

## Fire in Woodland Reserve By Sarah Stevenson and Chris Rafferty

Issue 93

**Autumn** 2015

*Time of Bunuru  
and Djeran in the  
Nyoongar calendar.*

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**Whiteman Park's woylie breeding program within the predator-proof enclosure of Woodland Reserve was impacted by a major bushfire in December last year – the first since it was opened in 2011.**

From the beginning, the threat of bushfire was factored into the design and management of Woodland Reserve. Park staff were trained in the operation of the fire suppression system, including sprinklers designed to wet down the edges of the reserve and the opening of the gates ahead of any fire to allow the animals to escape.

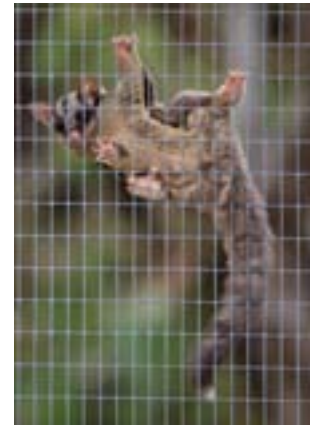
The December fire began outside the western edge of the reserve, quickly igniting the highly flammable paperbarks and burning through the banksia woodland all the way through to Lord Street.

As off-duty staff arrived at the park to help, they each knew what their roles were in ensuring park visitor and wildlife safety. One group evacuated the sugar-glider colony while fire trucks worked to keep their enclosure and the nearby 'soft-release' area damp, cool and safe.

On the night, the exhausted but motivated team set traps to collect those animals that had fled the oncoming fire. By the time the fire was fully extinguished a week later, it had burnt 370ha, including 115.7ha of the 200ha Woodland Reserve.

When it was safe to do so, two nights after the fire began, staff and volunteers scoured the fire ground for injured animals and were amazed to find all survivors in excellent condition, despite their ordeal. Two months on, traps were still being set outside the fence where woylie and tammar wallaby tracks or sightings have been reported.

Fortunately, a number of animals were fitted with radio tracking collars prior to the fire thanks to university research programs. This facilitated the swift return of many animals to the safety of the reserve through targeted trapping.



*Left: The Woodland Reserve fire left little in its wake but the bush is already showing signs of recovery. Photo – A. Cearns. Above: The sugar glider colony was evacuated from their enclosure as the fire burnt towards them. Photo – Houndstooth Studio.*

Animals within the reserve were still at risk in the days following the fire, with mass habitat loss resulting in low food supplies and scarce shelter. During the Christmas period and into January, staff and volunteers constructed more than 50 'huts' for animals to use as shelter. These were made from half barrels covered in soil and natural materials to insulate and camouflage the new residences from predators, in particular the birds of prey that were now prolific. Trailer-loads of leaf litter and fresh branches were imported from other areas of the park for forage and to provide nesting materials.

Supplementary feeding has been a major challenge. With more than half the reserve burnt, the usual fodder is hard to come by. Park staff are providing a selection of chopped fresh apples and carrots, chaff, pellets and grain daily across the burnt ground.

**Continue Page 5...**

## Urban Nature Update By Julia Cullity

Urban Nature is continuing to host lunchtime seminars to promote and extend research and management projects from across the region to community bushland managers and Department of Parks and Wildlife staff. In 2015 we will be hosting 10 seminars, to be held on the first Friday of every month until November 2015, except April (which will be held on the second Friday because of Easter). All talks are held in the Tondirrup/Nambump meeting rooms at the Keiran McNamara Conservation Science Centre, Department of Parks and Wildlife, 17 Dick Perry Avenue, Kensington from 12–12.45pm. Talks are free and there is no need to RSVP. There is free parking, bring your lunch.

Our next talk will be Murdoch University PhD candidate Pawel Waryszak speaking on Early outcomes of topsoil transfer in Banksia woodland restoration. It will be held on Friday 10 April at noon. Check the What's on calendar for the rest of our program.

## FloraBase weed management notes By Kate Brown

Weed management notes on *FloraBase* are continually revised as new information becomes available and over the last three months notes on edible fig (*Ficus carica*), spear thistle (*Cirsium vulgare*) and Patterson's curse (*Echium plantagineum*) have been updated.

A recent detailed study on the common edible fig invading Californian riparian forests has revealed information on the species biology that has some interesting management implications. The study found that figs have a long lag phase. They may remain in small groves or stands for the first 15 years following establishment, before expanding into native vegetation. In addition they don't produce viable seed until they are at least five years old and have short-lived soil seed bank. These management implications have been included in *FloraBase* notes.

Patterson's curse is an opportunistic species; when it rains seeds germinate and plants grow and flower. Late rains in the south-west last year saw flowering and germination over the summer months and, with prompting from some of our south-west colleagues, the management calendar was updated to include possible manual removal through December and January.

Spear thistle is a common weed in disturbed areas rather than intact bushland.

We recently had an enquiry about how to deal with it in a restoration site. The question was if plants went on to flower and set seed, how long would the seed last in the soil. Our notes said up to 20 years. In fact seed longevity in spear thistle is highly variable and seed may last for up to 20 years but only if buried at 10–20cm below the soil surface. On the surface they remain viable for less than a year. So if soil disturbance is kept to a minimum, seed loses viability fairly rapidly. The notes have been amended to include this additional information.

More information:

Brown, K.L. and Bettink, K.A. (2009–) <https://florabase.dpaw.wa.gov.au/weeds/swanweeds/>, *FloraBase* — The Western Australian Flora. Department of Parks and Wildlife.

Holmes, K.A., Greco SE, and Berry AM. (2014) "Pattern and Process of Fig (*Ficus carica*) Invasion in a California Riparian Forest." *Invasive Plant Science and Management* 7(1) pp46-58.

## Winter Bushland News

Winter *Bushland News* contributions should be sent to Urban Nature at [urban.nature@dpaw.wa.gov.au](mailto:urban.nature@dpaw.wa.gov.au) by **Friday 5 June 2015**. *Bushland News* seeks original contributions. If your submission has been or may be published elsewhere please let us know. This publication is available in alternative formats on request.



These six photos are taken of the same 1m x 1m plot over 10 years in Burnside Nature Reserve, a jarrah-banksia woodland, and threatened ecological community, at the foot of the Darling Scarp. They were taken initially to record change over time following *watsonia* control undertaken in October 2005, just after the first photo was taken. In February 2007 a wild fire burnt across the study site, enabling Urban Nature to also record regeneration following the fire. In the first years after the fire, a series of shrubs dominated the plots including running postman (*Kennedia prostrata*), *Acacia lateritia*, *Gompholobium tomentosum* and *Lechenaultia biloba*. *Blue squills* (*Chamaescilla corymbosa*) and *vanilla lily* (*Sowerbaea laxiflora*) also appeared following the fire. Seven years after the fire, the leguminous shrubs had disappeared, a single plant of *watsonia* had returned and sedges, mostly *Tetraria octandra*, dominated. The photos of this one plot tell a good story. Control *watsonia* before fire and then fire can facilitate regeneration of impacted plant communities, but follow up control of *watsonia* will occasionally be required.

## Contacts

### Urban Nature office

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Email [urban.nature@dpaw.wa.gov.au](mailto:urban.nature@dpaw.wa.gov.au)

Current and archived issues of  
*Bushland News* are available at  
[www.dpaw.wa.gov.au/bushlandnews](http://www.dpaw.wa.gov.au/bushlandnews).



## Bitou bush

By Craig Wilson and Kathryn Batchelor

**During a routine assessment of coastal vegetation adjacent to a port facility in Kwinana, Craig Wilson collected a flowering plant that looked similar in form to the thick-leaved fan flower (*Scaevola crassifolia*) but displayed a bright yellow daisy flower.**

Following identification of the specimen as bitou bush (*Chrysanthemoides monilifera* ssp. *rotundata*), a Weed of National Significance, the relevant agencies were contacted and a stakeholder group formed to assess and manage the threat. Bitou bush is native to South Africa and was widely planted in eastern Australia during the 1950s as a dune stabiliser. It is now the dominant coastal flora in NSW and southern Queensland. Preferring a climate with even rainfall throughout the year, it came as a surprise to find the weed flourishing in Perth, 3000km from the next nearest infestation.

CSIRO in Perth has taken an interest as it follows on from several years of biological control research on this plant in South Africa and NSW and provides a unique opportunity to study early invasion patterns. In 2013, a delimitation survey of the Kwinana Port Area was done with more than 700 plants found. Plants were removed by weeding or spraying after a range of plant characteristics was recorded. Stem diameter, stem rings and shrub diameter marry well with quality aerial photography and it looks quite likely that through these methods the first plant may be identified. Most plants found from the survey were located around an old dilapidated jetty, used until the 1980s to import steel pellets from NSW.

CSIRO will continue monitoring bitou bush in Kwinana for several years. There is an impressive seed bank under the large plants (the largest was 16m in diameter) and researchers continue to find up to a hundred new plants and seedlings over the original range every year. A priority for this project is to look at known methods to stimulate the seedbank so there is a chance to contain the population.

The opportunistic discovery of bitou bush in Kwinana highlights the importance of having 'eyes on the beach' to identify potential biological invaders. Perth Region NRM held information sessions to inform adjacent local governments and community groups on the identification of bitou bush.



Kathryn Batchelor and Dr John Scott supervising the removal of a large bitou bush from the Horse Beach area, Kwinana. Photo – Perth Region NRM.



Immature and ripe bitou bush seeds (left) and bitou bush seedling (right). Photos – Perth Region NRM.

Articles were published to inform the general community of its presence and steps to take if bitou bush appears in their coastal area.

**Contact:** Craig Wilson, Perth Region NRM. Phone: 9439 0433. Email: [Craig.wilson@Kwinana.wa.gov.au](mailto:Craig.wilson@Kwinana.wa.gov.au).  
Kathryn Batchelor, CSIRO. Phone: 9333 6643. Email: [kathryn.batchelor@csiro.au](mailto:kathryn.batchelor@csiro.au).

## Celebrating World Wetlands Day *By Denise Crosbie*

On Monday 2 February, 176 people attended the 11th WA Wetlands Management Conference, held at the Cockburn Wetland Education Centre to celebrate World Wetlands Day. This year's Ramsar theme was 'Wetlands for our Future'. The conference opened with a welcome to country by Noongar elder Reverend Sealin Garlett and included 26 speakers.

The conference was a wonderful opportunity for all 'wetlanders' to meet and celebrate our wetland heritage and to share ideas about how best to manage and conserve it. The conference was open to all with sponsorship enabling community volunteers, private landowners and students to attend, along with government and non-government officers, and industry representatives. This year's event was

sponsored by the City of Cockburn, Department of Water, WALGA and Parks and Wildlife, with support from Acton Real Estate and NRM Jobs.

The conference was organised by the Cockburn Wetlands Education Centre with assistance from steering committee members, WALGA, Wetlands Conservation Society, City of Cockburn, Parks and Wildlife and the State Wetlands Coordinating Committee along with numerous volunteers.

If you would like to hear about next year's conference, please visit <http://cockburnwetlands.org.au/world-wetlands-day/> and subscribe to the database.

**Contact:** Denise Crosbie, Cockburn Wetlands Centre. Phone: 9417 8460. Email: [denise@cockburnwetlands.org.au](mailto:denise@cockburnwetlands.org.au).



## Bird-of-paradise 'flies' and their marsupial mates By Penny Gullan

If you venture now into sandy heathland and dry sclerophyll forest of the south-west you may be lucky to see the beautiful bird-of-paradise 'flies'. They are conspicuous by their slow flight, red-purple tinted wings and their tuft of white 'tail' filaments that probably stabilise flight. These are not true flies, but rather the adult males of species in the scale insect genus *Callipappus* (order Hemiptera: family Callipappidae). They emerge in late summer through autumn in search of their large, wingless mates. Adult males and females of *Callipappus* exhibit extreme sexual dimorphism, as can be seen from the photograph. In a few species, the virgin adult female can be more than 5cm long. Denis Crawford, who runs the website Graphic Science, once described a pair of mating *Callipappus* as 'a bit like a peacock pairing up with a hippo'.

### Marsupial females and subterranean life

Following copulation, the females climb a tree, shrub or other vertical surface (even campers' tents and vans), exude glue from their body between their legs and fix themselves to the surface. Then each female undergoes a remarkable morphological transformation. She retracts the end of her abdomen into her body to form a pouch, or marsupium, into which she lays her numerous eggs. Each female may produce 1000 to 5000 eggs, depending on the species, and these develop protected by the increasingly dry and leathery skin of their moribund mother. After the eggs hatch, the tiny nymphs, called crawlers, depart their mother's marsupium and drop or walk to the ground where they enter the soil in search of an appropriate root. There are a couple of records from *Banksia* roots but the host plants are largely unknown. The young produce a thick waxy protective covering and develop for many months, perhaps even years (no-one knows), by sucking sap from the roots. They grow in size and moult their 'skin' several times, and eventually emerge as non-feeding adults that must reach the soil surface to find a mate.



A virgin adult female of *Callipappus* sought by two adult males. Photo – Penny Gullan.

### Conservation concerns

Adult emergence is most common in autumn, more rarely in late summer or winter. During the heat of summer when natural and human-initiated wildfires are most common, developing individuals of *Callipappus* are safe below the ground feeding on roots. As much of their natural habitat has been lost due to clearing for agriculture it is important that fire regimes for forests and remnant vegetation are managed appropriately.

### *Callipappus* in Western Australia

Scientific knowledge of *Callipappus* began about 175 years ago when the French entomologist Félix Édouard Guérin-Méneville received insects collected from the Swan River area and named them *Callipappus westwoodii* in honour of an English entomologist, Mr Westwood. It was another 80 years before species of *Callipappus* were reported from south-east Australia. We still have very little information on the life cycle, host plants and distribution of *Callipappus* species, probably because their development occurs underground. Even the number of species is unknown, but the south-west may be the epicentre of *Callipappus* diversity because the adults of a number of species new to science have been collected from pit-fall traps, especially in the Stirling Ranges. Please let me know of any sightings of *Callipappus*.



The adult male of *Callipappus* has a fluffy tail. Here seen at the Spectacles. Photo – Vicky Poelman.

Information on locations, flight times and records of vegetation and soil types would be useful contributions to further study.

### More information

Gullan, P.J. (2012) Beautiful bird-of-paradise 'flies' and their giant mates. *Victorian Entomologist* 42(2): 22–25.

Gullan, P.J. & Brookes, H.M. (1998) Giant females and bird-of-paradise flies: notes on the biology of *Callipappus* Guérin-Méneville (Hemiptera: Margarodidae). *Australian Journal of Entomology* 37: 2–7.

### Contact:

Penny Gullan, The Australian National University, Canberra.  
Email: penelope.gullan@anu.edu.au.

## Fire in Woodland Reserve

### From Page 1...

Feeding will continue until enough rain has fallen to stimulate the new plant growth required to sustain resident animals.

Park staff and firefighters from the departments of Parks and Wildlife and Fire and Emergency Services are to be congratulated for acting swiftly to ensure the safety of park visitors and our wildlife. Their work greatly reduced the impact of the blaze on the conservation area.

Our attention is now on the future. The park's revegetation program will focus entirely within Woodland Reserve this year, with more than 20,000 native seedlings already ordered. Monitoring of the resident animals is ongoing, with infra-red cameras a useful tool in looking for post-fire injuries and condition. Fire plans, while always under review, have been revised to ensure fire crews can access the reserve even faster in future. And, as we move into the cooler seasons, we are taking the opportunity to rebuild as much of the reserve as we can in readiness for the new life that spring will bring.

**Contact:** Chris Rafferty,  
Whiteman Park. Phone: 9209 6017.  
Email: Chris.Rafferty@planning.wa.gov.au.



Food has been put out for the native animals, such as this woylie, in the aftermath of the fire. Photo – Houndstooth Studio.

## Great Cocky Count this month *By Jess Lee*



2015 Great Cocky Count will take place this month. Photo – Keith Lightbody

The Great Cocky Count for 2015 will be held at sunset on Sunday 12 April 2015. It follows a record turnout for 2014's Great Cocky Count – one of the largest citizen science surveys of its kind in Australia. Birdlife Australia has now analysed the data from the past five annual counts.

For the first time we have evidence that there are fewer Carnaby's cockatoos on the Swan Coastal Plain. The cockatoo is listed as endangered. The birds breed inland but forage on the plain during summer and autumn.

We need a better understanding of habitat use across the range of the species. For more than a decade, BirdLife Australia has been engaging local communities and land managers to protect Carnaby's cockatoo and their critical habitat. This is achieved through data collection and monitoring including BirdLife Australia's Great Cocky Count, which aims to document patterns of abundance of Carnaby's cockatoos on the Perth-Peel Coastal Plain and beyond. We encourage members of the public to report sightings of black cockatoos in metropolitan Perth, and in regional areas

across the south-west. By doing so, we hope to gain a better understanding of the distribution of Carnaby's cockatoo to help assist conservation outcomes and secure this species' future.

Birdlife Australia's research on Carnaby's cockatoo extends into the Wheatbelt, with a breeding survey underway. We want to understand how the species' range has changed and, importantly, identify key breeding and feeding sites where we can direct on-ground recovery efforts. Carnaby's cockatoos breed from July to December. We are asking people to report any sightings of Carnaby's in the Wheatbelt during this time, so information can be collated on where cockatoos are breeding. We would also like to hear if they were previously present in your area but are no longer seen.

For more information about the Great Cocky Count, and to download the 2014 Great Cocky Count Report, visit [www.birdlife.org.au/carnabys/great-cocky-count](http://www.birdlife.org.au/carnabys/great-cocky-count).

**Contact:** Matt Byrne, Birdlife Australia (WA) Phone: 9287 2251.  
Email: [carnabys@birdlife.org.au](mailto:carnabys@birdlife.org.au)



# what's on


Opportunities for you to take part. Visitors always welcome but please confirm activities with the 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 Rutherford (ABBBS Coordinator) 0438 910 252 or 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.

**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.

**Saturdays 8.30am–10.30am**

 **Bushcare activities** with Friends of **Booragoon and Blue Gum Lakes**. First Saturday of each month. Contact Mary-Ann 9316 9716 or molly.olly1@bigpond.com.


**Saturdays, 8am-9.30am**

 Third Saturday every month. **Herdsmen Lake Bird Walk**. WA Gould League. Meet at Herdsmen Lake Wildlife Centre, cnr Flynn and Selby Sts Wembley. BYO sturdy shoes and viewing equipment. Gold coin donation gratefully received. Contact WA Gould League 08 9387 6079.

**Saturdays 8.30am–10.30am**

 **Bushcare activities** with Swan Estuary Reserves Action Group at **Alfred Cove** A-Class Nature Reserve. Fourth Saturday of each month. Contact Cathie oneillc@westnet.com.au or 93392439.

**Saturdays 9am**

 **Bushcare activities** with Friends of **Brixton Street** Wetlands. Third Saturday of each month. Meet Alton St, Kenwick. Contact Regina 9459 2964 or tjdrd@bigpond.net.au.

**Saturdays, Sundays 9am–12noon**

 **Koala maintenance** at **Yanchep** National Park. Call Ciara 9303 7771.

**Sundays 8am–9am**

 **Guided walks** with Friends of **Marangaroo**. Fourth Sunday of each month. Meet at Gate 3, Decoursey Way.

**Sundays 8am–10am**

 **Bushcare activities** every Sunday with Friends of **Shenton Park** Bushland. Contact Dani 9381 3470 or 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 or s3mmatthews@hotmail.com.

**Sundays 8.30am-9.30am**

 **Guided walks** followed by meeting with Friends of **Mirraboopa**. First Sunday of each month. Call Jan 9344 2872.


**Sundays 9am-11am**

 Friends of **Lake Claremont** busy bee and morning tea, second Sunday of every month. Meet at south end of Strickland St, Swanbourne. Current focus: hand weeding. Wear closed in shoes, hat and long-sleeves. Gloves and tools provided. Contact 0416 614 696 or www.friendsoflakeclaremont.org.


**Sundays 9am–11am**

 **Bushcare activities** with **Cottesloe** Coastcare. First Sunday of each month. Contact Robyn 9384 7668 or info@cottesloecoastcare.org or www.cottesloecoastcare.org.

**Sundays 9am–12 noon**

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


**Sundays 9.45am–12 noon**

 **Bushcare activities** with the Friends of **Piesse Brook**. Third Sunday of each month. Contact Gerry 9293 2517 or Bridget: bhogarth@ozemail.com.au.

**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. Phone 0413 282 515.


**Mondays 9am–11am**

 **Litter collection** with Swan Estuary Reserves Action Group at **Milyu** A-Class Nature Reserve, **South Perth**. Second Monday of each month. Contact Cathie 9339 2439 or oneillc@westnet.com.au.


**Mondays 8.30am–10am, Fridays 9.30am–2noon, Sundays 4pm**

 **Bushcare activities** with the Friends of **Mary Carroll Wetland** (Gosnells) every Monday. Volunteers also work fortnightly on Friday, 9.30am–12noon and meet at 4pm on first Sunday for cockatoo watch and bushcare. Contact Unice unicerobinson@gmail.com or 0434 831 230.


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

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


**Tuesdays 7am–9am**

 **Bushcare activities** with Swan Estuary Reserves Action Group at **Alfred Cove** A-Class Nature Reserve each Tuesday. Contact Cathie 93392439 or oneillc@westnet.com.au.


**Tuesdays and Thursdays, 8am–10am**

 **Coastal dune bushcare activities** – weeding and planting. **Stirling** Natural Environment CoastCare (SNEC). Contact Sheldon 0488 190 651 or Rae 0419 191 710 or www.stirlingnaturaleenvironmentcoastcare.com.

**Wednesdays, 3pm-5pm during school term**

 **Wildlife Wednesdays**. Join 'Eco-Warriors' at **Herdsmen Lake** Wildlife Centre. Contact 93876079 or Jenny@wagouldleague.com.au

**Thursdays 8am–9am**

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

**Thursdays 9am–1pm**

 **Bushcare activities** in **Margaret River** with the Capes Volunteer Team. Call 9757 2202.

**Thursdays 9am-11am**

 **Bushcare activities** on the fourth Thursday of each month at **Baldivis** Children's Forest. Contact education@baldivis-childrens-forest.org.au or www.baldivis-childrens-forest.com.au.

**Thursdays and Sundays 10am–12noon**


 Every Thursday and Sunday, **Discovery Centre** Tours, **Kanyana** Wildlife Centre. Close encounters with native animals and interactive **Discovery Centre**. \$15/adult, \$10/child, \$12/ senior, \$40/2A2C. Bookings essential info@kanyanawildlife.org.au or 9291 3900.


**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/adult, \$12/child, \$55/2A2C. Bookings essential info@kanyanawildlife.org.au or 9291 3900.

## April


 **10 Friday 12noon-12-45pm Urban Nature lunchtime seminar**. Early outcomes of topsoil transfer in *Banksia* woodland restoration Pawel Waryszak (Murdoch University). Contact **UN Seminar**.

 **10 Friday 7.30pm WA Naturalists' Club, Main Branch General Meeting**. *The Secret Life of WA Marine Turtles* Kellie Pendoley. Hew Roberts Lecture Theatre, UWA, Nedlands. Contact 9228 2495 or info@wanaturalists.org.au.


 **10 Friday 7.30pm WA Naturalists' Club Darling Range Branch Meeting**. *Bibbulman Track* Diana Papenfus. CWA Hall, Kalamunda. Call 9293 1676.


 **11 Saturday 9am** Free morning walk with Friends of **Bold Park Bushland** Volunteer Guides. Contact **BGPA**.

 **12 Sunday 9am-11am Work morning. Wilson wetlands** Action Group. Contact Russell 9258 7301 or wilsonwetland@gmail.com.


 **15 Wednesday 9am** Free guided walk and talk. Friends of **Brixton Street** Wetlands Kenwick. Morning tea provided. Meet Alton St Kenwick. Call Regina 9459 2964.


 **15 Wednesday 10am-1pm** All about leaf litter. School holiday workshop for 8-12 year olds. Contact **BSFH**.

 **16 Thursday 8am** **Bird walk**. Tomato Lake, **Kewdale**. Meet near the tearooms. Contact **Birdlife WA**.

 **16 Thursday 9am** Free morning walk with Friends of **Bold Park** Bushland Volunteer Guides. Contact **BGPA**.

 **18 Saturday 8am – 9:30am Herdsmen Lake Bird Walk**. Meet at Herdsmen Lake Wildlife Centre, cnr Flynn and Selby Streets Wembley. BYO Sturdy shoes and viewing equipment. Gold coin donation gratefully received. Contact WA Gould League 9387 6079.

 **19 Sunday 8am** **Bird walk**. Ray Marshall Park, **Viveash**. Meet in car park off 1st Ave. Contact **Birdlife WA**.

 **19 Sunday 9am** Free morning walk with Friends of **Bold Park** Bushland Volunteer Guides. Contact **BGPA**.

## Registration/contact details















**BGPA Botanic Gardens & Parks Authority**. All walks leave from Tuart car park on Perry Lakes Dr, City Beach. Contact friendsbp@bgpa.wa.gov.au or 9480 3996 or www.bgpa.wa.gov.au.

**BirdLife WA**. Contact 9383 7749 Monday–Friday, 9.30am–12.30pm or wa@birdlife.org.au. All walks are free. Bookings not required.












**BSFH Bush Skills for the Hills**. Contact Eastern Metropolitan Regional Council 9424 2216 or environment@emrc.org.au.

**UN Seminar. Urban Nature Seminar series**. Tondirrup/Nambump meeting rooms at the Keiran McNamara Conservation Science Centre, Parks and Wildlife, 17 Dick Perry Avenue, Kensington from 12–12.45pm. Free, no need to RSVP. Free parking. BYO lunch.

## May

-  **1 Friday 12noon-12.45pm Urban Nature lunchtime seminar.** Eucalyptus wandoo crown decline and its influence on wildlife Tracey Moore (Murdoch University and Parks and Wildlife). Contact **UN Seminar**.
-  **1 Friday 7.30pm WA Naturalists' Club, Main Branch General Meeting.** Salt lakes – iconic centres of evolution in the WA desert Adrian Pinder. Hew Roberts Lecture Theatre, UWA, Nedlands. Contact 9228 2495 or info@wanaturalists.org.au.
-  **2 Saturday 9am** Free morning walk with Friends of **Bold Park** Bushland Volunteer Guides. Contact **BGPA**.
-  **2 Saturday, 10am-12noon Fire, Fuel Loads, Property Planning and your Bushland.** Mundaring. Contact **BSFH**.
-  **3 Sunday 9am-11am Work morning. Wilson wetlands** Action Group. Contact Russell 9258 7301 or wilsonwetland@gmail.com.
-  **8 Friday 7.30pm WA Naturalists' Club Darling Range Branch Meeting.** *Venomous Snakes* Gane Doyle. CWA Hall, Kalamunda. Call 9293 1676.
-  **13 Wednesday 9am** Free guided walk and talk. Friends of **Brixton Street** Wetlands Kenwick. Morning tea provided. Meet Alton St Kenwick. Call Regina 9459 2964.
-  **14 Thursday 8am** **Bird walk.** Ascot Waters, **Ascot**. Meet in car park off Tidewater Way. Contact **Birdlife WA**.
-  **14 Thursday 9am** Free morning walk with Friends of **Bold Park** Bushland Volunteer Guides. Contact **BGPA**.
-  **17 Sunday 9am** Free morning walk with Friends of **Bold Park** Bushland Volunteer Guides. Contact **BGPA**.
-  **17 Sunday 9am-11am Work morning. Wilson wetlands** Action Group. Contact Russell 9258 7301 or wilsonwetland@gmail.com.
-  **18 Monday -20 Wednesday 9am-12.30pm Arbor Planting Event.** **Wilson wetlands** Action Group. Contact Russell 9258 7301 or wilsonwetland@gmail.com.
-  **22 Friday 7.30pm Nocturnal walk** in **Star Swamp** Bushland. Meet Henderson Centre, Groat St North Beach. Bring a torch. Call Christine 0430 013 364.
-  **23 Saturday 8am** **Bird walk. Bull Creek** Wetlands – meet in Spinaway Cres. Contact **Birdlife WA**.

## June

-  **5 Friday 12noon-12.45pm Urban Nature lunchtime seminar.** *The fire-climate squeeze in SW Australia: identifying management options to optimize conservation outcomes* Joe Fontaine (Murdoch University). Contact **UN Seminar**.
-  **5 Friday 7.30pm WA Naturalists' Club, Main Branch General Meeting.** *Fungi* Kevin Thiele. Hew Roberts Lecture Theatre, UWA, Nedlands. Contact 9228 2495 or info@wanaturalists.org.au.
-  **6 Saturday 9am** Free morning walk with Friends of **Bold Park** Bushland Volunteer Guides. Contact **BGPA**.
-  **7 Sunday 9am-11am Work morning. Wilson wetlands** Action Group. Contact Russell 9258 7301 or wilsonwetland@gmail.com.
-  **11 Thursday 8.30 am** **Bird walk. The Spectacles,** Kwinana. Meet in car park off McLaughlan Way. Contact **Birdlife WA**.
-  **11 Thursday 9am** Free morning walk with Friends of **Bold Park** Bushland Volunteer Guides. Contact **BGPA**.
-  **12 Friday 7.30pm WA Naturalists' Club Darling Range Branch Meeting.** *Members' tales of travel and exploration.* CWA Hall, Kalamunda. Call 9293 1676.
-  **14 Sunday 8am** **Bird walk. Tom Bateman Reserve,** Thornlie. Meet in car park off Wilfred Rd. Contact **Birdlife WA**.
-  **17 Wednesday 9am** Free guided walk and talk. Friends of **Brixton Street** Wetlands Kenwick. Morning tea provided. Meet Alton St Kenwick. Call Regina 9459 2964.
-  **21 Sunday 9am** Free morning walk with Friends of **Bold Park** Bushland Volunteer Guides. Contact **BGPA**.
-  **21 Sunday 9am-11am Work morning. Wilson wetlands** Action Group. Contact Russell 9258 7301 or wilsonwetland@gmail.com.
-  **27 Saturday 9am-12.30pm Creekline and bushland critters.** Contact **BSFH**

## Highlights

### 4 April – 9 May

**Nearer to Nature** has a fabulous program of activities to get the kids (and adults) out and about in the wonderful Perth outdoors exploring all that nature has to offer during the autumn school holidays. Chidlow, Canning River, John Forrest, Mundaring, Perth Observatory, Star Swamp, Trigg Beach, Woodman Point and Yancheep. Bookings 9295 2244. Visit [www.dpaw.wa.gov.au/n2n](http://www.dpaw.wa.gov.au/n2n).

### 7-9 May

**Celebrating Soils 2015.** WA Soils Conference, Mandurah. Visit <http://soilscienceaustralia.org>.

### 21-23 September

**2015 State NRM conference,** Mandurah. [www.nrm.wa.gov.au](http://www.nrm.wa.gov.au).

### DPaW volunteer programs

Visit <http://www.dpaw.wa.gov.au/get-involved/volunteering-opportunities>.

### Bibbulmun Track Foundation

**Events.** Suit all ages and most fitness levels. From guided walks to learning how to cook on a fuel stove. Visit [www.bibbulmuntrack.org.au/walk-the-track/events-calendar/](http://www.bibbulmuntrack.org.au/walk-the-track/events-calendar/).

### Conservation Volunteers activity schedule.

Free one-day local practical conservation activities or overnight country trips. Contact Katie 9335 2777 or [perth@cva.org.au](mailto:perth@cva.org.au) or visit [www.conservationvolunteers.com.au](http://www.conservationvolunteers.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.

## Learning opportunity

### Exciting new Bush Skills for Hills Youth program

EMRC has secured Lotterywest funding for the Bush Skills for Youth program, which includes a series of landcare workshops for 8-16 year-olds. The two-year pilot program aims to raise environmental awareness, promote volunteering in Perth's eastern region and encourage youth to become environmental stewards. Workshop topics include wildlife, bush tucker and water bugs. Contact: Jaya Vaughan, EMRC. Phone: 9424 2245. Email: [jaya.vaughan@emrc.org.au](mailto:jaya.vaughan@emrc.org.au).

## Funding opportunities

### Swan River Trust Alcoa Landcare Program

Funding is available for 2016 for a wide range of revegetation and rehabilitation activities within the Swan Region that retain, restore and manage bushland, coastal, wetland and foreshore vegetation; or protect and enhance the quality of surface water and groundwater.

The SALP 2016 round opened on 24 February 2015 and **closes on 30 April 2015**. Visit [www.perthregionnrm.com/pr-nrm-programs/salp/funding-reporting-stories.aspx](http://www.perthregionnrm.com/pr-nrm-programs/salp/funding-reporting-stories.aspx).

### State NRM Program Community Grants

The State NRM Program provides funding for community-based projects that conserve, restore, rehabilitate or enhance the environment. Grants are **expected to open in April 2015**. Visit <http://www.nrm.wa.gov.au/grants.aspx> and subscribe to updates.

### Coastwest

Grants are provided to coastal managers and community groups to support the implementation of management plans and improve the condition and amenity of WA's coastal environments. Funding on-ground action, identification and monitoring, site or local area planning and capacity building. Coastwest grants are likely to **open mid-April 2015**. Visit <http://www.planning.wa.gov.au/4977.asp>.

### Trails Grants

Lotterywest Trails Grants are now open any time of the year. Not for profit groups and local government can access funding of up to \$100,000 for planning, development and promotion of all types of trails that have a clearly identified community benefit. Visit [www.lotterywest.wa.gov.au/grants/grant-types/trails](http://www.lotterywest.wa.gov.au/grants/grant-types/trails).



Please send us your regional report (150–200 words) and a photo by Friday 5 June 2015. Text may be edited in response to volume of submitted reports.

## Planting at Booragoon Lake *By Heather Pearson*

Last year the Friends of Booragoon and Blue Gum Lakes received a \$28,000 State NRM grant for extensive weed control and planting 6,500 native plants at Booragoon Lake.

To manage such large plantings, the Friends held two community planting mornings and provided free morning tea and a sausage sizzle lunch. Held in June and early November, both events were successful with a good turn-out of volunteers.



*The Bateman/Winthrop Scout group has helped the Friends of Booragoon Lake with planting natives in the reserve. Photo – Heather Pearson.*

In November our numbers were significantly boosted by members of the local Bateman/Winthrop Scout group, with 23 scouts helping out the 17 adult volunteers.

Prior to this, environmental students from the nearby Murdoch campus of Challenger Institute of Technology spent an evening with the scouts to educate them about the value of wetlands, especially our local reserves. This was organised by Dr Kim Benjamin, lecturer in applied science, who over the past six years has been using Blue Gum Lake as a case study for her students' course work and who has been working with the Friends group since 2013.

The group looks forward to continuing this collaboration with the scouts and the Challenger students, hopefully providing a strong group for further rehabilitation work at the reserves.

**Contact:** Heather Pearson, Friends of Booragoon and Blue Gum Lakes. Phone: 0412 047 025. Email: heja13@bigpond.com.

## The bench-mark of respect for dedicated volunteer *By Brad Thompson*

Walkers through Black Cockatoo Reserve in Mundaring will find a welcome new place to rest, thanks to community members who have installed a bench in memory of dedicated volunteer Helen Harvey, former co-ordinator of the Black Cockatoo Friends Group. Helen passed away at the beginning of 2014 and current group members wanted to show their gratitude for her hard work in the reserve.

After working with the Shire of Mundaring, the group obtained a small shire community grant to purchase the bench and a plaque detailing the history of Helen's work on the reserve to be installed next to the bench site. "We just wanted to let people know about Helen's passion for the bush, she walked through the reserve every day and no weed could escape her eagle eye," said Kaylene Watts, the new co-ordinator for the Black Cockatoo Friends Group.

The group is looking for new members to help with planting and weed removal in the reserve.

**Contact:** Shire of Mundaring. Phone: 9290 6685.



*The Black Cockatoo Friends Group trying out the newly installed bench. Photo – Brad Thompson.*



## Wetlands care message delivered

By Mia Lacy



*The smoking ceremony was a highlight of the recent 'evening with David Rennie'. Photo – Peel-Harvey Catchment Council.*

'An evening with David Rennie and friends' presented by Peel Harvey Catchment Council, aimed to celebrate the Peel-Yalgorup Ramsar-listed wetlands and raise awareness of the need for everyone to take ownership and action to counteract the wetlands' degradation.

The special event, held at the Mandurah Performing Arts Centre, began at twilight with a peppermint leaf smoking ceremony in Mandjar Square. Wildlife photographer and passionate environmentalist David Rennie, winner of the prestigious ANZANG Nature Photographer of the Year award with this stunning image 'Near Miss' and featured on Australian Story last year, led the evening. He was joined on stage by a colourful and committed cast, featuring local elder Harry Nannup, nature poet Annamaria Weldon, Pip Newman from Men of the Trees, the Binjarreb Middars Dance Group and the Madjitil Moorna Choir.

People who attended said they were impressed with the passion of the presenters and the way the conservation concept was interwoven. David Rennie commented from stage that he could see people were entertained and that the message crafted in song, dance and story had resonated. Rennie urged people to continue to take actions that upheld the values of Ramsar wetlands site number 482. The Peel-Harvey Catchment Council was delighted to have David and his friends create such an engaging program, and particularly thank the presenters who volunteered their time.

**Contact:** Jane O'Malley, Peel-Harvey Catchment Council. Phone: 6369 8800.  
Email: jane.omalley@peel-harvey.org.au.

## Star Swamp's 30th anniversary

By Christine Curry

In 1985 the State Government gazetted the 96ha now known as Star Swamp Bushland Reserve as a Class-A Reserve. 2015 marks the 30th anniversary of both the reserve and the Friends of Star Swamp Bushland. Over the years there has been an ongoing program of bushcare work, including weeding, planting, fencing and general management and the Friends group now works very closely with the vested authority for the reserve, the City of Stirling.

An updated Star Swamp Bushland Management Plan was released in 2014 and work is underway to implement the recommendations. Weeds are, of course, a major problem and work is ongoing to control them, although it must be noted that the Friends' annual 'lupin pulls' have reduced lupin numbers by around 90 per cent in the past 40 years (yes, this project is older than the reserve itself!). In addition, it has been confirmed that quendas inhabit the reserve. Parks and Wildlife has now relocated more quendas to the reserve under its translocation program. The City of Stirling has taken an active management interest in the project, with concentrated on-the-ground bushcare and fencing projects in the area identified as quenda habitat. The Friends' group is looking forward to putting many more years work into the Star Swamp Bushland Reserve, doing what we can to assist with the preservation and regeneration of this vital piece of urban bushland.

**Contact:** Christine Curry, Friends of Star Swamp. Phone: 0430 013 364.



*Weeds can hitch a ride and move around the landscape in non-composted mulch. Golden crown beard or wild sunflower (*Verbesina encelioides*) was discovered in a revegetation area at Baigup Wetlands on the Swan River in the summer of 2012 and 2013 without being identified as such. It was identified when it reappeared in 2014. Golden crown beard has been ranked an alert species for Parks and Wildlife's Swan Region to prioritise swift action to prevent its establishment in natural areas and nature reserves. Baigup Wetlands Interest Group and the City of Bayswater have controlled this annual weed and are working together to monitor re-emergence in spring next year. Photo – Penny Lee.*

## Bridled terns By Aurelie Labbe



Left: An adult bridled tern on top of a nest tube with its egg inside. Right: Bridled tern chick (1 week old). Photos – Alain Labbe.

**Bridled terns (*Onychoprion anaethetus*) are conspicuous seabirds that breed on Penguin Island during summer. Investigating their breeding habits is crucial for implementing management approaches as their breeding season coincides with increased tourism activity during the summer holidays.**

My doctoral project is a continuation of Dr Nic Dunlop's 30-plus years of research on this species. Bridled terns arrived on Penguin Island in 1952 and their numbers have increased from a few pairs to an estimated 4000 breeding pairs in 2008. Bridled terns

are a tropical species of marine bird and they benefit from climate change and the strong warm-water Leeuwin Current that flows southwards along the WA coast.

A number of artificial nest tubes were installed on the north-east end of Penguin Island in 2013 in an effort to encourage bridled terns to nest in an area that has been degraded by weeds. The nest boxes that were taken up have been closely monitored to determine whether older parents are better at raising chicks than younger pairs. Bridled terns only lay one

egg per breeding attempt and concentrate their effort into raising a single chick. An egg may fail to hatch due to predation or disorganised incubation shifts between the two parents. In this case, the pair may make a second attempt and lay another egg, if it is not too late in the season.

In summer 2010-11 black rats caused havoc on Penguin Island and had a devastating effect on bridled terns, killing almost all the chicks. As a result, it is important for them to have more successful breeding seasons so they can recover from the loss of an entire cohort of chicks.

My current project focuses on determining chick feeding rates and parental guarding shifts. Chicks' growth is also measured on a weekly basis, with weight, wingspan and skeletal dimensions taken. Swabs of preening oils (the oil that they use to make their feathers waterproof when grooming) will help determine if they have been ingesting soft plastics and if this is posing a risk to their health and development.

With the current breeding season coming to a close, bridled terns and their fledglings will start flying back to Indonesia and the Celebes Sea in April. This will mark the end of the project's second season. During winter, weed control, re-establishment of native plant species and the re-introduction of *Malva preissiana* are the next phases of this research project. The long-term goal is to remove the artificial nest tubes but leave the native plants that were planted around them, so that bridled terns can come back to their nesting spots the following year.

**Contact:** Aurelie Labbe, Murdoch University. Email: aurelie.mt.labbe@gmail.com.

## Ever seen a moyitj? By Dale Tilbrook



Moyitj, rakali or water rat – have you seen one?  
Photo – Dale Tilbrook.

This beautiful water mammal (*Hydromys chrysogaster*) is called different names around Australia by the Aboriginal people. In the south-west of WA the Wadjuk people of the Perth region use moyitj. Some other names recorded in the south-west are muritya and ngurju [Moore] and Wnanip-wanip [Whitehurst].

The name rakali is used by some Aboriginal groups in eastern Australia as reported on the *Offtrack* programme on ABC Radio National, however the local name is moyitj. It is important to keep local language alive and spoken.

The citizen's science survey carried out by WWF Australia and Parks and Wildlife in the south-west, ended in March 2015.

**Contact:** Dr Sabrina Trocini, WWF. Phone: 08 6231 0223. Web: [wwf.org.au/rakali](http://wwf.org.au/rakali).



## Are banksia ranges contracting due to climate change? *By Sarah Randell*

Western Australia's South West is renowned for its astonishing floral diversity, however climate change may be undermining this. Since the 1970s, the South West has become warmer and significantly drier, with a 14 per cent decrease in early winter rainfall. To conserve WA's flora under future climate change, it is critical to understand how recent change has affected the distribution of important species. I am conducting an Honours project to investigate whether recent climate change has caused range shifts in banksia, one of our iconic and ecologically important native plants.

My project focuses on six common banksia species. For each species, I have selected 50 records from the *Banksia Atlas*. All the records have precise locality statements, making it possible to revisit the sites to determine whether the banksia populations still exist. Of the 50 sites per species, 25 are at the warm, dry end of the range and 25 are at the cool, moist end. By comparing detection rates at these two ends of the range, it should be possible to detect likely changes in their distributions, which could be explained by climate change. But there are 300 sites that need revisiting, so I need help!

If you are an enthusiastic volunteer and can recognise common banksia species, I invite you to join this project to survey the sites within the next five months. I will provide a list of sites and volunteers can choose which ones they are willing and able to visit. At each site, you will complete a simple and short project survey sheet.

You will be helping understand the impacts of climate change on WA's flora. Your help is valuable and much appreciated.

**Contact:** Sarah Randell, UWA. Email: 20377176@student.uwa.edu.au. Or join the Banksia Resilience Study group on Facebook: [www.facebook.com/groups/747626985334058/](http://www.facebook.com/groups/747626985334058/).



*Banksia prionotes is one of the species being studied by Sarah. Photo – Sarah Randell.*

## Friends of Dianella Bushland *By Jan Bant*



*Dianella Bushland is home to the closest mob of western grey kangaroos north of the CBD.*

**The Friends of Dianella Bushland recently celebrated our 20th anniversary. The first meeting was held in March 1994 and concerned a plan to rezone Lot 50, now known as Cottonwood Crescent Nature Reserve, to allow housing development. As the convenor, the late Jon Lumley, a local veterinarian, noted the bushland was "in exceptional condition" and "home to a family of six kangaroos, abundant birdlife, native flowering plants, and sandplain banksia woodland tree species". He called it the 'linchpin' of a corridor of native bush extending from Morley Drive to Mirrabooka and beyond.**

ABC Radio personality Eoin Cameron became involved in the campaign as a Member of Parliament when he was approached by a delegation of the newly-formed Friends of Dianella Bushland. Due to his previous media involvement, Eoin was able to approach the television stations with interests in the land. After rallies, letter drops, quiz nights and extensive lobbying of landholders, state government departments and the local council, the land was vested to the people of WA.

The bushland has since been included in Bush Forever (Site 143). It is an important area of remnant bushland, with the closest mob of western grey kangaroos north of the CBD – a tourist attraction as well as a wonderful asset to local residents.

The Friends group remains active in the bushland, and holds monthly meetings. Walks are regularly held for the general public. Last September an art competition was held with local schools, to highlight the hidden treasures of the bushland. Wonderful work ranging from pottery to photo collages showing the values of the bushland was entered and 13 prizes were presented. Thanks to City of Stirling for a Cultural Development Fund Grant; Members of Parliament Ian Britza and Janine Freeman, and IGA for donations towards this event; and UBC for being our auspicing group.

All the original arguments the group raised for retaining the bushland are equally valid today. The upcoming move of neighbouring media organisations has raised the question about what will happen with bushland currently zoned for media use. Technological change means the television stations no longer need large tracts of land, and all will move to inner city sites within the next few years. The current Friends group has been lobbying hard to maintain this area for its natural values and we appreciate help from anyone who would like to assist.

**Contact:** Jan Bant, Friends of Dianella Bushland. Phone: 0408 024 800.



*Annie Medley painting in the bush for the Friends of Dianella Bushland's celebratory morning tea. Photos – Jan Bant.*

# Resources

## New publications

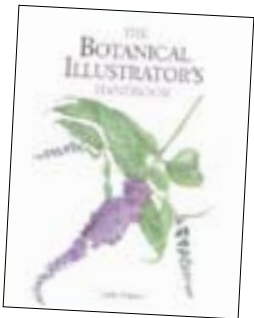
### The Urban Forest of Perth and Peel

Statistical report CSIRO 2009 Urban Monitor (2014) Western Australian Planning Commission. Individual trees located on private lots, public streets and in parks and gardens all contribute to an urban tree canopy. While trees in gardens, parks and on streets have always been valued for their aesthetic contribution to neighbourhoods and town centres, the environmental benefits they provide are not always well understood. This report includes a series of maps showing the density and location of tree canopy cover over the metropolitan area in 2009. Visit [www.planning.wa.gov.au/publications/7216.asp](http://www.planning.wa.gov.au/publications/7216.asp).



### Botanical illustrator's handbook.

Sally Pinhey. 2014. Ramsbury: The Crowood Press. 128 pp. \$45.00. In this book, Pinhey takes a closer look at how to accurately portray the riches of the botanical world. Examines many of the difficulties that artists encounter, allowing them to extend and expand their choice of subject matter.



**Djerap: Noongar birds.** Lois Spehn-Jackson and Maree Klesch (eds). 2014. Batchelor Press. 218pp. \$25

Djerap is the largest collection of Noongar birds in one publication with 198 birds listed. It is the first Noongar book to include the three contemporary Noongar dialects. Djerap is organised into four sections reflecting habitats in the south-west of WA; Balyan-boodja (wetlands), Moondak (forest), Waaloo (open country) and Maambakoort-ngat (coastal). The bird photographs are accompanied by paintings of WA's wildflowers provided by Cheryl Martin and Theresa Walley. Visit [batchelorpress.com/node/276](http://batchelorpress.com/node/276).



## Apps

**Coastal Walkabout** is an easy-to-use smartphone app designed to encourage people of all ages and abilities to get out into their coastal environments and record observations of the fauna living there. The app will automatically take note of the time and location (GPS) before uploading that data in real time to a website, where it can be freely accessed by researchers, the general public and organisations all over the world. The Coastal Walkabout app can also be adapted for specific projects for community, industry, NGOs, government and researchers; collectively contributing to a massive open access database. Available from the iTunes Google play stores.

## Websites

**Dieback Treatment Videos.** Two new videos have been uploaded to you-tube as a resource for bushcare volunteers and students to learn how to undertake phosphite stem-injection. Dieback Stem Injection is a new video presented by the Shire of Kalamunda and the Dieback Working Group. Visit [www.youtube.com/watch?v=8zxySYAE044](http://www.youtube.com/watch?v=8zxySYAE044). Roleybushcare have also uploaded their Dieback Treatment Video Series visit [www.youtube.com/channel/UCbkURfN6SOpGyglld7P7jrw](http://www.youtube.com/channel/UCbkURfN6SOpGyglld7P7jrw).

### Perth Green Events

Listings of events about environment, gardening, sustainability, nature and more in WA. Visit [www.perthgreenevents.com](http://www.perthgreenevents.com).

**Ockham's Razor** Clare Snow's blog about nature surrounding her in the northern suburbs of Perth. Visit: [ockhamsrazor.wordpress.com/](http://ockhamsrazor.wordpress.com/).

## Lookout for

### Feather-horned beetles (*Rhyticera sp.*)

Look out for the feather-horned beetles (*Rhyticera sp.*). These intriguingly beautiful insects begin to appear when the weather starts to cool. Only the males sport the lavish antennae. As pictured, feather-horned beetles can be encountered perched on branches and foliage but more often are observed in flight. Photos – Bryony Fremlin.



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