

## Woylie translocation activities 2013 By Adrian Wayne

Issue 89

**Autumn** 2014

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

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[www.dpaw.wa.gov.au](http://www.dpaw.wa.gov.au)

**The critically endangered woylie or brush-tailed bettong (*Bettongia penicillata*) is the target of a third Western Australian recovery plan for the species.**

The exact cause(s) of the estimated 90 per cent decline in the species between 1999 and 2006 has not been verified, although predation by feral cats and foxes, and possibly disease, has been implicated.

### Translocation Perup to Yendicup

Recent monitoring at the 420ha predator-free Perup Sanctuary between Manjimup and Boyup Brook indicated that the 41 founders released in December 2010 had increased to around 300 to 400 adult woylies by July 2013. A 1 000 per cent increase in 2.5 years! With such strong growth, it provided an opportunity for the translocation of these animals to try and stimulate a recovery of the species in the wild. In July 2013, 87 individuals (51 males, 36 females) were relocated to nearby Yendicup forest block at the centre of Perup Nature Reserve.

The majority of the Department of Parks and Wildlife's managed conservation estate in the Kingston and Perup areas are aerially fox-baited quarterly. At the same time, ground-baiting is also done around most of the forest perimeters adjacent to freehold land. To further improve the prospects for the relocated woylies, increased fox-baiting at and around the release site was undertaken on Parks and Wildlife



*Woylie (*Bettongia penicillata*) released in the Perup Sanctuary during July 2013 as part of the recovery program. Photo – DPaW*

*Most of the people involved in the April 2013 trapping monitoring of Perup Sanctuary. Photo – DPaW*



managed-lands in conjunction with targeted control of introduced predators involving landholders on adjacent farmland, co-ordinated by the Warren Catchments Council.

### Translocation to Perup Sanctuary

Following the translocation of woylies to Yendicup, 36 woylies (23 males, 13 females) from Dryandra were released in Perup Sanctuary in late July. The first five offspring of six adult woylies from Tutanning, being held and captive bred at Kanyana Fauna Rehabilitation Centre, were also released into Perup Sanctuary in mid-August and October. More woylies from Tutanning will be translocated in the coming months. The inclusion of Dryandra and Tutanning animals in the Perup Sanctuary will increase genetic diversity of the insurance population designed to conserve

as much of the remaining genetic diversity of the species as possible.

### Monitoring

Remote sensor cameras are being used to monitor changes in woylie activity and abundance associated with the removal and/or addition of woylies at the three main sites involved – Perup Sanctuary, Yendicup and Dryandra. This is also an excellent opportunity to calibrate and measure the sensitivity and reliability of woylie detection rates using remote sensor cameras. Cage trapping in October found 40 woylies alive and well at the Yendicup release site with many others expected to have dispersed further afield. Woylie numbers in the Perup Sanctuary have also continued to grow strongly. Monitoring will continue to track the progress of woylies at these and other sites in the south-west of WA.

## Urban Nature Update By Julia Cullity

This edition of *Bushland News* we say goodbye to our editor Jo Tregonning. We would like to thank Jo for her fantastic work over the past eight years. Jo has a wide network of contacts within the conservation community and has her ear to the ground to find out about interesting events, resources and new restoration initiatives. When presented with excessive amounts of text (and this happened regularly), she could edit to present the crucial information and tell an interesting story in the author's own voice.

It was a pleasure to work with Jo and we wish her well in her future career in high school teaching. I'm sure she will continue to inspire young people with a love of the bush and their local environment.

Jill Griffiths has stepped in to be guest editor for this autumn issue of *Bushland News*. You may remember Jill as Jill Harris, former co-ordinator of *Ecoplan* (Urban Nature's predecessor) and an editor of *Ecoplan News* (now *Bushland News*). Welcome Jill and thanks for stepping back into the role.

## Perth Banksia Woodland Community Restoration Grants By Julia Cullity

The Department of Parks and Wildlife is providing grants to assist community groups to manage and restore Perth's banksia woodlands, investing offset funding specifically related to banksia woodland under the department's Banksia Woodlands Restoration Program.

Priority will be given to:

- high conservation value banksia woodlands or buffers of other vegetation types surrounding these areas
- sites within 45kms of Jandakot Airport
- revegetation of Carnaby's cockatoo feeding habitat in degraded areas
- revegetation using local provenance seed
- sites containing rare species
- groups with a demonstrated capacity and commitment to bushland conservation
- projects with a monitoring component to document biodiversity outcomes
- projects involving additional in-kind or financial contributions.

A total of \$300,000 is available for projects undertaken 1 June 2014 to 30 September 2016. This 28-month period gives community groups three winter seasons to undertake their work. There is a minimum of \$5,000 and a maximum of \$20,000 per project. Groups can apply for more than one project.



Minister for Environment Albert Jacob (right) with Ralph Henderson and John Hudson from the Friends of Hepburn and Pinnaroo Bushland at the launch of the grants and the Friends' 21st anniversary celebration.

Funding will be supplied in two instalments, the second of which will be provided after an interim progress report is received.

Applications open 4 March 2014 and close 14 April 2014. Visit [www.dpaw.wa.gov.au/get-involved/perth-banksia-woodland-community-restoration-grants](http://www.dpaw.wa.gov.au/get-involved/perth-banksia-woodland-community-restoration-grants).

### Contacts

#### Urban Nature office

Julia Cullity 9442 0320  
Kate Brown 9442 0321  
Grazyna Paczkowska 9442 0322

Department of Parks and Wildlife,  
Swan Region Office, Cnr Australia II Drive and  
Hackett Drive, Crawley WA 6009  
Locked Bag 104,  
Bentley Delivery Centre WA 6983  
Fax 9386 6399 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/management/off-reserve-conservation/urban-nature/93-bushland-news](http://www.dpaw.wa.gov.au/management/off-reserve-conservation/urban-nature/93-bushland-news)

## Urban Nature Lunchtime Research Seminars By Julia Cullity

Urban Nature has organised a lunchtime research seminar series to promote and extend research and management projects from the Swan Region and beyond to bushland managers. Seminars will be held in the Ningaloo/Purnululu meeting rooms at the department's Kieran McNamara Conservation Science Centre, 17 Dick Perry Avenue, Kensington. Seminars will be from 12–12.45pm and held bi-monthly on the last Wednesday of the month. Bring your lunch.

The 2014 program began with an extra January seminar by Dr Cristina Ramalho (Parks and Wildlife) on prioritising conservation areas using GIS software. In February we had Olga Baron (CSIRO) presenting on the use of remote sensing to map groundwater dependent ecosystems. Our next seminar will be on Wednesday 30 April when Dr Leonie Valentine (UWA) will present on '*Digging mammals as ecosystems engineers: the ecological role of quenda*'. Check our 'What's on' calendar for details of further seminars.

### 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 **Thursday 22 May 2014**.

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

This publication is available in alternative formats on request.

## Wetlands Management Conference 2014

By Felicity McGeorge

Great news! The forecast is for less than 40 degrees!

For the past 10 years the Cockburn Wetlands Centre has held its wetland management conference to mark World Wetlands Day on 2 February, probably a cool day in the Northern Hemisphere where the date was decided but often stinking hot in Australia.

The objective of the conference is to provide an opportunity for exchange of information and ideas, bringing together community conservation volunteers, landowners, educators, local and State government officers and private sector environmental officers involved in wetland management.

This year's keynote speaker was Bob Pond from the Department of Water speaking on 'Implementing the Peel Harvey Water Quality Improvement Plan: with an emphasis on on-ground actions to date.'

The morning was filled with four plenary sessions and short presentations of the posters displayed in the trees shade behind the centre.



Prof Pierre Horwitz from Edith Cowan University presents at the recent WA Wetland Management Conference. Photo - Cockburn Wetlands Centre

The workshops occupied the afternoon and covered an amazing choice including freshwater fauna, Noongar ecological knowledge and a tour of the ongoing revegetation works carried out by the Wetlands Centre around Bibra Lake.

The day finished with the opportunity for a casual chat and a drink, networking without the work. For more information contact Cockburn Wetlands Centre on 9417 8460 or go to <http://cockburnwetlandscentre.wordpress.com>.

## Help the Men of the Trees set a world record

To help offset carbon emissions and climate change, and to bring communities together, Men of the Trees with support from Whiteman Park, are going to attempt to break a Guinness Book of World Records by planting more than 100,000 WA native plants in one hour at Whiteman Park on Friday 25 July 2014 starting at 12 noon.

Men of the Trees WA mission is to bring people together to grow and plant trees, and to achieve healthy, productive, sustainable landscapes. The Men of the Trees nurseries, located at Hazelmere, Rockingham and Peel, can provide WA native seedlings for all revegetation projects, friends groups and urban gardens.

Please contact Paula on 9250 1888 or by emailing [paula@menofthetrees.com.au](mailto:paula@menofthetrees.com.au) if you are interested in ordering seedlings or being part of the 100k Challenge.

## Looking at WA's soil life with Microblitz By Deborah Bowie



MicroBlitz is a citizen science project where crowd-sourced science is building a state-wide map detailing the biodiversity and health of our environment using DNA sequencing to identify the biodiversity and abundance of microbes in our soils.

Led by Winthrop Professor Andy Whiteley from The University of Western Australia, Microblitz encourages families, schools, farmers, industry and others interested in protecting the environment to get involved.

Microblitz makes it possible for people to directly contribute to this 'ground breaking' research by literally digging into the soil to look at the smallest building blocks of WA's ecosystems – microbial DNA. Volunteers are provided with a soil sampling kit, instructions on how to use it and a prepaid postal satchel to send their sample back to the Microblitz lab for analysis.

Professor Whiteley's ambitious research utilises the latest DNA sequencing technologies, which enables surveying of the environment to be done on such a wide scale.



Mount Lawley Senior High School Bush Rangers blitz it! Photo – Andrew Paul

By engaging citizen scientists throughout the State in the task of collecting soil samples, Professor Whiteley and the MicroBlitz team will be able to analyse thousands of samples and create a snapshot of WA's environmental genome. With microscopic organisms (such as bacteria and fungi) playing a pivotal role in the ecology and health of the environment, not least in terms of regulating

greenhouse gases and removing toxins from the soil, it's an important map that will have far-reaching benefits.

You can register to become a volunteer sampler by visiting the MicroBlitz website [www.microblitz.com.au](http://www.microblitz.com.au). For further information contact Project Manager Deborah Bowie at [deborah.bowie@uwa.edu.au](mailto:deborah.bowie@uwa.edu.au).

## Restoring fringing vegetation along the Serpentine River, Lowlands

By Kate Brown

**Lowlands, a 1200ha Bush Forever site on the Serpentine River in the Shire of Serpentine/Jarrahdale, protects extensive areas of intact mature banksia woodlands and provides a rare example of largely intact riverine vegetation on the Swan Coastal Plain.**

The invasive arum lily (*Zantedeschia aethiopica*) is a major threat to the riverine vegetation and associated freshwater ecosystems of the Serpentine River. It invades and displaces common components of the fringing vegetation such as the shrub *Astartea leptophylla* as well as more restricted species such as the Lowlands creeper (*Parsonsia diaphanophleba*) and the maidenhair fern (*Adiantum aethiopicum*), which is only found in a few locations on the Swan Coastal Plain.

Loss of fringing vegetation also results in a loss of habitat for rakali (native water rats, *Hydromys chrysogaster*), native fish, including freshwater cobbler (*Tandanus bostocki*), Swan River gobi (*Pseudogobius olorum*), western pygmy perch (*Nannaperca vittata*), western

minnow (*Galaxius occidentalis*) and nightfish (*Bostockia porosa*), as well as freshwater mussels (*Westralunio carteri*).

With this in mind a program began in 2005 to control and prevent further spread of arum lily in the riverine vegetation and to restore invaded habitat.

### Methods

In September 2005, the distribution of arum lily across the riverine flooded gum (*Eucalyptus rudis*) woodland and adjoining banksia woodland was mapped. Three major objectives of the management program were identified:

- to prevent the spread of arum lily into adjoining banksia woodland
- to reduce cover and contain spread in fringing vegetation along the river
- to monitor response of the plant communities to removal of arum lily and to use the results to develop an adaptive management strategy for regeneration and recovery.

Ten 20m transects were established in riparian vegetation through dense populations (greater than 75 per cent cover) of arum

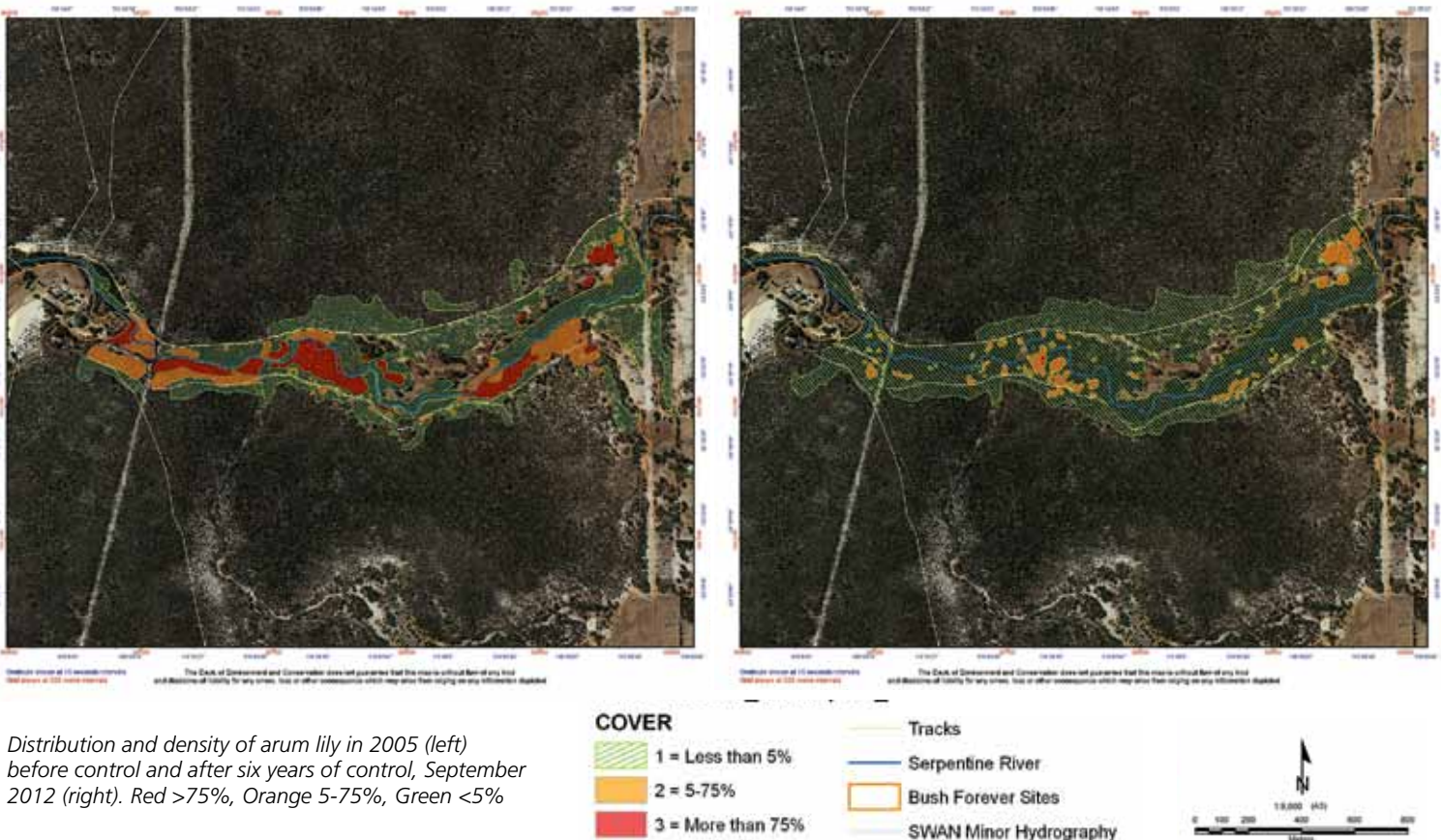
lily in September 2006 prior to spraying.

Along each transect, cover of all species was measured using 200 point intercepts i.e. a pin was dropped every 10cm along each transect and every species touched was recorded (as percentage overlapping cover). The arum lily populations across the site were treated with 150ml glyphosate plus 0.4g metsulfuron methyl (Brushoff®) plus 30ml of the penetrant Pulse in 15L water each September/October after plots had been scored. The control (untreated) transects were not sprayed during the six-year project but flower heads were removed each year to prevent seed set and spread into treated areas.

### Results

Maps of arum lily in 2006 and 2012 revealed a major decrease in density and no increase in distribution over six years across the study site. In 2006 much of the site had a greater than 75 per cent cover and by 2012 most of the riverine vegetation had less than five per cent cover of arum lily.

In both treatment and controls there was a significant difference in species composition and cover between 2006 and 2009 (Table 1).





Fringing vegetation along the Serpentine River. Photo – Kate Brown



Arum lily invading fringing vegetation. Photo – Kate Brown

In the herbicide treatment plots, arum lily decreased in cover from 15.3 per cent to less than one per cent cover following three years of treatment. At the same time there was an increase in the cover of natives including *Pteridium esculentum* (bracken), *Astartea leptophylla* and *Parsonsia diaphanophleba* (Lowlands creeper). There was also an increase in weed species, including *\*Fumaria capreolata*, introduced annual grasses and *\*Oxalis pes-caprae* as well as an increase in bare ground.

In the untreated sites arum lily cover increased from 20.5 per cent to 65.7 per cent over three years, an increase of more than 300 per cent (Table 2). In addition there was a large decrease in bare ground and a smaller increase in the cover of the weed *\*Fumaria capreolata* and the native *Pteridium esculentum*.

### Management implications

- Treatment with 150ml glyphosate plus 0.4g metsulfuron methyl (Brushoff®) plus 30ml of the penetrant Pulse in 15L water is an effective means of controlling arum lily. Consistent application over time can significantly reduce cover and prevent spread of arum lily, thus protecting vulnerable conservation assets.
- Control of arum lily in riverine vegetation can result in increased cover of native species already present but may not lead to increased diversity. In this study there was no recruitment of new species into sites from surrounding intact areas. Species that might have been expected to recruit into the site include the shrubs *Acacia dentifera* and *Paraserianthes lophantha*, the grass *Microlaena stipoides* and maidenhair fern.
- Weeds such as *\*Fumaria capreolata* may simply replace arum lily where it has been controlled if measures are not taken to facilitate regeneration of native plant cover and diversity.
- Where arum lily is not controlled in riverine vegetation it can spread and increase in density quite rapidly, displacing native species.

**Table 1. Species composition and cover in treatment plots at Lowlands.**

Average abundance (% cover) 2006 (before treatment) and 2009.

Species	2006	2009
<i>Pteridium esculentum</i>	9.5	25.1
<i>*Fumaria capreolata</i>	10.9	24.8
<i>*Zantedeschia aethiopicus</i>	15.3	0.9
<i>*Oxalis pes-caprae</i>	55.0	57.3
<i>*Oxalis glabra</i>	13.8	0.0
Bare ground	5.2	9.1
Log	4.1	5.7
<i>Astartea fascicularis</i>	3.2	5.3
<i>*Grass sp. annual</i>	0.0	5.7
<i>Juncus pallidus</i>	5.0	2.2
<i>Parsonsia diaphanophleba</i>	2.0	2.9
<i>*Asparagus asparagoides</i>	3.7	1.8
<i>*Oxalis purpurea</i>	3.1	0.5

**Table 2. Species composition and cover in untreated (control) plots at Lowlands.**

Species	2006	2009
<i>*Zantedeschia aethiopicus</i>	20.5	65.7
Bare ground	26.0	3.8
<i>*Oxalis pes-caprae</i>	36.4	32.0
<i>*Fumaria capreolata</i>	7.7	15.4
<i>Astartea fascicularis</i>	11.9	11.1
<i>Pteridium esculentum</i>	7.0	10.8
<i>Juncus pallidus</i>	3.2	3.4



Recording cover of native and introduced species along transects. Photo – Kate Brown

### Facilitating regeneration after arum lily control

While there was an increase in the cover of some native species following control of arum lily there was no increase in species diversity. The next part of the project aimed to investigate if prescribed fire could stimulate germination of the soil seed bank and assist with species recruitment.

In spring 2011 small scale burn trials were established in a series of 5m x 5m plots. All species present (native and exotic) and their cover were recorded. The objective was to investigate if cool autumn burns could stimulate germination of the soil stored seed where arum lily had been controlled. There were five replicates of each treatment (burnt and unburnt) and the burns were carried out in May 2011 (autumn). All plots were fenced. The plots were rescored in spring 2012.

There was no significant recruitment of native species following the autumn burn. Indications are that cool autumn burns are not a useful restoration tool in the riparian vegetation and hotter burns may be required to stimulate germination of native species, such as acacias and *Paraserianthes lophantha*. The trial burns were at a very small scale and larger scale burns may be required to pick up variations across the soil seed bank.

For more information contact Kate Brown, Ecologist, Department of Parks and Wildlife on 0427 449 941 or 08 9442 0321 or [Kate.Brown@DPaW.wa.gov.au](mailto:Kate.Brown@DPaW.wa.gov.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@iinet.net.au.

### Saturdays 8am–9am

-  **Guided walks** with Friends of **Koondoola**. Second Saturday of each month. Meet Gate 2, corner of 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 Heather 9364 1739 or heja13@bigpond.com.


### 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 1.30pm–3.30pm

-  **Bushcare activities** with **Mt Henry** Peninsula Conservation Group. Third Saturday of each month. Contact Mavis 0407 447 669 or mavis.andrews@aquinas.wa.edu.au.


### Saturdays, Sundays 9am–12 noon

-  **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, Decourtesy Way.


### Sundays 8am–10am

-  **Bushcare activities** every Sunday with Friends of **Shenton Park** Bushland. Contact Dani 9381 3470 or bojel@it.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** and meeting with Friends of **Mirrabooka**. First Sunday of each month. Call Jan 9344 2872.


### Sundays 9am–11am

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


### Sundays 9.45am–12 noon

-  **Bushcare activities** with the Friends of **Piesse Brook**. Third Sunday of each month. Contact Gerry 9293 2517, Bridgett bhogarth@ozemail.com.au or linda@johnstanley.cc.


### 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.

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

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

### Thursdays 8am–9am

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

### Thursdays 9am–2pm

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

### Thursdays 8.30am–11am

-  **Bushcare activities** on the fourth Thursday of each month at **Baldivis** Children's Forest. Email [mary.rayner@education.wa.gov.au](mailto:mary.rayner@education.wa.gov.au).

-  **Conservation Volunteers activity schedule**. Free one-day local activities or overnight country trips. Call Jodi 9335 2777 or visit [www.conservationvolunteers.com.au](http://www.conservationvolunteers.com.au).


-  **Guided walks** with Friends of **Bold Park** Bushland Volunteer Guides, leaving from the WA Ecology Centre on Perry Lakes Drive, Floreat. Held seasonally, visit [www.bgpa.wa.gov.au/bold-park/events/walks-and-tours](http://www.bgpa.wa.gov.au/bold-park/events/walks-and-tours) or contact 9480 3990 or [friendsbp@bgpa.wa.gov.au](mailto:friendsbp@bgpa.wa.gov.au).

### Coastal planting in winter.


-  Contact **Cambridge** Coastcare [www.cambridgecoastcare.com.au](http://www.cambridgecoastcare.com.au), **Joondalup** Community Coastcare Forum [www.joondalupcoastcare.com](http://www.joondalupcoastcare.com), **Cottesloe** Coastcare [www.cottesloecoastcare.org](http://www.cottesloecoastcare.org) and **Stirling** Natural Environment Coastcare at [www.stirlingnaturalenvironmentcoastcare.com](http://www.stirlingnaturalenvironmentcoastcare.com).

## April

### 3 Thursday, 6.15am

-  **Seagrass Monitoring**, Roebuck Bay, Broome. Everyone welcome, no experience necessary. Please wear closed shoes (they'll get muddy!), bring your hat and water bottle. Contact Environs Kimberley 9192 1922 or [seagrass@environskimberley.org.au](mailto:seagrass@environskimberley.org.au) or become a Broome Seagrass Facebook friend.


### 5 Saturday 9.30am–12 noon

-  **Maximising Biodiversity in Our Reserves**. Parkerville Hall, corner Seaborn Rd and Riley Rd, Parkerville. Learn how to best utilise the Local Biodiversity Program tools and resources. The workshop will include a demonstration of an on-line public mapping viewer with over 70 data layers relevant to natural resource management. Contact **BSFH**.


### 5 Saturday, 10am–4pm

-  **South Coast Festival of Birds Expo and Exhibition**, WA Museum, Residency Road, Albany. Learn about the birds of the South Coast region. Activities include displays, interactive exhibits, talks, discussion, children's activities and birdwatching. Contact Basil 9848 3310 or [bschur@greenskills.org.au](mailto:bschur@greenskills.org.au).

### 6 Sunday, 7am

-  **Bird Survey** Canning River. Contact Canning River Regional Park Volunteers 9458 3669 or [admin@canningriver.org.au](mailto:admin@canningriver.org.au).

### 6 Sunday, at sunset 5.30pm–6.30pm

-  **Great Cocky Count**, contact Hugh 9287 2251 or 0400 177 615 or [greatcockycount@birdlife.org.au](http://greatcockycount@birdlife.org.au).

### 7 Monday 8.30am–10am

-  **Bushcare activities** with the Friends of Mary Carroll Wetland (Gosnells). **MCW**


### 12 Sunday, 6.00pm–8.00 pm

-  **Guided bats night stalk**, Len Howard Conservation Reserve, Erskine. Led by professional facilitator Joe Tonga to celebrate Australasian Bat Night. Email Rebecca [rebecca.cassells@manduarah.wa.gov.au](mailto:rebecca.cassells@manduarah.wa.gov.au).


### 13 Sunday, 9.00am

-  **Great Gardens – Coastal Gardens Workshop**, lunch provided, The Grove Precinct, Stirling Hwy, Peppermint Grove. Contact Craig 9439 0433 or [craig.wilson@kwinana.wa.gov.au](mailto:craig.wilson@kwinana.wa.gov.au).


### 13 Sunday 9am–11am

-  **Work morning with Wilson Wetlands** Action Group. Contact **WWAG**


### 22 Tuesday 7.30pm

-  **Phytophthora diseases in the South-West of WA and what they mean for natural and managed ecosystems**, with Giles Hardy (Murdoch Uni). Contact **WSWA(N)**.

### 28 Monday 8.30am–10am

-  **Bushcare activities** with the Friends of Mary Carroll Wetland (Gosnells). Contact **MCW**

### 30 Wednesday, 12 noon–12.45pm


-  **Digging mammals as ecosystem engineers: the ecological role of quenda** Leonie Valentine (UWA). Contact **UN**

## May


### 1 Thursday 7.30pm

-  **Secret life of orchids** with Mark Brundrett, Wildflower Society, Murdoch branch. Call Richard 0408 923 610.

### 2 Friday 8.30am–10am

-  **Bushcare activities** with the Friends of **Mary Carroll Wetland** (Gosnells). Contact **MCW**

### 4 Sunday 8.30am–10am

-  **Bushcare activities** with the Friends of **Mary Carroll Wetland** (Gosnells). Contact **MCW**

### 4 Sunday 9am–11am

-  **Work morning** with Wilson Wetlands Action Group followed by barbeque. Contact **WWAG**



### 13 Tuesday 8pm

-  **Acacia since the completion of the 'Flora of Australia'** with Bruce Maslin. Wildflower Society, Perth. Contact Bronwen 9381 4062.


### 17, Saturday, 9am–12 noon

-  **Atlas of Living Australia Training**. Norm Sadler Pavilion, Acacia Rd, Maida Vale. The Atlas of Living Australia (ALA) is an excellent tool to discover (and report) wildlife in your area. Bring your smart phone or tablet along and find out how to upload photos and species lists to the ALA website. Contact **BSFH**

### 18 Sunday, 8.30am–12 noon

-  **Friends of Kings Park Autumn Native Plant Sale**, Exhibition Ground (off Fraser Ave) Kings Park. A rare chance to buy unusual native plants. All funds from the plant sales support worthwhile projects and research. Visit [www.friendsokingspark.com.au](http://www.friendsokingspark.com.au).


### 18 Sunday 8.30am–10am

-  **Bushcare activities** with the Friends of **Mary Carroll Wetland** (Gosnells). Contact **MCW**

### 18 Sunday 9am–11am

-  **Work morning** with Wilson Wetlands Action Group. Contact **WWAG**

### 19 Monday–21 Wednesday 9am–12.30pm

-  **Arbour planting** event with Wilson Wetlands Action Group. Contact **WWAG**

## Registration/contact details

**BSFH Bush Skills for the Hills** Bookings 9424 2216 or [environment@emrc.org.au](mailto:environment@emrc.org.au).

**MCW Friends of Mary Carroll Wetland** Contact Unice 9398 71269 or [unicerobinson@gmail.com](mailto:unicerobinson@gmail.com).

**WSWA(N) Wildflower Society, Northern Suburbs** Call Hazel 9337 1496.

**WWAG Wilson Wetlands Action Group** Call Russell 9258 7301.

**UN Urban Nature** lunchtime research seminars. Parks and Wildlife Kieran McNamara Conservation Science Centre, Ningaloo/Purnululu meeting rooms, 17 Dick Perry Drive, Kensington. Call Julia 9442 0320.

## Highlights

18 April–18 May

**Western Australian Heritage Festival** will celebrate Australia's historic, natural and Aboriginal heritage. Visit [www.nationaltrust.org.au/wa/HeritageFestReg](http://www.nationaltrust.org.au/wa/HeritageFestReg).

7–9 May

**2014 State NRM Conference: The Tipping Point.** Highlights the concept that small things can make a big difference when working with people and the environment. Abbey Beach Resort Busseton. Visit [www.nrmconferencewa.com.au](http://www.nrmconferencewa.com.au).

20–21 May

**Fourth National Acid Sulfate Soil Conference,** Perth. Updates on scientific discoveries, technologies, regulatory and policy frameworks and assessment techniques. Visit <http://scu.edu.au/nationalassconference>.

26–29 May

**16th Australasian Vertebrate Pest Conference,** Brisbane. Held every three years will focus on management of vertebrate pest animals across the landscape. Visit [www.avpc.net.au](http://www.avpc.net.au).

11–12 June

**Atlas of Living Australia Science Symposium.** Australian Academy of Science's Shine Dome, Canberra [www.ala.org.au/blogs-news/save-the-date-atlas-of-living-australia-science-symposium-june-2014](http://www.ala.org.au/blogs-news/save-the-date-atlas-of-living-australia-science-symposium-june-2014).

13–15 June

**Trips on Country with Dr Noel Nannup** Dabakarn Koorliny. Out through the wheatbelt to Kokabin Rock and Yaragin Rock Learn about aboriginal spirituality, language, seasons, bush tucker and culture. Contact Jaime on 0406 722 066 or [jaime@rraft.com.au](mailto:jaime@rraft.com.au).

1–4 September

**Australasian Weeds Conference,** Hobart, Tasmania. Science, Community and Food Security: the weed challenge. Visit <http://australasianweeds2014.com.au/>.

28 September–3 October 2014

**Ecological Society of Australia Annual Conference,** Alice Springs. Visit [www.esa2014.org.au/](http://www.esa2014.org.au/)

27 October–31 October

**Coast to Coast Conference 2014 - Coastal Knowledge for Coastal Change,** Mandurah. Visit [www.promaco.com.au/coasttocoast2014/index.php](http://www.promaco.com.au/coasttocoast2014/index.php)

**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/).

**Nearer to Nature events;** guided walks, marine, Noongar culture, canoeing, caving, native wildlife, star gazing and craft. Chidlow, Canning River, John Forrest, Mundaring, Perth Observatory, Star Swamp, Trigg Beach, Woodman Point and Yanchep. Bookings 9295 2244. Visit [www.dpaw.wa.gov.au/n2n](http://www.dpaw.wa.gov.au/n2n).

**Parks and Wildlife volunteer programs** Visit [www.dpaw.wa.gov.au/get-involved/volunteering-opportunities](http://www.dpaw.wa.gov.au/get-involved/volunteering-opportunities).

24 Saturday-25 Sunday  
**Fundraising Garage Sale.**



Friends of Brixton Street Wetlands, 87 Kenwick Rd, to raise money for the Black Cockatoo Preservation Society of Australia. Suitable donations will be gratefully accepted (can pick up if required). Contact Regina 9459 2964 or Trevor 0407 544 679 or [tjdrd@bigpond.net.au](mailto:tjdrd@bigpond.net.au).

27 Tuesday 7.30pm



**Can the seed bank tell us what to propagate: A Star swamp study** with Judy Fisher. Contact [WSWA\(N\)](mailto:WSWA(N)).

30 Friday 8.30–10am



**Bushcare activities** with the Friends of Mary Carroll Wetland (Gosnells). Contact [MCW](mailto:MCW)

## June

8 Sunday 9am–11am



**Work morning** with Wilson Wetlands Action Group. Contact [WWAG](mailto:WWAG)

14 Saturday, 8:30am



**Canning River Regional Park Volunteers Work Day,** Site TBA. Contact Jo (08) 9458 3669 or [admin@canningriver.org.au](mailto:admin@canningriver.org.au).

22 Sunday 9am–11am



**Work morning** with Wilson Wetlands Action Group. Contact [WWAG](mailto:WWAG)

25 Wednesday, 12 noon–12.45pm



**Vegetation monitoring with remotely sensed imagery: options and applications in the Swan Region** Ricky Van Dongen (Parks and Wildlife). Contact [UN](mailto:UN).

25 Wednesday 7.30pm



**Photographing wildflowers** with Keith Lightbody, Wildflower Society, Northern Suburbs. Contact Richard 9298 8767.

### 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.

Please send us your July, August and September 2014 events by Thursday 22 May 2014.

## Funding opportunities

**Perth Banksia Woodland Community Restoration Grants**

Parks and Wildlife seeks applications from community groups to restore and manage Perth's banksia woodlands. Grants \$5000 – \$20,000 are available for on-ground projects from June 2014 – September 2016. Applications **close 14 April 2014**. Visit [www.dpaw.wa.gov.au/get-involved/perth-banksia-woodland-community-restoration-grants](http://www.dpaw.wa.gov.au/get-involved/perth-banksia-woodland-community-restoration-grants).

**Canon Environmental Grants**

Canon Oceania offers annual grants in-kind worth \$25,000 for Australian organisations making a positive impact on their environment and community. Categories are National Award, Regional Award, Education Awards and Grass Roots Award. Applications close **30 August 2014**. Visit [www.canon.com.au/About-Canon/Sustainability-Environment/Environment/Environmental-Grants](http://www.canon.com.au/About-Canon/Sustainability-Environment/Environment/Environmental-Grants).

**Riverbank**

Accepting expressions of interest from local government agencies managing land in the Swan Canning Riverpark for foreshore rehabilitation and protection projects. Project funding is based on partnership arrangements and should seek to involve community participation wherever possible. **Closes Friday 11 April 2014**. Visit [www.swanrivertrust.wa.gov.au/the-river-system/tackling-the-issues/environmental-flows/foreshore-management/riverbank/riverbank-funding/riverbank-funding](http://www.swanrivertrust.wa.gov.au/the-river-system/tackling-the-issues/environmental-flows/foreshore-management/riverbank/riverbank-funding/riverbank-funding).

**Coastwest Grants 2014/15** funds community groups and coastal manager partnerships for projects that aim to improve the condition and amenity of WA's coast. The Department of Planning administers the Coastwest program on behalf of the Western Australian Planning Commission. Visit [www.planning.wa.gov.au/coastwest](http://www.planning.wa.gov.au/coastwest)

**State NRM Program Community Grants** provide funding for community-based projects that conserve, restore, rehabilitate or enhance the environment. Grants will be **announced in April 2014**. Visit [www.nrm.wa.gov.au](http://www.nrm.wa.gov.au) and subscribe to updates.

## Bring in the Green Army

The Green Army is a Federal Government environmental action program that supports local environment and heritage conservation projects across Australia.

The Green Army provides opportunities for all young Australians aged 17-24 to gain training and experience in environmental and heritage conservation fields and explore careers in conservation management, while participating in projects that generate real benefits for the Australian environment.

Teams of ten will be deployed across the country to help communities deliver local conservation outcomes. Projects will be guided by local community needs.

Initially up to \$300 million is available for the program over three years from 1 July 2014. The program will support 250 projects in 2014-15, 500 projects in 2015-16 and 750 projects in 2016-17.

Information on opportunities to be involved will be made available on the Green Army web page: [www.environment.gov.au/topics/cleaner-environment/clean-land/green-army](http://www.environment.gov.au/topics/cleaner-environment/clean-land/green-army). Email [greenarmy@environment.gov.au](mailto:greenarmy@environment.gov.au) or call 1800 780 730.

Please send us your regional report (150–200 words) and a photo by Thursday 22 May 2014. Text may be edited in response to volume of submitted reports.

## Bushfire at The Spectacles *By Lynda Smith*

Bushfire, which was the catalyst for forming The Friends of The Spectacles, has once again burnt the reserve.

The Friends of The Spectacles formed in 2008 after a severe bushfire swept through The Spectacles, the southern-most reserve of the Beeliar Regional Park. Since then the Friends have planted thousands of plants and conducted cultural/bush tucker tours of

The Spectacles. They achieved great success with the seedlings by installing reticulation thereby ensuring enough water is given to the plants during the first couple of years.

Unfortunately, on Wednesday 5 February another fire burnt about nine hectares of bushland in the reserve. It was the third and most severe fire this summer. The fire

was quickly controlled by firefighters, but not before some damage was done to the reticulation. The firefighters did a magnificent job of saving as much as possible, which included thousands of young plants, metres of reticulation and the all-important water tanks that provide water for the Friends to pump from.

While disheartened, the Friends gathered and over three occasions (36 person hours) they have repaired the reticulation and had water back to the plants 10 days after the fire. It was a job that could not have been done without the effort of volunteers and the kindness of the public who made donations of money and equipment.

There are a lot of people to thank but without doubt the biggest thank you goes to the firefighters, both professional and volunteer. The situation could have been a lot worse had they not done a wonderful job of protecting the revegetation area.

For more information about The Friends of The Spectacles contact Lynda Brown on 0419 983 956 (leave a message) or fotsmail@gmail.com.



Thousands of plants in the revegetated bushland at The Spectacles were saved from the recent bushfire, although the burnt area is clearly visible in the background. Photo – Lynda Smith

## Gingin Brook Boardwalk *By Sue Pedrick*

Gingin Brook, a spring fed stream with permanent water, provides a refuge for native species in a drying climate but exotic plants are threatening the health and beauty of the riparian vegetation along the brook.

In 1997 the Friends of Gingin Brook undertook a weed control program that saw a return of the native vegetation along the brook within the townsite. In the 1980s, the Jim Gordon VC Trail was established and in 2002 extended in the form of a boardwalk along the brook from Weld Street to Barlee Street. This boardwalk included informative signs and enabled the beauty of the restored creek-line to be fully appreciated. Since 2011 the Chattering Landcare Centre has been undertaking weed control in the restored area.



Native fern *Cyclosorus interruptus* along Gingin Brook near Barlee Street before the fire. Photo – Sue Pedrick

In late January 2014 a bushfire burnt a large section of the boardwalk and surrounding vegetation just after weed control spraying had been carried out. We hope that sufficient time had elapsed before the fire for the chemicals to be



The remains of the Barlee Street end of the boardwalk after the fire. Photo – Sue Pedrick

effective on the root mass and will continue to monitor the area for further weed control as necessary. Repair of the burnt section of the boardwalk is in progress by the Shire of Gingin.



## Monitoring local bushland By David Wake

How can we best monitor local bushland? This was the focus of a workshop held by the Quinns Rocks Environmental Group as it prepares a framework for monitoring four bushland sites (ranging from 1–11 ha) in Mindarie and Quinns Rocks.



*Discussing bushland monitoring at the workshop.  
Photo – David Wake*

The workshop involved members of the group and representatives of other local conservation groups, the Urban Bushland Council, the City of Wanneroo, Parks and Wildlife and Perth Region NRM – which provided a small grant to support the project. Ecologists Mike Bamford and Judy Fisher presented on monitoring bushland for fauna and flora.

A key point was the need for monitoring to address questions that matter to local people and that can be used to inform management. For example: Has the condition of the vegetation changed? What are the key weed species and where do they occur? Is the occurrence and abundance of indicator species changing over time?

Engaging the community was seen as critical to keeping urban bushland, with monitoring a good way to achieve this – it is practical and builds

awareness. Monitoring methods need to be feasible given the volunteer time, skills and other resources available.

Methods identified for the local sites included photographing from permanent points, mapping vegetation condition and weed species (as has been done effectively by Stirling Natural Environment Coastcare), using permanent flora quadrats and a regular census of birds. Monitoring community attitudes and behaviour was also suggested and could involve a survey of residents.

The Quinns Rocks Environmental Group will use the workshop findings to develop and implement a monitoring framework for local bushland. By doing so, the group aims to engage local people and improve management to conserve biodiversity in this urbanising region.

## Learning opportunities

### Free training helps groups understand roles

Free community training sessions in Midland will provide important information for community groups and organisations.

The training sessions are being organised by the City of Swan and are open to all local residents and volunteers as well as members of locally-based not-for-profit associations. The first was held in February and the monthly sessions will continue until November, with nine sessions held in total.

The program covers a range of topics useful for members of community groups, such as grant writing and sponsorship, event management, running meetings, planning and achieving your objectives and activities, insurance and risk management, and public relations and using social media.

The sessions are held on the fourth Wednesday of the month in the evenings from 6.30pm to 9pm (doors open 6pm) at the Old Midland Court House.

Places are limited and bookings are essential. Contact: Joanna Fazzalari on 9267 9136 or [joanna.fazzalari@swan.wa.gov.au](mailto:joanna.fazzalari@swan.wa.gov.au)

### Australian Master TreeGrower course

The Australian Master TreeGrowers is holding a course in Margaret River starting on Friday 4 April 2014. The course involves eight days spread over six weeks and will finish on Friday 9 May. It covers: how trees can enhance a property for agriculture, conservation and aesthetics; trees for profit – species, measurement, management and markets; real examples – learning from those who are doing it; and, information networks and ongoing support.

The Margaret River course is being organised as a joint project between the national not-for-profit Australian Master TreeGrower Program and the South West Branch of Australian Forest Growers with support from South West Catchments Council.

For more information or to register contact Richard Moore [richard.w.moore2@gmail.com](mailto:richard.w.moore2@gmail.com) or 0429 926 731.

## Swan Coastal Plain South Draft Management Plan released for public comment

Swan Coastal Plain South Draft Management Plan 2014 provides broad direction for parks and reserves on the southern part of the Swan Coastal Plain that are managed by Parks and Wildlife and identifies the key values, threats and opportunities for the parks and reserves to ensure that management priorities to minimise the threats are determined at a strategic level. Detailed planning may be required before significant works take place within individual reserves.

Key directions of this draft management plan include: protecting the Peel-Yalgorup and Vasse-Wonnerup Ramsar wetland systems; promoting and enhancing the long-term stability of tuart stands; gaining local knowledge about, and

controlling, invasive species; understanding hydrology and maintaining or improving water balances in consultation with other government departments; managing species and ecological communities of conservation significance and impacts upon these to maintain long-term viability of populations; fostering and improving community understanding of, and involvement in, management of key values; and providing a range of compatible nature-based recreation opportunities and public education.

Submissions close on Friday 30 May 2014. Visit [www.dpaw.wa.gov.au/images/documents/parks/management-plans/Swan\\_Coastal\\_Plain\\_South\\_Draft\\_Management\\_Plan.pdf](http://www.dpaw.wa.gov.au/images/documents/parks/management-plans/Swan_Coastal_Plain_South_Draft_Management_Plan.pdf)

# Lake Warden Shorebird recovery – sometimes engineering works

By John Lizamore

**The vital shorebird habitat of Lake Warden, near Esperance on the South Coast, has benefited from drainage intervention, which has caused birds to return to the system in numbers not seen for decades.**

The Lake Warden System was listed as a Ramsar wetland of international importance 24 years ago. Of the 73 bird species recorded there, 25 regular visitors are listed under Australia's migratory bird agreements. The system is also home to more than one per cent of the global population of the chestnut teal, over three per cent of the global population of hooded plover and sometimes, if seasons are favourable, over four per cent of the global banded stilt population.

The wetland system is comprised of eight large lakes and more than 90 smaller lakes and wetlands. The system cradles the south coast town of Esperance and protects the town against flooding from the catchment of 212,000ha. The four sub-catchments that feed into the system interact hydrologically, depending on rainfall and runoff intensity. The dynamic nature of the geohydrology presents real challenges for management of the system and much is still to be learnt about how to effectively balance water quality with water levels to maintain sufficient beach areas for shorebirds.

Clearing for agriculture has removed 85 per cent of the native vegetation from the catchment, thus altering the system's hydrology. Catchment runoff, lake depths and secondary salinity have all increased. In the decade before 2009, a visit to Lake Warden appeared grim. Dead melaleucas littered the shoreline and a look at wading bird counts over this period showed a drastic decline (see graph). When water level monitoring first began at Lake Warden in 1979, occasional dry periods were recorded up to 1984. However by 2000, the lake was permanently inundated, with water levels one metre higher than those in 1979.

Since 1996, research has been conducted to understand the hydrology and to establish management objectives and targets to recover as many of the critical ecosystem services of the lake system as possible.

As part of the recovery plan, several intervention activities were proposed, researched and, if applicable, implemented. This includes targeted revegetation of the catchment were groundwater response



Shorebirds have returned to Lake Warden in numbers not seen for decades. Photo – Don Cater

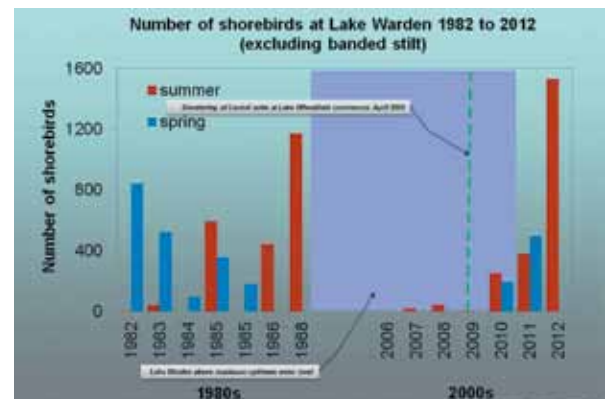
was adequate, redesign and alteration of hydrological flow paths where bottlenecks caused flooding and a drainage pipeline to drain excess water from the lake system.

In 2009, the gravity fed pipeline started draining water from Lake Wheatfield into Bandy Creek, and water levels in the central suite and Lake Warden declined for the first time in more than a decade. Since then, the water level has been artificially controlled for optimum bird habitat, as identified by historical data.

As an added benefit, recovery of shoreline vegetation around most lakes has been better than expected, with species richness at Lake Warden improving 40 per cent over the past four years, and vegetation cover increasing from nothing (0 per cent) to 75 per cent in some monitoring plots.

But the greatest recovery has been in shorebird abundance and richness (graph). Hooded plovers now regularly nest and breed at Lake Warden again, while the shorebird count in November 2013 included more than 9000 banded stilts. This waterbird count was the second highest in history.

Despite the success, the problem has not been solved. It would appear the salinity at Lake Warden has increased dramatically over the past two decades, which has resulted in reduced shorebird habitat. When the lake is managed for salinity, it affects the area of beach available to shorebirds.



Shorebird diversity from spring and summer counts at Lake Warden (1982-2012). Purple shows above maximum optimal water level and the green line is when dewatering began. Adapted: Pinder and Lizamore 2012.

Low water levels increase the beach area available but cause the salinity level of the water to increase as the salts are concentrated in less water. This has implications for the invertebrate fauna of the lake, which has consequences for the shorebirds that feed on the invertebrates. So it's a delicate balancing act between the area of beach available and the salinity level of the water. Unfortunately the factors that affect the water levels are not always easy to predict or manage.

Parks and Wildlife, along with partners the Department of Agriculture and Food, Esperance Regional Forum, South Coast NRM and the Shire of Esperance, are continuing research and intervention feasibility studies to improve management of the Lake Warden System, which could be called the 'Kakadu of the South Coast'.

For further information contact John Lizamore, Parks and Wildlife, Esperance on 0429 887 411 or [John.Lizamore@dpaw.wa.gov.au](mailto:John.Lizamore@dpaw.wa.gov.au).

## Friends of Forrestdale By Bryony Fremlin



Friends of Forrestdale members removing rubbish at Anstey-Keane Dampland. Photo – Bryony Fremlin



Friends of Forrestdale lead walks in Anstey-Keane Dampland. Photo – Bryony Fremlin

The Friends of Forrestdale was launched in April 1990 and is a community group of around 12 members dedicated to conserving bushland and wetlands of conservation value in Forrestdale. These areas comprise wetlands, damplands, heathland and banksia woodland and include the Bush Forever sites Anstey-Keane Dampland, Piara Nature Reserve, Gibbs Road Swamp (all within Jandakot Regional Park) and Forrestdale Lake Nature Reserve (a wetland of national and international importance).

The group engages in various activities to achieve its aim of conserving and restoring the outstanding values of these species-rich conservation sites. We also regularly liaise with Parks and Wildlife and WA Planning Commission (WAPC) in managing Forrestdale Lake and Jandakot Regional Park.

Group members conduct regular weeding activities at Forrestdale Lake and Anstey-Keane Dampland and prioritise the most invasive weeds, which include veld grass, spear thistle, arum lily, Victorian tea-tree, Sydney golden wattle, pink gladiolus and pigface.

Rubbish removal is another ongoing task for the Friends and we do this regularly at Anstey-Keane and Forrestdale Lake. The Friends also coordinate a rubbish pickup event on Clean Up Australia Day.

Each year, Friends lead guided walks at Forrestdale Lake, with particular emphasis on the lake's migratory waterbirds. We also lead walks in spring into Anstey-Keane to see the wildflowers for which the reserve is well known.

Bushland regeneration is an additional Friends activity and in 1993, we began a regeneration project on cleared land in Commercial Road, Forrestdale. Owned by the WAPC, and part of the Forrestdale Lake Nature Reserve, this 1.5ha area has been transformed into a thriving woodland of species native to the local region.

Feral bee control, bird surveys, fence maintenance, mowing, and collection of water depth and rainfall data are other Friends activities.

### Publications

*Forrestdale People and Place* by Friends member Rod Giblett was published in 2006 and includes oral histories of past and present Forrestdale residents, with special emphasis on Forrestdale Lake.

Rod followed this in 2013 with *Black Swan Lake* a nature journal and cultural history of the lake. The Friends also publish brochures and a monthly newsletter with the aim of educating the public on the value and importance of our nature reserves and the wealth of wildlife they support.

### Cygnets rescue

The Friends, in conjunction with other volunteers and Parks and Wildlife staff, conduct a cygnet rescue operation most years at Forrestdale Lake. The lake's water levels have declined in recent years, which means the lake dries before the cygnets are old enough to fly. Without these rescue efforts, the young birds would die from exposure or predation by the numerous foxes that roam the area.

### Threats to our local environment

Lately, the Friends of Forrestdale have focused attention on Anstey-Keane Dampland, which is under immediate threat from a proposed road that would fragment and ultimately devalue the reserve. The Friends have conducted a lengthy campaign to try to stop this road.

Unlawful use of off-road vehicles in Anstey-Keane also threatens the reserve's special qualities and the Friends work with regional park management and other government bodies to try to address this issue. Additionally, the Anstey-Keane Management Group was formed in June 2011 to bring together Anstey-Keane stakeholders – Friends of Forrestdale and various government agencies – to address the threats to Anstey-Keane. Friends' members also regularly attend meetings with like-minded groups to share experiences and information on conservation issues.

Now in our twenty-fourth year, the Friends are more committed than ever to maintaining and improving the ecological values of the conservation sites in Forrestdale, and we consider it a privilege to be able to contribute towards the health and long-term future of our natural environment.

For more information contact Rod [r.giblett@ecu.edu.au](mailto:r.giblett@ecu.edu.au) or 93972874. Visit [www.forrestdalefriends.com.au](http://www.forrestdalefriends.com.au).

# Resources

## New publications

### Dieback Threat Abatement Plan

The updated threat abatement plan for disease in natural ecosystems caused by *Phytophthora cinnamomi* came into force on 31 January 2014. *P. cinnamomi* dieback is listed as a key threatening process under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*. The plan provides a national strategy to guide the investment and effort by the Federal Government, jurisdictions, research organisations and non-government organisations in abating the impacts of *P. cinnamomi* on key species and ecological communities. Visit [www.environment.gov.au/resource/threat-abatement-plan-disease-natural-ecosystems-caused-phytophthora-cinnamomi](http://www.environment.gov.au/resource/threat-abatement-plan-disease-natural-ecosystems-caused-phytophthora-cinnamomi).

**Melaleucas: their botany, essential oils and uses** 2013. Joseph J. Brophy, Lyndley A. Craven and John C. Doran. RRP \$85 Australian Centre for International Agricultural Research

There are nearly 300 species of Melaleuca in Australia and South-East Asia. This book is the first attempt to compile a comprehensive account of their taxonomy, essential oils, silvicultural characteristics and uses. Detailed descriptions and natural distribution maps are provided for each species.



### Celebrating Bushcare Volunteers

Shire of Mundaring

This book is a collection of testimonies from each Friends group within the Shire of Mundaring, telling their stories of how they formed along with their achievements and challenges. With over 80 Friends groups dedicated to undertaking bushland conservation activities, this booklet gives a glimpse of the inspiring journey each group has experienced. Available from the Shire of Mundaring administration desk.



### Plants out of place

Jane Brook Catchment Group and the Eastern Hills Environmental Management team. Shire of Mundaring 2013. A little booklet that clearly identifies bushland and roadside weeds of the Eastern Hills and how to control them. Free to residents from the shire office or libraries.



### Australian lizards: a natural history

2012 Wilson SK 196pp RRP \$50.00 CSIRO Publishing.

Looking at the behavioural aspects of Australian lizards this book explores the places in which they live, what they eat, how they make use of their senses, control their temperatures, reproduce and defend themselves.

## Apps

### Marri canker app

The marri canker app empowers the public to act as citizen scientists and identify and report sightings of marri canker so that data can be monitored by researchers to help understand the disease and develop treatment trials for marri trees. Help address some of the unknowns surrounding the distribution, severity and dispersal of the canker. Developed by the Eastern Metropolitan Regional Council in partnership with Murdoch University.

Apple visit <https://itunes.apple.com/au/app/the-marri-app/id742004918?mt=8>.

Android visit <https://play.google.com/store/apps/details?id=com.gaiareources.bdrsmobile.murdochmarri>.

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# bushlandnews

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