

Issue 98

Winter 2016

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Djilba in the Nyoongar
calendar.

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Is Banksia resilient to climate change?

An Honours project with WA Herbarium and UWA
By Sarah Randell

Banksia on the move?

Due to climate change many species will need to move in order to track suitable climatic conditions. My honours project, the Banksia Resilience Study, investigated whether six common and ecologically important banksia species of south west WA (*B. attenuata*, *B. menziesii*, *B. prionotes*, *B. grandis*, *B. littoralis* and *B. seminuda*) were contracting southwards in response to increased aridity. Since the 1970s the south west has suffered a 15 per cent decrease in early-winter rainfall.

Experimental design

The study involved comparing the six banksia species' historic distribution at the time of the step-down in rainfall with their current distribution. Fortunately, distributional records were available from the *Banksia Atlas*, a citizen science project conducted in the 1980s. Using this atlas, I selected historic records from the two extreme ends of each species' distribution (i.e. the arid northern end and the mesic southern end) and compared detection rates between these two range ends by revisiting each historic record in 2015. If climate change was inducing range shifts in banksia, then I expected to find greater absences in the northern end of each species' range.

Citizen science campaign

At the end of my site selection process I had a total of 300 sites to survey. This was far too many sites to visit alone so drawing inspiration from the *Banksia Atlas*, I set up a citizen science campaign on Facebook. Forty generous volunteers collectively surveyed 90 per cent of the sites and I owe the success of this project to their hard work and enthusiasm. I would like to particularly thank the Warren Catchments Council who surveyed the majority of my southern sites.

Overall no evidence of range contraction

Overall the collated results of the presence or absence survey did not find evidence of range contraction. While some population extinction had occurred since the 1980s, there was no significant difference in persistence between north and south range ends in all species



Banksia menziesii growing with kwongan vegetation at the northern extent of its range. Of the six banksia species studied only one, *B. grandis*, has recorded a range contraction south in response to climate change. For the other species, weed invasion was a significant factor in the local extinction of populations. Photo – Sarah Randell.

except *B. grandis*. For *B. grandis* there was a significant difference in persistence between north and south range ends, with more extinction occurring in the north. My results suggest that climate change is not causing range contraction in at least five of the six banksia species just yet. This does not mean that banksia will not move as climate change progresses, but just that banksia appear to be coping with the change that has occurred so far.

Weed invasion influencing local extinction of banksia

I conducted further analysis to determine whether any other factors apart from climate change could be influencing local extinction of banksia at my sites. Weed invasion consistently emerged as the most significant factor influencing local extinction. This is a timely reminder that, irrespective of climate change, the health of our banksia woodlands is already compromised. Scientific literature around ecosystem resilience suggests that as climate change progresses the most important thing is for banksia woodlands to be as healthy as possible. Our priority for the present should be doing what we can at a local scale to protect and improve their resilience so they have the capacity to cope with the stress of climate change.

Contact: Sarah Randall, University of WA by [email](mailto:sarah.randell@uwa.edu.au).

Restoring shrublands on Penguin Island

By Kate Brown

Since 2014 restoration of berry saltbush shrublands (*Rhagodia baccata*) on Penguin Island has been the focus of joint project between Parks and Wildlife's Urban Nature program and Swan Coastal District, and Murdoch University. Large areas of the shrublands, which are critical habitat for bridled terns, have in recent years been displaced by dense stands of introduced annual grasses largely a result of disturbance from nesting colonies of silver gulls (*Chroicocephalus novaehollandiae*). The aim of the project is to re-establish bridled tern habitat and control annual weeds. We all met up onsite in March to assess the outcomes of 2015 restoration trials. The results are summarised below.

- Brushing areas with berry saltbush carrying ripe fruits produced 75–100 per cent cover of seedling shrubs within three months if protected from gulls.
- Simply removing annual weeds and protecting areas from the disturbance caused by gulls can facilitate some regeneration of native shrublands.
- Planting tube stock, the most expensive option, was effective if protected from gulls and where weeds were managed produced a significantly higher cover of natives than where weeds were not managed.



In March 2016 project partners visited the Penguin Island trial sites, protected from silver gulls by weldmesh cages. Photo – Grazyna Paczkowska

The next part of the trial is to see if established shrublands can persist without protection from gulls and if they displace annual weeds. The proceedings of a workshop, [Natural History and Management of the Shoalwater Islands](#) provides more information on the project.

During the remainder of 2016 we are hoping to implement trial results and are looking for volunteers who might enjoy a monthly work day on Penguin Island. If you would like to be involved please [email me](#). For people managing weeds on islands a new publication *The status and distribution of naturalised alien plants on the islands of the west coast of Western Australia* by M T Lohr and G Keighery has just come out in [Conservation Science WA](#). The Australian [Weeds Conference](#), held in September in Perth this year is also looking at including a session about weeds on islands.



The Friends of The Spectacles have been working with Urban Nature for the past three years tackling pigface (*Carpobrotus edulis*) invasion in the eastern, least disturbed section of The Spectacles. This May we returned to weed an area that was burnt the year before. The bushfire had stimulated massive germination of seedlings and we removed almost nine times the amount plants that were weeded and mapped two years before. It was also great to see the natural regeneration. Graeme Lockhart, Janene Watts and Linda de Boulay have the satisfaction of a job well done. Photo – Karen Jackson.

Urban Nature Update

By Julia Cullity

This issue is all about citizen science. Sarah's banksia research on our cover wouldn't have been possible without the assistance of volunteers and Econotes sneaks a look at current projects that need volunteers. Most of the groups contributing regional reports probably wouldn't consider themselves as scientists but the observations they make in their patches and sharing them with others is what citizen science is about.

I'm about to take a long break and will be back next year for the autumn issue. Rebecca Ong will be stepping in for me and we will welcome back Jill Griffiths as our editor. So please keep those interesting stories coming in.

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Current and archived issues of *Bushland News* are available at www.dpaw.wa.gov.au/bushlandnews.

Spring Bushland News

Spring *Bushland News* contributions should be sent to [Urban Nature](#) by **Wednesday, 31 August 2016**. *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.

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The movement south of golden crownbeard (*Verbesina encelioides*)

By Kate Brown

A number of enquiries have been coming into our office during the past few months from people driving along Wanneroo Rd near Yanchep who have spotted what appears to be sunflowers growing on the road verge. Superficially similar to sunflower (*Helianthus annua*), *Verbesina encelioides* or golden crownbeard has in recent years been making its way slowly south from Geraldton, down Indian Ocean Drive. One of the most common ways for this weed to spread is via machinery and soil movement associated with road works. Golden crownbeard has the potential to become a serious environmental weed of bushland on the Swan Coastal Plain. It is on the alert list for Parks and Wildlife Swan Region, and with populations still very localised it is a high priority for control.

Golden crownbeard is an annual or short lived perennial herb spread by seed that can remain viable in the soil for up to three years. Native to parts of the United States and Mexico, it has become naturalised across Europe, Asia, Africa, the Pacific Islands and Australia. While there are occasional earlier records from the Perth area, sightings and collections of the species in the region have increased markedly in the last two years and recently it has been recorded as naturalised in regionally significant bushlands.

Disturbed sandy substrates are particularly vulnerable to invasion and characteristics that make it a serious environmental weed include the ability to invade native vegetation and displace native flora, high seed production, seed dormancy, the ability to tolerate dry conditions, toxicity to stock and its reported allelopathic effects.

Golden crownbeard can grow to 1.5m and forms dense stands. It is of particular concern on off shore islands where it can cause substantial degradation to seabird habitat by creating a physical barrier between nesting birds and their chicks,

lowering nest density and shading out native plants. On the Hawaiian islands it has seriously impacted the nesting activities of a number of marine birds including Laysan albatross (*Phoebastria immutabilis*), blackfoot albatross (*Phoebastria nigripes*), Christmas shearwater (*Puffinus nativitatis*) and wedge-tailed shearwaters (*Puffinus pacificus*).

Suggested method of management and control

Hand remove isolated plants, including tap root, before seeds set. Carefully dispose of plants as they are known to re-sprout roots. In degraded areas try one per cent glyphosate plus Pulse® 2 ml/L or in more intact bushland, Lontrel® 2 ml/L plus wetting agent. Apply herbicide before seed set. Follow up control will be required on germinating seedlings for at least three years. Read the manufacturers' labels and material safety data sheets before using herbicides. For further information consult the [Australian Pesticides and Veterinary Medicines Authority](#) to determine the status of permits for your situation or state.



Golden crownbeard flowers resemble small sunflowers (above), the leaves are lobed or toothed (below left) and plants are annuals or short lived perennials (below).
Photos – Kate Brown.



Contact: Kate Brown, Parks and Wildlife.
9442 0321 or [email](#).

Citizen science in your community *By Julia Cullity*

Citizen science brings together interested volunteers and professional researchers to answer questions that are too large, detailed or complex for either to solve on their own. Naturalists have been at the forefront of citizen science for hundreds of years supporting biologists with new discoveries of the natural world, and with inventory and observations such as bird lists or flowering times in their local areas. The more recent Landcare/Bushcare movement is a great example of volunteers working together, sometimes with professionals and sometimes without, to generate information on bushland management within their patch. Other projects are more formal. Below we explore new and established citizen science projects that are helping the management and conservation of WA's biodiversity and that are seeking interested participants.

Online citizen science

Parks and Wildlife's wildlife recovery program [Western Shield](#) is working to control the impact of introduced predators on WA native animals. Earlier this year the program launched [Western Shield – Camera Watch](#) on the online research platform [Zooniverse](#). Volunteers are asked to identify the animals captured on 90 automated wildlife cameras set in the northern jarrah forest. Comparing the sightings of cats, foxes and native wildlife in areas baited for feral animals to unbaited areas will help measure the effectiveness of the program. Thousands of images are produced each week, too many for staff to handle. It requires no previous skills, anyone with a keen eye and a willingness to learn can join. More than 3000 volunteers have classified more than 150,000 images to date and have seen boxing kangaroos, wedge-tailed eagles, woylies, chuditch and possums amongst others. Images are continually uploaded with more than 500,000 requiring classification. [Take part](#) and spy on the night life of the jarrah forest.

Community fauna surveys and government partnerships

It is often very difficult for scientists to cover the area needed to survey wide-ranging threatened animals. In recent years, local community involvement has significantly extended our understanding of current distribution and abundance trends for a number of south west species.

Many readers will be familiar with Birdlife Australia and Parks and Wildlife's [Great Cocky Count](#) a long-term citizen science survey where each year volunteers count black cockatoos on a single evening as they come in to roost. This year 700 volunteers surveyed 398 roost sites with 2004 red-tailed black and 16,755 white-tailed black cockatoos counted. Zero counts give important information but at the other extreme, two volunteers counted 4,897 Carnaby's cockatoos at a single site this year. This roost tops the previous high of 1,532 birds and poses questions as to why Carnaby's are congregating in such numbers at this location. The Great Cocky Count has been running for 10 years and given scientists, government and the community a robust measure of how the population of Carnaby's black cockatoo is changing over time. It has documented a decline in the population, and helped identify important roosting and feeding habitat. This has influenced government policy and planning decisions such as identifying areas for conservation and attracting funding for habitat management.



John Clarke locator and co-counter of the largest cockatoo roost recorded during the Great Cocky Count with his survey form and forestry map. Photo – Adam Peck.

Since 2013 the annual [Spring Quenda Count](#), coordinated by WWF and Parks and Wildlife, has shown that the proportion of sites with quenda in Perth and Peel, and the average number of quenda recorded over a weekly count, have been stable over three years. These partners also coordinated the 2014–2015 community rakali survey which provided a snapshot of [rakali](#) distribution and as a result focussed management attention on environmental flow rates in waterways.

This autumn Parks and Wildlife partnered with Geocatch in the [Ringtail Tally](#) where locals surveyed western ringtail possums in their backyard or bushland. Early results record 84 individuals, few zero counts and most people were visited by 3–4 different individuals over the month-long survey.

University research

University students are also tapping into the resource of citizen scientists as we can see from our cover story on banksia distribution. Emily Eakin-Busher is beginning PhD research on the impact of urbanisation on plants and pollinators in the Perth area. Part of her study involves comparing native gardens to reserves and she is looking for people who will allow her to study their gardens. If your garden is mostly native, within 4km of bushland and on the coastal plain in the Perth area please [email](#) to get involved.

Feather Map

[Feather Map](#) is enlisting citizen scientists to gather bird feathers from wetlands. Each feather will be analysed by research partners Australian Nuclear Science and Technology Organisation and the University of NSW using nuclear techniques that identify stable isotopes and minerals to reveal the diet and environmental conditions that grew the feather. Each feather is like a memory chip of where that bird has been and Feather Map will track the movement of waterbirds around Australia from wetland to wetland. Most feather samples have come in from eastern Australia so the call is out for WA feathers. Inland wetlands are of greatest interest but feathers will be accepted from any wetland.

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Citizen science in your community *By Julia Cullity*

South West Fairy Tern Project

Established last year the [South West Fairy Tern Project](#) is developing local strategies and conservation networks for this highly mobile threatened species. The network of managers and volunteers aims to feed in initial observations to predict where the birds are likely to be breeding each year and be pre-emptive and protect and enhance suitable breeding sites. It also aims to deter birds from breeding in areas that lead to breeding failure such as boat ramps, popular beaches and areas prone to flooding. Plans are underway to set up a social media page where the public can post photos of banded birds. Digital photos shared from citizen scientists' this year showed fledging birds banded at Rous Head colony in North Fremantle moving to the Peel Inlet within three weeks and picked up a fledgling banded in the Abrolhos Islands months later.

Contact interesting projects or spread the word to others about opportunities to contribute to building our biodiversity knowledge base and gaining better management outcomes.



A citizen scientist and students from Durack TAFE training to colour-band fairy terns on Rat Island in the Abrolhos. The advent of high quality digital cameras means that citizen scientists can pass on photos and locations of banded birds to the Australian Bird and Bat Banding Scheme and the researchers who banded them. Photo – Nic Dunlop.

We've only scratched the surface.

Wildflower Society of WA Plant Survey Program building the botanical knowledge of WA. [Email](#)

Pieris Project global cabbage white butterfly study to understand the genetics of invasive species.

Cat tracker working with cat owners to help them understand their cats and make informed management decisions, soon to expand Australia-wide.

Bowerbird record photos of flora and fauna, source identifications and contribute to the Atlas of Living Australia.

School of Ants Australian ant diversity, distribution and diet.

Herdsmen Lake Bird Banders every Saturday before dawn. [Email](#).

Broom Seagrass Community Monitoring Project assess the health of a fundamental part of the ecosystem.

Climate Watch select a species to watch and record changes.

Shorebirds 2020 annual national shorebird monitoring program.

Citizen Science project finder Want more? Have a look in here.

Ningaloo Turtle Program monitors turtle activity, threats and rescues stranded turtles.



Walking together – Belonging to Country [documentary film](#) celebrates the remarkable similarities between Nyoongar and western scientific understandings of the formation of Nyoongar land. The film uses explanatory animation to take us through the 300 million year journey and features Elder Dr Noel Nannup and Professor Stephen Hopper sharing knowledge of ancient and modern biota and land use as they walk by the magnificent Swan River from its source to the ocean. Photo – Sophie Karangaroa.























After retirement Gary Tate discovered Yellagonga Regional Park on his back doorstep. Gary has been regularly admiring, observing and photographing the beauty and rich biodiversity. Gary has produced 12 DVDs including Yellagonga – Discover the diversity, Bush Tucker, South West Birds "Aboriginal Names" and Turtles and Snakes. DVDs \$20 call 9342 4685 or [email](#). Photo – Kerry Tate.











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 [email](#).
-  **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.
-  **Saturday 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 or [email](#).
-  **Saturdays 8.30am–10.30am**
Bushcare activities with Swan Estuary Reserves Action Group at **Alfred Cove** Nature Reserve. Fourth Saturday of each month. Contact Cathie 9339 2439 or [email](#).
-  **Saturdays 9am**
Bushcare activities with Friends of **Brixton Street** Wetlands. Third Saturday of each month. Meet Alton St, Kenwick. Contact Regina 9459 2964 or [email](#).
-  **Saturdays, Sundays 9am–12 noon**
Koala maintenance at **Yanchep** National Park. Call Ciara 9303 7771.
-  **Sundays**
Wilson Wetlands Action Group regular work mornings. Contact 9258 7301 or [email](#).
-  **Sundays 8am–9am**
Guided walks with Friends of **Marangaroo**. Fourth Sunday of each month. Meet at Gate 3, Decourcy Way.
-  **Sundays 8am–10am**
Bushcare activities with Friends of **Shenton** Bushland. Contact Dani 9381 3470 or [email](#).

-  **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 [email](#).
-  **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 each month. Meet at the south end of Strickland St, Swanbourne. Gloves and tools provided. Contact 0416 614 696 or [web](#).
-  **Sundays 9am–11am**
Bushcare activities with **Cottesloe** Coastcare. First Sunday of each month. Contact Robyn 9384 7668, [web](#) or [email](#).
-  **Sundays 9am–12 noon**
Bushcare activities with the Friends of the **Spectacles (Kwinana)**. Third Sunday of each month. Contact Lynda 0419 983 956 or [email](#).
-  **Sundays 9.45am–12 noon**
Bushcare activities with the Friends of **Piesse Brook**. Third Sunday of each month. Contact Gerry 9293 2517 or [email](#).
-  **Mondays 7am–8am**
Norma's Monday Morning **Weeding Group**. Friends of **Lake Claremont**. Meet at south end of Strickland St. Phone 0413 282 515.
-  **Mondays 9am–11am**
Litter collection with Swan Estuary Reserves Action Group at **Milyu** Nature Reserve, **South Perth**. Second Monday of each month. Contact Cathie 9339 2439 or [email](#).
-  **Mondays 8.30am–11am and Fridays 9.30am–12 noon July–August**
Bushcare activities with Friends of **Mary Carroll Wetland**. Call Unice 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** Nature Reserve. Contact Cathie 93392439 or [email](#).
-  **Tuesdays and Thursdays, 8am–10am**
Coastcare activities with **Stirling** Natural Environment CoastCare. Contact Sheldon 0488 190 651, Rae 0419 191 710 or [web](#).
-  **Wednesdays 3pm–5pm during school term**
Wildlife Wednesdays. Join 'Eco-Warriors' at Herdsmen Lake Wildlife Centre. Contact 93876079 or [email](#).
-  **Wednesday and Saturdays 7.30–9.30**
Bushcare activities with **Bicton** Environmental Action Group. Planting, weeding and foreshore cleanup, various dates. Contact Peter 0439 467 855 or [email](#).
-  **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. Call Mike 0438 710 527.
-  **Thursdays 8am–9am**
Bushcare activities 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 [website](#) or [email](#).
-  **Thursdays, Saturdays and Sundays 9am**
Morning walks with Friends of **Bold Park** Bushland Volunteer Guides. Various dates. Contact 9480 3996, [email](#) or [visit](#).
-  **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 [web](#), [email](#) or 9291 3900.

-  **Thursdays or Fridays 9am–4pm**
Wetland, bushcare and nursery activities with **Cockburn Wetlands** Centre. Contact Denise 0412 081 540 or [email](#).
-  **Thursdays 7.30pm**
Talks with **Murdoch** Branch of the **Wildflower Society** to share passion and knowledge of nature. First Thursday of each month, Cockburn Wetlands Education Centre, 184 Hope Rd, Bibra Lake. Call Pawel 0410 305 034 or [facebook](#).
-  **Fridays and Saturdays 7pm–9pm**
First Friday and second Saturday each month, **Kanyana Wildlife Centre**, **Nocturnal Tours**. Meet nocturnal native wildlife and hear about endangered species breeding programs. \$20 or less, bookings essential [web](#), [email](#) or 9291 3900.
-  **Fridays 8am**
Bushcare activities at **Piney Lakes**. Volunteers need a site induction [email](#) Jacklyn.
-  **Fridays 9am from 22 July**
Coastcare with **Mullaloo Beach** Community Group. Planting, weeding and collecting marine debris. Equipment and refreshments provided. [Email](#).
-  **Conservation Volunteers Australia** has local projects every week Monday–Friday with occasional weekend activities. Call 9335 2777, [email](#) or [web](#).
-  **WA Naturalists** hold regular **talks and excursions** each month. [View](#) their calendar for the activities of the four branches.
-  **Wildflower Society of WA** holds regular **talks**. [View](#) their calendar.

July


-  **2 Saturday 9am–1pm**
Planting at Maramanup Pool with Waterbirds Conservation Group. **WCG**.
-  **2 Saturday 9am–12 noon**
Planting at **Goolamrup** Reserve with the Friends of Goolamrup. Meet footbridge leading from intersection of Roberts Rd and Buckingham Rd, Kelmscott. **AGLG**.
-  **3 Sunday 9am–12 noon**
Community planting Thomas Oval Bushland end of Rowson Pl, **Medina**, refreshments provided. **Kwinana**.
-  **7 Thursday 8am**
Birdwalk Little Rush Lake, **Yangebup**. Meet near the western playground off Grassbird Loop. **Birdlife WA**.
-  **9 Saturday 9am–1pm**
Planting and guarding at **Maramanup Pool** with Waterbirds Conservation Group. **WCG**.


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.


Registration/contact details

- AGLG** Armadale Gosnells Landcare Group. Look for the AGLG sign at meeting point. Call 0413 883 565 or 0412 713 582 or visit [facebook](#) for up to date information.
- BirdLife WA** All walks are free, no need to book. Call 9383 7749 Monday–Friday 9.30am–12.30pm or [email](#).
- BSFH** Bush Skills for the Hills Free workshops, bookings essential. Contact 9424 2216 or [visit](#).
- Kwinana** City of Kwinana. Contact Angela Jakob, Kwinana Bushcare Officer 9439 0418 or [email](#).
- WCG** Waterbird Conservation Group. Morning tea and lunch provided. RSVP essential 0424 656 501 or [email](#) as most places you'll need to be escorted from the gate to the site.

 **10 Sunday 9am–1pm**
Planting and guarding at **Maramanup Pool** with Waterbirds Conservation Group. [WCG](#).


 **17 Sunday 9am–12 noon**
Planting at **Araluen** walk trail on the Canning Rive with Roleybushcare. Meet walk trail entrance Thompson Rd, Roleystone. [AGLG](#).

 **19 Tuesday 9.30am–6pm**
Revegetation workshop at **Eurardy** Reserve with Bush Heritage Australia. [RSVP](#).


 **21 Thursday 9am–12 noon**
Planting at **Southernwood** Living Stream. Meet Southernwood Park, off Shearwater Way, Southern River. [AGLG](#).

 **23 Saturday 8.30am**
Birdwalk Lightning Swamp, **Noranda**. Meet at the south east gate Della Rd. [Birdlife WA](#).


 **24 Sunday 9.30am–11.30am**
Planting and weeding with the **Baigup** Wetland Interest Group, Maylands. Contact by [email](#).


 **24 Sunday 9am–12 noon**
Planting at Palomino Dampland with Friends of **Palomina Reserve**. Park off McNeill Rd near Wungong River bridge. [AGLG](#).


 **30 Saturday 9am–3pm**
Jute matting/erosion control techniques workshop will give you the skills to plan, purchase and plant into your riparian site. Bring you plans or maps. Lunch provided. [BSFH](#).


 **30 Saturday 9am–1pm**
Youth planting day South Beach, Fremantle. [Bookings](#), \$14 includes morning tea, lunch and entertainment.

Please send us your October, November and December events by Wednesday 31 August 2016.

 **30 Saturday 6.30pm–8.30pm**
Successful nestboxes information workshop. Simon Cherriman will present on the success of nest boxes following the Parkerville, Stoneville and Mt Helena bushfire [BSFH](#).


 **31 Sunday 9am–12 noon**
National Tree Day planting **Fancote Park** on the Canning River with the City of Armadale. Meet at the end of Pries Pl, Kelmscott. [AGLG](#).


 **31 Sunday 9am–12 noon**
National Tree Day planting **Lake Magenup** off De Haer Rd, Wandii, refreshments provided. [Kwinana](#).


 **31 Sunday 9am–12 noon**
National Tree Day planting **Tom Bateman** Bushland Thornlie with City of Gosnells. Park off Winfred Rd, near roundabout. [AGLG](#).


August

 **6 Saturday 8.00am**
Birdwalk Lake Gwelup. Meet at car park Stoneman St and Huntriss Rd, Gwelup. [Birdlife WA](#).


 **13 Saturday 9am–1pm**
Guard removal at **Folly Pool** with Waterbirds Conservation Group. [WCG](#).

 **18 Thursday 8.00am**
Birdwalk Manning Lake, Spearwood. Meet at western car park opposite Azelia Ley Homestead. [Birdlife WA](#).


 **18 Thursday 9am–12 noon**
Planting at **Palomino Dampland** with Friends of Palomina Reserve. Meet at green gate off McNeill Rd near Wungong River bridge. [AGLG](#).


 **20 Saturday 9am–1pm**
Guard removal at **Maramanup Pool** with Waterbirds Conservation Group. [WCG](#).

 **27 Saturday 8.45am**
Social media for Community Groups workshop on how to create and build networks through social media. **Herdsmen Lake** Wildlife Centre \$30. Contact 9374 3333 or [web](#).


 **30 Saturday 9am–11am**
Marri Canker ID workshop will give you the skills to identify the symptoms to manage this disease. [BSFH](#).


September


 **4 Sunday 7.30am**
Birdwalk Bibra Lake. Meet at first car park northern end of the lake off Progress Dr. [Birdlife WA](#).


 **11 Sunday 9am–12 noon**
Bushcare's Major Day Out planting at **Homestead Park**, Canning River with City of Gosnells. Park at Thornlie Community Centre, Glenbrook Rd and head towards the river. [AGLG](#).

 **6 Saturday 7.30am**
Birdwalk Star Swamp, **North Beach**. Meet at car at the end of Mary St, Watermans Bay. [Birdlife WA](#).

 **15 Thursday 9am–12 noon**
Planting at **Fancoat Park** on the Canning River. Meet at the end of Pries Pl, Kelmscott. [AGLG](#).

 **17 Saturday 9am–12 noon**
Introduction to plant ID with Amanda Spooner will include plant history, characteristics and taxonomy including a practical session. [BSFH](#).

 **25 Sunday 7.30am–10am**
Breakfast with the birds at **Mary Carroll Wetlands**. Birdwalk with breakfast supplied. Bookings essential 9452 9901. Gold Coin Donation.

 **25 Sunday 9.30am–11.30am**
Planting and weeding with the **Baigup** Wetland Interest Group, Maylands. Contact by [email](#).

Wildflower Society of WA each year holds bushland **Plant Survey** spring field sessions followed by weekly meetings at the WA Herbarium to identify the plants. Contact 9318 4062 or [email](#) if you are interested in the 2016 program.

4–16 July
Fun nature-based school holiday activities to warm up for winter with **Nearer to Nature**. Activities for all ages including caving, Noongar knowledge, canoeing, beachcombing and animal encounters. View the program, [bookings](#) essential call 9295 2244.

12–14 July
Introduction to Aboriginal Culture school holiday [series](#). Bush Skills for Youth.

22 Friday July
DIG 2016: getting back to the roots, 15th annual Dieback Information Group conference at Murdoch University \$150, \$100 (conc). [Registrations](#) and program.

27 June–11 July
WA Naturalists [exhibition](#), retrospective of Wildlife Show, Perth Town Hall. An exhibition celebrating the 1966 **Wild Life Show** with the opportunity to experience native flora and fauna.

29 August–1 September
Coast to Coast [conference](#) 2016 multi-streamed sessions in the fields of coastal and marine research, planning, management, education, resource use and policy, Melbourne Cricket Ground.

planned for September
Perth NRM in partnership with City of Wanneroo will be running the **Volunteer Guide to Bushland Weeds** workshop on identification and management techniques for bushland weeds. Call Sharon Munro 9374 3333.

10–11 September
Basic course in wildlife rehabilitation is an introductory course for those interested in becoming registered with Parks and Wildlife or volunteering at an established center. [Registrations](#) \$250 corporate, \$210 general.

11 Sunday September
Bushcare's Major Day Out designed to encourage everyone to take part in bushland restoration. [Register](#) your event or find something to join.

11–15 September
Australasian Weeds Conference, Pan Pacific Hotel, Perth. Biennial [conference](#) on agricultural and environmental weeds.

21–23 September
2016 National Landcare Conference Collaborative Communities – Landcare in Action. Melbourne Convention and Exhibition Centre. [Registrations](#).

24 – 30 September and 10 – 16 October

WA Naturalists' Club week-long spring coach tours organised as part of the Australian Naturalists Network Get-together. [Book](#) prior to 31 July.

Month of October
Outdoors October [register](#) your events for cross-promotion.

Funding opportunities

State NRM Community Action Grants (\$55,000) supports community-based projects that protect and restore the local environment. Anticipated to **open in winter** 2016. Visit the [website](#) and subscribe for updates.

Northern Agricultural Catchment Council funds on-ground works and skill enhancement.

Coastal Community Grants open July 2016 and **Biodiversity Community Grants open August** 2016. Visit the [website](#).

Local Government community grants

These local governments provide small grants to their communities which can fund environmental groups' bushland management and restoration projects. Eligibility varies, click on the link to get more information. [Augusta Margaret River](#) will close **31 August**, [Gosnells](#) will close **in August**, [Mandurah](#) will close **14 August**, [Rockingham](#)

will close **5 August**, [Swan](#) will close **October**, [Wanneroo](#) will close **16 September**. Also check with [Armadale](#), [Belmont](#), [Cambridge](#), [Canning](#), [Joondalup](#), [Melville](#), [Mosman Park](#) as they have previously held funding rounds at this time.

Canon Environmental Grants. Organisations making a positive impact on the environment can apply for \$5000 of canon equipment. [Applications](#) close **5 August** 2016.

Keep Australia Beautiful Community Litter Grants (\$10,000) funding projects that are working towards a litter-free WA. [Applications](#) close **15 August** 2016.

Aurizon Community Giving Fund (\$1000–\$20,000) for environmental projects in Geraldton, Perth, Kalgoorlie, Esperance. [Grants](#) open **September** 2016.

Please send us your regional report (200 words) and a photo by Wednesday 31 August. Text may be edited in response to volume of submitted reports.

Iluka foreshore invertebrate and reptile preliminary survey

By Marjorie Apthorpe and Michele Kwok

The amazing richness of the coastal bush reserve at Iluka and Ocean Reef has been revealed by the first survey of invertebrate animal life there. The preliminary survey (phase one) in spring 2015 found 271 invertebrates, and 13 species of reptiles. Carried out by biologist David Knowles of Spineless Wonders, 60 per cent of the project was funded by the City of Joondalup under its Environmental Development Community Funding Program. The remaining 40 per cent was paid by donations from members of the Friends of North Ocean Reef – Iluka Foreshore.

These rich faunas make up 98 per cent of animal species living in bushland, with birds, mammals, reptiles and frogs making up the remaining two per cent. We have spectacular invertebrates such as the small brilliantly coloured peacock spider. Many insects are important pollinators, enabling the plants to set seed. Without these insects, bushland would cease to exist.

The phase one survey report provides a photographic inventory and information about the the ecological role of the species found. Nine sampling events were carried out, both day and night, usually under very unfavourable weather conditions. David Knowles contributed a substantial amount of his own time to the fieldwork.



David Knowles (at right) and volunteers light-trapping insects at night at the Iluka foreshore. All insects were later released. Photo – Sharon McArthur, used with permission.

Eleven volunteers took part in various events. Captured animals were identified, some were photographed, and all were released back into the bush at the same location.

The Friends group has received funding for a second round of two sampling events in autumn 2016. We hope that the survey will contribute to public knowledge of the rich bushland on our doorstep.

Contact: Don Poynton, Friends of North Ocean Reef – Iluka Foreshore by [email](#)



One of the world's most spectacular jumping spiders *Maratus speciosus* is a resident of the Iluka foreshore. Photo – David Knowles, used with permission.

Landcare SJ Community Environment Grants underway *By Peel-Harvey Catchment Council*

Natural resource management in the Serpentine Jarrahdale region has received a \$64,940 boost with Landcare SJ successfully securing four inaugural Community Environment Grants via the Peel-Harvey Catchment Council and the National Landcare Program.

Working with a range of partners, Landcare SJ's projects will support on-ground actions for the protection of threatened ecological communities in four different locations. Two projects will reduce threats in the nationally significant Brickwood Reserve and Mundijong Road – Duckpond Reserve. The third project will improve the resilience of a threatened ecological community on private land at Serpentine, and the last focuses on improving the health of a threatened ecological community in North Dandalup, in a partnership with North Dandalup Primary School.

Landcare SJ staff have already commenced work in Brickwood Reserve where on ground actions include dieback treatment, weed control and seed collection for future projects.

Contact: Kristy Gregory, SJ Landcare. 9526 0012 or [email](#).



Landcare SJ's Teale Hooper-Worrell and Dr Penny Hollick from the Shire of Serpentine Jarrahdale re-surveyed a flora plot established in 2008 as part of the monitoring component of the Brickwood Reserve project. Photo – Kristy Gregory.

Peak body applauds Kanyana for woylie work

Kanyana Wildlife has been awarded the In-Situ Conservation Award by the Zoo and Aquarium Association (Australasia) (ZAA) for its woylie conservation work. Commencing in 2012, Kanyana's woylie breeding program aims to add more genetic diversity to surviving woylie populations. Woylies once roamed over much of southern Australia but cats, foxes and habitat loss have reduced their range to a few fenced and protected areas. Kanyana's Woylie Coordinator Sandy Tomas says recognition by a peak wildlife body like ZAA shows that Kanyana's standards of care and husbandry are on par with the major breeding organisations in Australia.

"Woylies are difficult animals to manage in a breeding context," she says. "They are nervous

by nature, easily spooked and explosively fast when they feel threatened.

"They are special in that they are nest builders, carrying nesting materials in their tails and are fungi eaters. They are connoisseurs of our native truffles. They're also really cute."

The Zoo and Aquarium Association is the peak standards body for all major zoos, aquariums and wildlife parks in Australia and New Zealand. Kanyana is the only community-based wildlife carer organisation to be accepted as a ZAA member.

You can see Kanyana's breeding program and other resident animals in action on a Nocturnal Tour, full proceeds going to saving wildlife.



Kanyana Wildlife's woylie breeding program has been awarded with the In-Situ Conservation Award by the Zoo and Aquarium Association. Sandy Tomas proudly holds a captive bred woylie and the award. Photo – Kanyana Wildlife.

Bookings and donations can be made online or over the phone.

Contact: Kanyana Wildlife. 9291 3900, [email](#) or [web](#).

Ken Hurst Park planting days *By Eddy Wajon*

What a fabulous day we had with volunteers on May Day planting native trees and shrubs at Ken Hurst Park in Leeming. The team, 32 volunteers comprising Friends of Ken Hurst Park as well as colleagues, local government staff and Facebook friends, worked enthusiastically to plant out superfluous tracks and cleared open spaces.

About 850 tubestock was planted in a little more than three hours including bagging, fertilising and watering. Four different methods were used in planting – digging small holes with trowels, using Potti Putkis, disturbing the ground first with specially designed long thin shovels, and pre-augering 500mm deep by 150mm wide holes. These methods will be compared over the next 2–4 years to see which technique results in the greatest plant survival. After planting, everybody and everything was washed down and treated to remove all traces of soil and associated dieback disease and we regrouped for lunch.

Survival in the past has ranged from 0–50 per cent with the highest survival associated with bagging plants and watering them for at least three months over summer. With the more disruptive techniques (i.e. augering and deep soil disturbance techniques), we expect this to increase. However, we aim to get close to 90 per cent survival by watering



Gus and Barb King planting at Ken Hurst Park. Photo – Eddy Wajon

in winter (May–August), when plants establish to survive summer, thus replacing and augmenting Perth's decreasing winter rainfall.

The remaining 350 tubestock was planted and watered a week later with the help of a City of Melville Green Army team.

Subsequently there was 18mm of rain and all plants were watered with another 3L shortly after. Now all we need is good rain to really ensure the plants establish and grow before summer, though even if this occurs, we will be giving each plant a good drink regularly until August.

Thanks to all who participated and we look forward to inviting everyone back to see the results on a future bush/wildflower walk.

Contact: Eddy Wajon, Friends of Ken Hurst Park. 9310 2936 or [email](#).

Volunteers protecting habitat for endangered Carnaby's cockatoo

By Tristan Duke

Conservation Volunteers Australia (CVA) has been working with the City of Kwinana to conduct important dieback treatment. Funded by Alcoa Foundation, the project involved the local community in learning about dieback, how to treat plants, and the importance of preserving and protecting the local natural habitat.

Phytophthora dieback affects more than 40 per cent of native plant species and 50 per cent of endangered plants in south west WA. Dieback targets the root system of plants, preventing them from taking up water and nutrients. It has the potential to devastate bushland environments; which can drastically impact upon native fauna.

CVA's Wild Futures program supports the recovery of threatened species including Carnaby's cockatoo. This endangered species is highly mobile and the population has declined primarily due to the loss and fragmentation of habitat. Treating areas suffering from dieback will help to preserve the native habitat for the species.

Contact: Conservation Volunteers Australia by [email](#).

Adding logs to revegetation improves habitat for animals

By Michael Craig

One measure of both the success and conservation benefits of revegetation is the time it takes for animals to recolonise restoration sites. One obvious way to accelerate recolonisation by animals is by providing, or accelerating the formation of, resources that take a long time to form naturally. Tree hollows are an obvious example but logs, particularly large logs, actually take longer to form than tree hollows because hollow-bearing trees actually need to die and fall over for large logs to be present.

Recent studies in floodplains, woodlands and eucalypt forests indicate that providing logs accelerates the return of animals. Unsurprisingly, animals dependent on logs are absent from revegetation lacking logs but are present in low numbers when logs are present. Promisingly, these logs have attracted a wide variety of log-dependent animals, from lizards to beetles and centipedes, suggesting that the provision of logs can potentially attract the full range of log-dependent animals. However, studies invariably show that log-dependent animals are present in much lower numbers in the revegetated sites with logs than in adjacent native vegetation. This may partly reflect the different environment present in, particularly young, revegetated sites, which may not be suitable for all log-dependent animals. The main reason, though, is probably because densities of logs in revegetated sites are invariably much lower than in native vegetation and this lower density is, unsurprisingly, reflected in the reduced abundance of log-dependent animals.

The benefit of logs in revegetated sites extends far beyond log-dependent animals. Several studies show that logs provide sheltering, foraging and nesting sites for a wide variety of fauna, including mammals, lizards, spiders, springtails and salamanders and their abundance is significantly higher when logs are present even though these species are not totally dependent on logs. Logs also provide important benefits to revegetated ecosystems in nutrient cycling, as germination sites for plants and as habitat for fungi and mosses,



The fence skink (Cryptoblepharus buchananii) is dependent on logs in the jarrah forest and has been recorded from piles of logs in 3-year old post-mining restoration but has not been recorded in restoration up to 17-years post-mining away from piles of logs. Photo – Michael Craig.

The main reason logs are not routinely installed in revegetated sites is that they are not “on the radar” of most restoration practitioners. However, even if logs are part of restoration practices, there can be challenges in sourcing sufficient logs to install in revegetation. Typically the more isolated the revegetation site is from native vegetation, the harder logs are to source. In addition, isolated sites are often closest to relatively degraded native vegetation where logs are scarce and, arguably, providing greater ecological benefits than they would in the revegetated sites. Other challenges are sourcing logs from disease free areas to avoid the spread of plant pathogens, and, where fire is a frequent disturbance, added logs may burn leaving a long period when logs are absent before they start to develop naturally.

Logs are rarely provided in revegetated sites yet they are important for a wide variety of animals, plants and ecological processes. The provision of logs should be a critical and integral part of any revegetation project as logs are likely to increase the resilience and success of restoration and are worth the challenge to source and install. As our climate changes into the future, the buffering effect of logs will only become more important.



Logs installed in 3-year old post-mining restoration in the jarrah forest. Photo – Michael Craig.

Further reading

Barton PS, Manning AD, Gibb H, Wood JT, Lindenmayer, DB, and Cunningham, SA (2011) Experimental reduction of native vertebrate grazing and addition of logs benefit beetle diversity at multiple scales. *Journal of Applied Ecology* 48 (4), 943–951.

Craig MD, Grigg AH, Hobbs RJ, and Hardy GESJ (2014) Does coarse woody debris density and volume influence the terrestrial vertebrate community in restored bauxite mines? *Forest Ecology and Management* 318, 142–150.

Manning, A.D., Cunningham, R.B., and Lindenmayer, D.B. (2013) Bringing forward the benefits of coarse woody debris in ecosystem recovery under different levels of grazing and vegetation density. *Biological Conservation* 157, 204–214.

Contact: Michael Craig, University of Western Australia. 6488 1073, and [email](mailto:michael.craig@uwa.edu.au).

Friends of Upper Lesmurdie Falls By Mike Robinson



One of the two flowdams constructed to slow and hold water for short periods to combat stream erosion. You can also see the walk trail in the background. Photo – Mike Robinson.

The Friends of Upper Lesmurdie Falls is a small but active group formed in December 2012 to help rehabilitate, and increase community enjoyment of the area above Lesmurdie Falls. The site straddles the boundary between Lesmurdie Falls National Park and Mundy Regional Park, and as a result we work very closely with Parks and Wildlife. Funding support falls into two baskets – rehabilitation (funded primarily by the NRM WA, with early support also coming from Perth Region NRM) and visitor facilities (funded by Kalamunda Rotary, the Shire of Kalamunda, Bendigo Bank, Lotterywest and the Lesmurdie and Districts Community Association under the Up the Creek sub project). Parks and Wildlife provides guidance and support across the full project.

The most severely degraded area follows the course of the Lesmurdie Brook from the eastern boundary of the park for a distance of approximately 0.6km and 20–100m wide. This area was very heavily infested with perennial weeds, the most serious being African feather grass, watsonia, blackberry, introduced wattles and tagasaste. Very little native vegetation survived in this zone but most of the surrounding bushland is in very good condition.

Our early priority was to get the weeds under control and that took up the vast majority of our time and effort for the first three years. It is very satisfying to be able to say that we have now reduced perennial weeds in the degraded zone by 95 per cent or better in most cases, and we are steadily mopping up the survivors and new recruits.

We also needed to modify the stream bed in this area, as it had become little more than a drain over much of its length. It was typically a metre deep by a metre wide with highly unstable, vertical banks composed of deposited silt. We recognised that we needed to slow down the water flow following moderate to heavy rain, as the brook rose very rapidly causing erosion. We addressed these problems by modifying much of the banks to between 30 and 45 degrees, building two special structures we call flowdams (porous rock wall dams that fill when flow rates are high and drain as the flow rate drops) and adding many small riffles.

Following the success of the weed control and the completion of the construction works, planting commenced in late 2015.



These initial plantings were undertaken by members of the Green Army and are ongoing.

In mid-2015, the Lesmurdie and Districts Community Association came to us with a proposal for a joint project called Up the Creek. Together we managed to raise just over \$200,000 allowing us to install visitor facilities. Visitors have increased dramatically since we commenced the rehabilitation work and we have now constructed a 1.3 km long by 2m wide path through the area which greatly reduces random wandering and trampling, as well as providing a pleasant walk trail. Public feedback has been very positive. We have also built two gravel car parks, one timber bridge (with two more to come shortly), an attractive granite stonework crossing and surfaced the top of the walls of the flowdams to allow them to be used as additional crossing points. This project includes a component involving local students in designing and building seating to be installed along the trail. Local wood craftsman, Pieter Baarspul, will lead the group to build the four unique, high quality, natural bush timber bench seats. Up the Creek will also provide funding for interpretive signage to highlight Aboriginal and early settler history and general visitor signage.

We have come a long way in three and a half years but there is a tremendous amount still to be done and we would love to welcome more people into this exciting project. Future work will concentrate on a large replanting program in areas where weed control has made that possible. We will also extend the walk trail further west to link up with the main parking area and hope to continue extending our weed control program west at least as far as the falls.

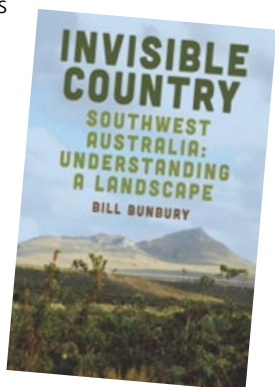
Contact: Mike Robinson, Friends of Upper Lesmurdie Falls Inc. by [email](#) or [facebook](#).

Resources

New publications

Citizen Science: Theory and Practice. Has released its first issue (May 2016). This peer-reviewed [journal](#) is published on behalf of the US based Citizen Science Association.

Invisible country Southwest Australia: understanding a landscape. Bunbury, Bill. UWA Publishing, 2015. \$30. Invisible Country explores the wonders of the southwest of Western Australia that, known to Aboriginal people, were invisible to European newcomers, and traces the environmental changes that have occurred since first settlement.



Swan Coastal Plain South Management Plan prepared by the Department of Parks and Wildlife contains a 10-year [management strategy](#) for 82 parks and reserves - totalling about 22,000 hectares - on the southern part of the Swan Coastal Plain.

Research

Brown K, Paczkowska G and Gibson N (2016) Mitigating impacts of weeds and kangaroo grazing following prescribed fire in a Banksia woodland. [Ecological Management and Restoration](#) 17 (2), 133–139

Lane JAK, Clarke AG and Winchcombe YC (2015) [South West Wetlands Monitoring Program Report 1977-2014](#).

Apps

Go volunteer App

Simply create a profile and let GoVolunteer find roles for you. Search, shortlist opportunities and find short term, on-going and even one-off opportunities to support a wide range of causes. [Available](#) for iPhones.

Birdlife Australia's Field Guide to **Wetland Birds**. This [free app](#) and field guide for Apple devices features descriptions, mapping, images and audio for 63 of the most common non-passerine species you're likely to meet at wetlands in Australia's south.

Website Watch

Australian Citizen Science Association currently developing a national community of practice for all types of citizen science within Australia. Visit their [website](#) if you are interested in citizen science as a researcher, educator, project manager or community volunteer.

Birdlife Australia has launched the **Migratory Shorebird Conservation Map** an [interactive map](#) for the community to develop a picture of the state of [shorebird habitat](#) across Australia. It allows users to log conservation successes and challenges or threats to migratory shorebirds in their local area.

Flickr photo sharing groups [Banksia Woodland Plants](#) and [Banksia Woodland Insects and other Invertebrates](#) lets you upload and share photos and information about Perth's banksia woodland to help identify plants, see how plants recover after fire, pollinating insects and the ecology and conservation of the woodlands.

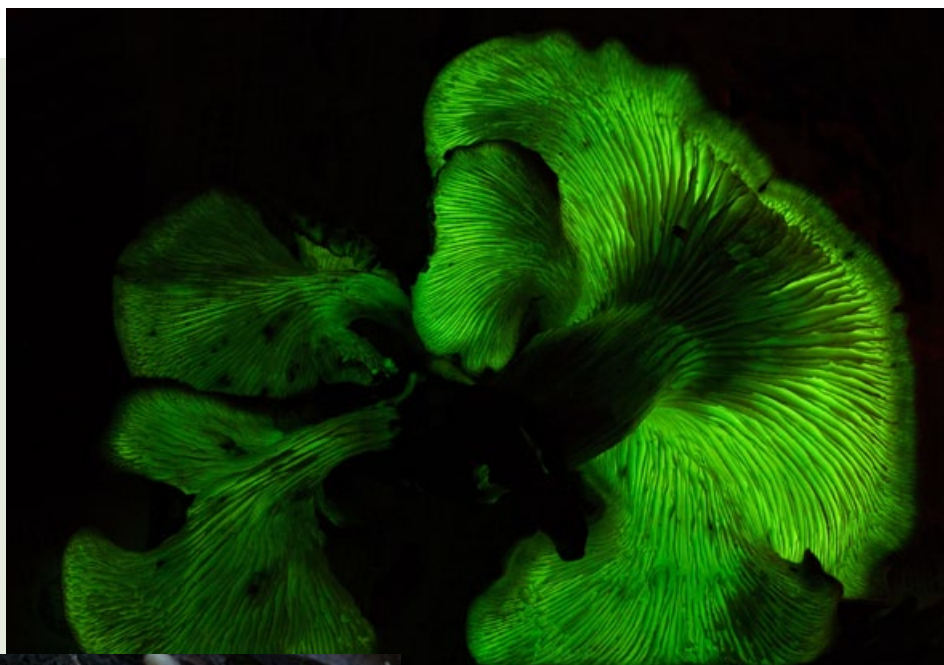
Mass murder; watch the fascinating video of the brutal and unusual mating behaviour of Dawson's bee that live in colonies in the Kennedy Ranges near Carnarvon in WA. <https://www.youtube.com/watch?v=mtpECWI-5v4>

Lookout for The ghost fungus

By Mark Brundrett

The ghost fungus (*Omphalotus nidiformis*) starts to fruit after the first autumn rains and it is a common wood-rotting fungus of Perth and other parts of Australia. Look for it on living tree trunks or dead logs. It's a big fungus ranging from 10–30cm across the cap. It's known as a gilled-bracket fungus because it grows shelf-like out of trees and wood but also has gills like many soil-borne fungi. It is not edible.

There are very few fungi worldwide that are bio-luminescent. To best see the ghost fungus glow in the dark you need to first spot them by day and return on a dark night with very little light pollution and wait for your eyes to adapt. This is a 30 second exposure of the underside of a ghost fungus found at Crawley growing on a peppermint tree. Photos – Mark Brundrett.



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