and Davis RA (2018) Anticoagulant rodenticide use, non-target impacts and regulation: A case study from Australia *Science of The Total Environment* 634, 1372–1384.

Prober S, Yuen E, O'Connor M, Schultz L (2013) Ngadju Kala: Ngadju fire knowledge and contemporary fire management in the Great Western Woodlands. *CSIRO report*.

Ramalho CE, Ottewell KM, Chambers BK, Yates CJ, Wilson BA, Bencini R, Barrett G (2018) Demographic and genetic viability of a medium-sized ground-dwelling mammal in a fire prone, rapidly urbanizing landscape. *PLoS ONE* 13(2)

## Website watch

**SALP 20 Year Celebration** includes a long format [video](#) and [magazine](#) of the 20-year Swan Alcoa Landcare Program sharing stories from some of the funded groups about why they volunteer to manage bushlands and wetlands.

**Science information sheets** published by DBCA aim to communicate findings and information in a concise and easy to understand manner. [Recent publications](#) include topics such as little penguins, ant communities and fire, assessment of camera traps to detect mammals and determining the age of jarrah and marri trees.

**Indigenous Seed Collection – Seeding the Future** Four-part video series presented by Victorian horticulturalist Judy Allen on seed collection, cleaning and storage for landcare and friends groups and gardeners. [Part one](#), [part two](#), [part three](#), [part four](#).



**Seed Notes for Western Australia** provide information on seed identification, collection, biology and germination for a wide range of seed types for Western Australian native species. Twenty [downloadable issues](#).

## Apps

**Australian Marine Debris Initiative App** (Apple coming soon) allows volunteers to contribute to real-time monitoring of pollution when they work to remove rubbish from our coasts. The app records GPS data, loads photos and you can scan the barcode on rubbish so it can be tracked back to its source.

The Chapman River Friends have launched the free **CRFwildflowers** app for [Android](#) and [Apple](#) that features photos, information and interactive identification for 112 species of flora in the Chapman River Regional Park. Free and fully functional without a phone signal once downloaded.

NACC's **Coastal Plant Pocket Guide** is an easy to use identification [app](#) for common plants found along Western Australia's coast from Kalbarri to Guilderton (although most species covered have a much broader distribution). It is intended as a convenient resource for both community groups and coastal managers seeking to revegetate and control weeds in coastal dunes.

**WATTLE App** \$9.95 is the third version of an electronic key to the acacias of Australia. It retains the best characteristics of earlier editions of WATTLE with more species and added features for identification. Also available [free online](#).

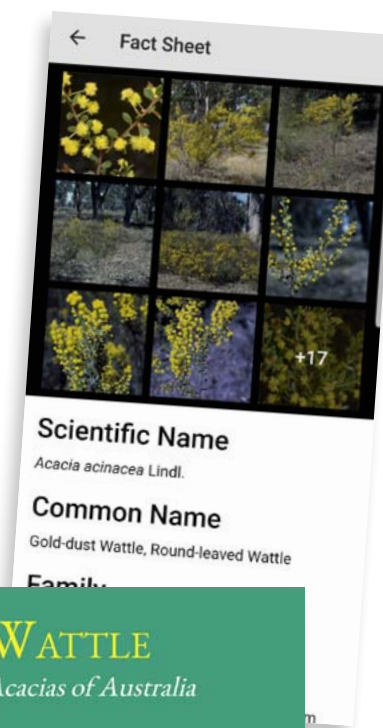




Photo – Gary Tate.

## Osprey

by Gary Tate

Ospreys (*Pandion haliaetus*) form mating pairs and in the south-west eggs are usually laid from mid-August to late October. Incubation is carried out by both male and female and takes just over five weeks. Several pairs of ospreys currently nest around the edges of the Swan River. This male osprey is feeding on a good-sized mulloway on the shared-use path next to the freeway in South Perth. He has consumed the head of the catch first, as the brain is extremely nutritious.

On this occasion the osprey continued to feed for almost an hour even with many extremely fast cyclists flashing past. He eventually discarded the fish and flew to a sandy area of the beach to have a post-breakfast bath before flying off into the distance. Check out this [YouTube video](#) for more footage. Both photo and video were captured in early September. Ospreys fledge their young just under two months after hatching, so for the Swan River around mid-November through to late January each year.