

WA Nats Club turns 90 *By Alan Notley*

Issue 91

Spring 2014

Time of Djilba and Kambarang in the Nyoongar calendar.

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The WA Naturalists' Club celebrates its 90th birthday this year. The inaugural meeting of the club was held on 3 July 1924 – a very long time ago!

The club's origins can be traced to the pages of a diary kept by Dominic L Serventy, an eager young naturalist who worked at United Press. His interests were fostered by the WA Museum curator at the time, Ludwig Glauert, who was never too busy to share time and give information to young people. To this day, WA Museum staff continue to support the club.

Serventy's journalistic work brought him into a select company of writers and naturalists, including Colonel C Battye of the State Library. Many country naturalists corresponded regularly with Serventy and he was frequently in touch with experts in the Department of Agriculture. It was these people who responded to his proposal to form a naturalist club in Western Australia. Having received encouraging support and after two preliminary committee meetings, the inaugural meeting was held, the club name was decided, meeting nights and subscription fees were fixed and duties allocated.

The club's first excursion was to Leighton Beach to investigate material washed up after a winter storm. 'Beach Sweeps' as they are now called, are still one of our most popular events.

Vincent Serventy, a younger brother of Dominic, joined the



Above: Vincent Serventy with Nats' Club at Mt Lesueur rally. Photo – WA Naturalists' Club

Dom Serventy founded the WA Naturalists' Club in 1924. Photo – WA Naturalists' Club

club in 1936 and took a prominent role in activities. As World War II came close to Australian shores, the club's activities were restricted. However they continued under the guidance of Miss Bonnie Walker, the first woman to be club president, and Miss Lucy Serventy, sister of Dominic and Vincent Serventy. The Serventy family's contribution to the club is now recognised in the annual Serventy Memorial Lecture at which a notable scientist is invited to speak.

There was a post war revival in 1946 when Vincent Serventy took office as president. Under his leadership the Junior Naturalist Club received special attention and some of these young naturalists still belong to the club today. Harry Butler and others gave much support to Vincent.

As Perth grew larger the club expanded with branches now in



the Darling Range, Rockingham and the northern suburbs. There are also specialist groups and an administration office and library in central Perth. Lectures by leaders in environmental studies are still a key part of club activities however excursions are the bedrock of the club in the 21st century. These excursions take participants to places from Kings Park to WA's remote north and centre, to other states and overseas.

Publications have long been an important part of the club's activities, beginning with the first edition of the journal 'The Western Australian Naturalist' in 1947.

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WA Nats Club turns 90 *From page 1...*

This publication continues today, publishing research work about the State's environment, and is highly regarded.

Well-informed club members have been instrumental in providing advice to State and Federal governments in their planning decisions over many years. They have not always been successful but in many instances changes have been quietly made.

The road has not always been smooth but the club and its members have made an immense contribution to the knowledge of natural history in WA. For so many people joining the club

has been the beginning of a wonderful journey to explore this wonderful world. At a time when our natural environment is under extreme pressure the club is making a vital contribution. The journey continues.

Acknowledgement: This article was compiled from A History of the WA Naturalists Club 1924 -74 by Rica Erickson

Alan Notley is a past-president and honorary life member of the WA Naturalists' Club.

Contact: WA Naturalists' Club.
Phone: 9228 2495.
Email: www.wanaturalists.org.au.

An update on grass selective herbicides

By Kate Brown

Management notes on 32 grass weeds have been updated on Florabase to reflect changes in the formulation of some of the grass-selective herbicides. For many species of introduced grasses, applying Fusilade® Forte (fluazifop-p 128g/L active ingredient) to actively growing and unstressed plants has been the recommended chemical control option. Recently however a number of cheaper, generic brand herbicides have come onto the market with the same active ingredient but under different trade names and with a slightly different formulation (fluazifop-p 212g/L active ingredient). The recommended rate of these generic brands is slightly different to Fusilade® Forte and is now included in the management notes. For example if you are controlling perennial veldt grass you would use Fusilade® Forte (fluazifop-p 128g/L active ingredient) at the recommended 13mL/L plus a wetting agent. For a generic brand you would use (fluazifop-p 212g/L active ingredient) at 8 mL/L plus wetting agent. So be aware of the different formulations when controlling grassy weeds.

Hollyhock returns to Penguin Island *By Kate Brown*

Australian hollyhock only occurs on offshore islands and generally grows on guano deposited by seabirds. The first collection of the species was from Penguin Island in 1873 but unfortunately it disappeared from the island in the early 1970s.

Seed for this project was collected from a population on Carnac Island, the only remaining population of Australian hollyhock in the Shoalwater Islands. Seed was stored in the Department of Parks and Wildlife Threatened Flora Seed Centre until this winter when trials were set up around old pelican nests on the southern



*Australian hollyhock (Malva preissiana) is restricted to offshore islands.
Photo – Kate Brown*

end of Penguin Island. The aim is to evaluate establishment techniques for reintroducing this species to the island. The Australian hollyhock once formed an important component of the vegetation and its reintroduction is part of a larger restoration program for Penguin Island.



Staff from Parks and Wildlife, and Murdoch University along with volunteers setting up direct seeding trials of Australian hollyhock on Penguin Island. Photo – Kate Brown

Summer Bushland News

Summer *Bushland News* contributions should be sent to Urban Nature at urban.nature@dpaw.wa.gov.au by **Thursday 20 November 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.

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Locked Bag 104, Bentley Delivery Centre WA 6983
Fax 9386 6399 Email urban.nature@dpaw.wa.gov.au

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

Controlling dolichos pea (*Dipogon lignosus*) at Harrisdale Swamp

By Karen Taylor

Dolichos pea (*Dipogon lignosus*) is a garden escapee originating from South Africa. It is a fast growing vine that flowers prolifically through the spring months, making it an attractive garden plant. However once in bushland it is invasive, spreading throughout the tree canopy, smothering and strangling native plants and trees, and preventing native understorey plants from growing.

Biology

Dolichos pea is a perennial vine, which can climb up to 4m, with slender, twining stems that become rope-like with age. It resprouts vigorously, reproduces by seed, and spreads vegetatively by suckering and stem layering to form new roots. Seed production is high with the hard seeds remaining viable for many years. After flowering and forming pods, the seed is explosively ejected from pods and can travel several metres. Its vigorous growth and multiple reproduction methods enable it to smother native vegetation within a short period of time. It climbs over shrubs and trees, weighing them down and eventually causing them to break. It also spreads horizontally over the ground, smothering native groundcovers. As a nitrogen fixer, dolichos pea increases soil fertility, paving the way for other weeds to invade.

Harrisdale Swamp: management case study

Harrisdale Swamp in Jandakot Regional Park had a dense infestation of around half a hectare of dolichos pea. The pea had scrambled up into the canopy of the paperbark swamp and had completely covered the very tops of the trees, preventing the growth of any understorey vegetation.

Though control of this weed is relatively easy, it is time-consuming as it requires every living stem to be cut and treated with herbicide. Contractors were hired to carry out the treatment, cutting each individual stem just above ground level and again at chest height. The cut stems were then painted with 100 per cent glyphosate (Roundup®).

There were very few understorey plants because of the dense canopy the dolichos pea had formed, so contractors were able to spray the cut stems on the ground with a two per cent glyphosate mix. This was done to ensure the cut stems did not resprout and also to kill any young emerging dolichos pea seedlings.

Time frame

Initial control in Harrisdale Swamp started in November 2013 before the fruits of the plant had fully developed. The contractors cut and painted the stems, then left the plants for about a month to allow



Dolichos pea (Dipogon lignosus) readily smothers native vegetation. Photo – Mark Brundrett



Dolichos Pea at Harrisdale Swamp after treatment. Photo – Karen Taylor

the cut stems to die. They returned in December that year to cut and treat any stems that were missed. Due to the vigorous nature of this species, follow up control is essential.

To date the dolichos pea at Harrisdale Swamp has had six treatments each 4–6 weeks apart, including the initial cut and paint. After six months of treatment, seedlings are still emerging from the ground and from within layers of melaleuca bark.

The pea can now be effectively managed by removing seedlings by hand and any outbreaks can be monitored by the Friends group and regional parks conservation employees. Melaleuca seedlings have started emerging in the area where the weed previously dominated.

More information

Florabase: <http://florabase.dpaw.wa.gov.au/browse/profile/3867>.

Global Invasive Species Database: www.issg.org/database/welcome.

Contact: Karen Taylor, Parks and Wildlife. Phone: 9442 0317.

Email: Karen.Taylor@dpaw.wa.gov.au.

Droseras come out to prey By Bryony Fremlin and Jill Griffiths

With the arrival of spring, Perth's bushland is bursting into flower. Among these are the *Droseras*, or sundews. Sundews belong to the family Droseraceae and have the unusual habit of supplementing their nutrient supply by consuming insects.

The Droseraceae family, which is spread across the world, is well-represented in WA, with around 150 species of the genus *Drosera* found here, which is a very large percentage of the total number of plants in the genus (Neville Marchant, in *Plants and People*, Autumn 2014).

Droseras in the south-west vary greatly in size and habit. Some species form flat rosettes of sticky leaves, while others weave long tendrils, climbing up other plants. In the damplands where water lies just below the surface, plants such as the swamp rainbow (*Drosera heterophylla*) can be seen flowering in their thousands in late winter to early spring. These plants have adapted to growing in winter-wet soils and are unusual among *Drosera* species in that their flowers have more than the typical four or five petals. The flowers of the swamp rainbow can have from eight to a dozen or more petals, giving them the appearance of a daisy flower.

As with other *Drosera* species, the swamp rainbow uses digestive enzymes located in its leaves to ingest nutrients from small insects, which have become trapped in the sticky mucilage on its leaf tentacles. The nourishment derived from the insects compensates for the nutrient-poor soils in which these plants grow.

The tentacles on the leaves of all *Drosera* species respond to the presence of an insect and 'catch' it. Typical victims of *Drosera heterophylla* are midges, mosquitoes and small flies. Sometimes, as illustrated here, many tiny insects can be caught at the same time in a single leaf. Note how the leaf tentacles on this species fold inwards when an insect is trapped, drawing the prey towards the lamina. This allows maximum contact between the insect, the tip of the tentacle which contains glands that release digestive enzymes, and the lamina where further digestive juices are located. Other species 'catapult' the insect into the centre.

A German research group recently published

a paper on the catching mechanisms of *Drosera glanduligera* in the online journal PlosOne. The paper includes video of the plant catching insects: www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0045735#pone.0045735.s002.

Contacts: Bryony Fremlin, Friends of Forestdale Lake. Email: jaylin@inet.net.au.

Jill Griffiths, Bushland News editor. Email: jill@griffithsenvironmental.com.au.



The swamp rainbow (*Drosera heterophylla*) flowers abundantly during late winter and early spring. Photo – Bryony Fremlin



Droseras use sticky tentacles to capture and hold prey. Photo – Bryony Fremlin

Help count quendas By Rebecca Boyland

WWF Australia and Parks and Wildlife are once again asking Perth and Peel residents to help count quendas or southern brown bandicoots (*Isodon obesulus*).

The first Spring Quenda Count, held in 2013, was a great success with a total of 157 sites surveyed by 147 keen observers. Most of these sites were in people's gardens or local parks, providing a good baseline for monitoring quenda numbers across Perth.

The 2014 Spring Quenda Count will run from early September to the end of November. If you are able to take part in the count, please contact quenda@wwf.org.au to receive a data sheet and detailed instructions.



The quenda (*Isodon obesulus*) survey aims to find out just how prevalent these marsupials are around the Perth and Peel region. Photo – Howard Badger

Contact: Rebecca Boyland, WWF Australia. Phone: 6231 0219. Email: quenda@wwf.edu.au.

City-living reptiles By Ashleigh Wolfe

Have you ever wondered how a city-living lifestyle affects Perth's native fauna? My PhD research is looking at how urbanisation affects reptiles and their ability to adapt to human disturbance. There is a huge potential for animals to adapt to changes caused by humans but we know very little about how this applies to reptiles. Using two iconic species, the dugite (*Pseudonaja affinis*) and bobtail (*Tiliqua rugosa*), I am interested in discovering how diet, habitat use and behaviour of urban reptiles compares with those living in rural areas.



Dugites, like this juvenile in Harry Waring Marsupial Reserve, Cockburn, are one of the species Ashleigh Wolfe is studying. Photo – William Parkinson.

Perth is a rapidly-growing city and suburban backyards are becoming increasingly important to Perth's wildlife. Snakes are commonly found in unkempt gardens, often hiding under a piece of sheet metal or paving. In spring and summer hundreds of snakes are relocated to nearby bushland, but what they do after that is unknown. It is possible that they are going straight back to a backyard, where food and shelter are easy to come by.

Perhaps a little understanding will go a long way towards keeping people and our native wildlife safe.

I am collecting road-killed reptiles this spring and summer for diet analysis. If you would like to help send me an email or like my Facebook page: <https://www.facebook.com/UrbanReptileEcologyPerth>.

Contact: Ashleigh Wolfe, Curtin University.
Email: Ashleigh.Wolfe@postgrad.curtin.edu.au.

Green Army marches on

Conservation Volunteers have obtained funding for four projects in WA under the Federal Government's Green Army project.

The Green Army is a hands-on, practical, grassroots environmental action program that supports local environmental and heritage conservation projects across Australia. Projects are guided by local community needs and must have an environment or heritage conservation focus while providing participants with valuable practical experience.

Participants, aged between 17–24 years, receive an allowance and gain practical skills, training and experience in environmental and conservation fields.

Conservation Volunteers' projects are based in Collie and Leonora and involve local Aboriginal groups working on a range of environmental activities. Visit www.environment.gov.au/green-army.

Weeds Forum this November By Gillian Stack

The Environmental Weed Action Network (EWAN) is holding a Weeds Forum on Friday 28 November 2014. The forum will have a strategic outlook – speakers and participants will consider the past, present and future of environmental weeds in WA.

It has been 20 years since the original 'Invasive Weeds and Regenerating Ecosystems in WA' conference drew attention to the issue of invasive plants, and the process of developing effective strategies began. This conference was supported by a wide range of 'factions', and this cooperation and focus on finding solutions generated an enormous amount of positive energy.

EWAN was formed as one offshoot of that energy and the 20th anniversary is

an opportune time to look back and consider what has been achieved in the past. Current topics are the WA Auditor General's report into how plant and animal pests are managed (Report 18, December 2013) and the WA's *Biosecurity and Agriculture Management Act 2007*. We also want to consider the future for managing environmental weeds in WA.

A detailed program will be released closer to the event, but in the meantime, reserve the date in your diaries! Registration costs will be kept low to ensure that the forum is widely accessible.

Contact: Gillian Stack, EWAN Committee. Email: enquiries@environmentalweedsactionnetwork.org.au.



It is 20 years since the 'Invasive Weeds and Regenerating Ecosystems in WA' conference was held so it is timely to review progress.

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 Koondoola and Burbridge Ave.

Saturdays 8am–9am

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

Saturdays 8.30am–10.30am

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

Saturdays 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 1.30–3.30pm

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–12noon

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

Sundays

Wilson Wetlands Action Group undertakes regular work mornings throughout the year on Sunday mornings. Contact 9258 7301 or wilsonwetland@gmail.com.

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 every Sunday with Friends of **Shenton Park Bushland**. Contact Dani 9381 3470 or bojel@iinet.net.au.

Sundays 8.30am

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

Sundays 8.30am–9.30am

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

Sundays 9am–11am

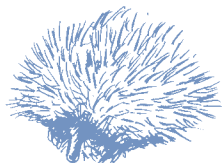
Bushcare activities with **Cottesloe Coastcare**. First Sunday of each month. Contact Robyn 9384 7668, info@cottesloecoastcare.org. or www.cottesloecoastcare.org.

Sundays 9am–12 noon

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

Sundays 9.45am–12 noon

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



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

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

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 **January, February and March 2015 events by Thursday 20 November 2014.**



11 October Great Aussie Camp Out. Brings together thousands of Australians for one big night where they share the experience of camping out under the stars ... in their back yards, on a riverbank, in a camp, a national park, a caravan park – in fact, anywhere they might feel like! Participation is free and you can register at www.greaussiecampout.org.au. Photo – Outdoors Australia.

Mondays 9am–11am

Litter collection with Swan Estuary Reserves Action Group at **Milyu Nature Reserve, South Perth**. Second Monday of each month. Contact Cathie oneillc@westnet.com.au or 93392439.

Mondays, Wednesdays, Fridays 9am–12 noon

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

Tuesdays 7am–9am

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

Wednesdays, 3pm–5pm during school term

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

Thursdays 8am–9am

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

Thursdays 9am–1pm

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

Thursdays 9am–11am

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

Thursdays and Sundays 10am–12noon

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

Fridays and Saturdays 7pm–9pm

First Friday and second Saturday every month, **Nocturnal Tours, Kanyana Wildlife Centre.** Meet nocturnal native wildlife and hear about endangered species breeding programs. \$20/adult, \$12/child, \$55/2A2C. Bookings essential info@kanyanawildlife.org.au or 9291 3900.

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 oneillc@westnet.com.au or 93392439.

October

1 Wednesday 6pm–8:30pm

Night Stalk \$5 Chittering Landcare Centre. Contact **CLC**.

3 Friday 6.45pm–9.30pm

Night stalk, Ellis Brook Valley. Contact **CoG**.

4 Saturday

World Animal Day event with emphasis on wildlife. Piney Lakes Eco Education Centre, Melville. www.melvillecity.com.au/pineylakesevents.

4 Saturday 7–9am

Bird Walk – Burrooloo. Chittering Landcare Centre. Contact **CLC**.

5 Sunday 9am

Free morning walk with Friends of **Bold Park** Volunteer Guides. Contact **BGPA**.

10 Friday 6pm–8pm

Frog Fest – night stalk at Herdsmen Lake Wildlife Centre. \$15 includes sausage sizzle hot dog. Contact 93876079 or Jenny@wagouldleague.com.au.

11 Saturday 9am

Free morning walk with Friends of **Bold Park** Volunteer Guides. Contact **BGPA**.

11 Saturday 8.30–10.30am

Weeding. Bicton Environmental Action Group. Contact Peter Neesham 0439 467 855 or pneesham1@hotmail.com.

11 Saturday and 12 Sunday

WA Beach Clean Up. Contact Tangaroa Blue 0410 166 684, info@tangaroablue.org or www.tangaroablue.org.

Registration/contact details

BBO Broome Bird Observatory.

Meet at Broome Bird Observatory www.broomebirdobservatory.com/events.

BGPA Botanic parks and Gardens Authority.

Walks leave from the WA Ecology Centre, Perry Lakes Drive, City Beach. Contact 9480 3996 or friendsbp@bgpa.wa.gov.au or www.bgpa.wa.gov.au.

CoG City of Gosnells.

Bookings essential 9397 3111 or www.gosnells.wa.gov.au/events.


BSFH Bush Skills for the Hills

Free workshops. Contact Crystin Fielding on 9424 2216 or environment@emrc.org.au or www.emrc.org.au/bush-skills-for-the-hills-workshops.html.


CLC Chittering Landcare Centre.

Contact 9571 0200, chitteringlandcare@iinet.net.au or www.chitteringlandcare.org.au.


12 Sunday 9am–11.30am

 **Nature rambles. Ellis Brook Valley.** Contact **CoG**.

16 Thursday 9am

 **Free morning walk** with Friends of **Bold Park** Volunteer Guides. Contact **BGPA**.


19 Sunday 9am

 **Free morning walk** with Friends of **Bold Park** Volunteer Guides. Contact **BGPA**.

19 Sunday 1.30–4.30pm

 **Nature walk and bush care.** Focus on Insects. Friends of **Warwick** Bushland. Meet at Bowling and Tennis Club bitumen car park, Lloyd Dr, Warwick. Contact Brian Hadwin 0403 262 589 or friendsofwarwick@gmail.com.


24 Friday 7.30pm

 **Nocturnal Walk in Star Swamp** Bushland. Meet at Henderson Environment Centre, Groat St North Beach. See nocturnal birds, frogs and the bush at night. Bring a torch. Contact David 9448 9192.


24 Friday 12noon–1pm

 **New WAter Ways Water Sensitive Cities** Speaker Series. The Atrium Theatre, 168 St Georges Tce, Perth. Visit www.newwaterways.org.au.

25 Saturday 9am

 **Free morning walk** with Friends of **Bold Park** Volunteer Guides. Contact **BGPA**.


25 Saturday 9am–12noon

 **Native grasses – introduction.** Mahogany Creek Hall, 3060 Strettle Rd, **Mahogany Creek**. Contact **BSFH**.


25 Saturday 8.30–10.30am

 **Foreshore clean-up Point Walter.** Bicton Environmental Action Group. Meet at Point Walter car park. Contact Peter Neesham 0439 467 855 or pneesham1@hotmail.com.


26 Sunday 9:30am–1:30pm

 **Walk and talk – Slithering snakes. Mary Carroll Wetland.** Bookings essential. Contact Unice 0434 831 230 or unicerobinson@gmail.com.


28 Tuesday 6.30am

 **Mud sampling.** Roebuck Bay, **Broome**. Come and get muddy collecting samples, or join us back at the observatory to sift through the collection. Contact **BBO**.

29 Wednesday 12noon–12.45pm


 **Burn Optimism Planning Tool** – Deciding when and where to burn for biodiversity conservation. Brett Beecham (Parks and Wildlife). Keiran McNamara Conservation Science Centre, Ningaloo/Purnululu meeting rooms, Parks and Wildlife, 17 Dick Perry Dr, **Kensington**. Call Julia 9442 0320.

30 Thursday evening

 **Phascogales talk.** Keiran McNamara Conservation Science Centre, Parks and Wildlife, 17 Dick Perry Dr, Kensington. \$25. Contact 9334 0251 or community.involvement@dpaw.wa.gov.au.

November


8 Saturday 9am–12noon

 **Native grasses – advanced.** Mahogany Creek Hall, 3060 Strettle Rd, **Mahogany Creek**. Contact **BSFH**.

8 Saturday 7am–9am

 **Bird Walk,** Udumung Reserve. **Chittering** Landcare Centre. Contact **CLC**.

9 Sunday 9am–11.30am

 **Nature rambles. Ellis Brook Valley.** Contact **CoG**.


18 Tuesday 5pm–7pm

 **Bidi Katitjiny Aboriginal Women's Trail Guided Tour and Tucker, Piney Lakes** Environmental Education Centre, Melville. \$5 per person. www.melvillecity.com.au/pineylakesevents.

23 Sunday 9am–11.30am

 **Black cockatoos talk.** Black Cockatoo Conservation Centre (**Kaarakin**). Contact **CoG**.

26 Wednesday 6.30am

 **Mud sampling.** Roebuck Bay, **Broome**. Come and get muddy collecting samples, or join us back at the observatory to sift through the collection. Contact **BBO**.

Friday 28 November 7pm–9.30pm


Night stalk. Mary Carroll Wetland. Contact **CoG**.

December


6 Saturday and 7 Sunday 8.30–10.30am

 Bicton Environmental Action Group. **Shell bed clean-up, Bicton Baths.** Contact Peter Neesham 0439 467 855 or pneesham1@hotmail.com.

9 Tuesday 6.30am

 **Mud sampling.** Roebuck Bay, **Broome**. Come and get muddy collecting samples, or join us back at the observatory to sift through the collection. Contact **BBO**.

13 Saturday 5pm–7pm

 **Bird Walk,** Lake Chittering. **Chittering** Landcare Centre. Contact **CLC**.

Highlights

21 September–9 October
Reimagining Perth's Lost Wetlands

Discover the story of Perth's swampy past; featuring Noongar history, archival photos, paintings and newly created three-dimensional digital modeling of Perth's lost wetlands prior to 1827. Perth Town Hall.

Outdoors October

An initiative between Outdoors WA and Department of Sport and Recreation, this month-long celebration has a brand new website packed with more than 100 activities for people to get involved with. Visit www.outdoorsoctober.com.au.

27 October–31 October
Coast to Coast Conference 2014 - Coastal Knowledge for Coastal Change, Mandurah. www.promaco.com.au/coasttocoast2014/index.php.

2–4 November.

Sustainability: Smart strategies for the 21C. 2014 Australian Association for Environmental Education National Conference, Hotel Grand Chancellor, Hobart. <http://aaee2014.com.au>.

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/.

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 Yancheep. Bookings 9295 2244. Visit www.dpaw.wa.gov.au/n2n.

The Wildflower Society of WA holds regular talks and excursions. Visit <http://members.ozemail.com.au/~wildflowers/events.htm>.

The Naturalists' Club of WA events and excursions. Visit: <http://www.wanaturalists.org.au/events>.

Parks and Wildlife volunteer programs Visit <http://www.dpaw.wa.gov.au/get-involved/volunteering-opportunities>.

Conservation Volunteers activity schedule. Free one-day local practical conservation activities or overnight country trips. Contact Katie 9335 2777, perth@cva.org.au or www.conservationvolunteers.com.au.

Learning opportunities

Volunteers required for post-fire monitoring

The Shire of Mundaring is planning to implement a flora monitoring program to observe and document bushland recovery after the Parkerville-Stoneville-Mt Helena bushfires last January. Volunteers are needed to regularly visit monitoring sites to identify and record species regeneration. This information will then be forwarded to the Shire. It is anticipated that the project will run for 3–5 years. A further project of photo monitoring is currently being considered.

Contact Shire of Mundaring Environmental Recovery Officer on 9290 6665 or ero@mundaring.wa.gov.au.

Get Nearer to Nature this October school holidays

Parks and Wildlife's *Nearer to Nature* team provides the community with unique, enjoyable activities that help participants discover marvellous natural areas in and around Perth. Download the 'Sunlit Spring' brochure for a full range of fun activities to get nearer to nature this school holidays: www.dpaw.wa.gov.au/n2n. Contact 9295 2244 or n2n@dpaw.wa.gov.au.

Phascogales – care and rehabilitation

Run by Parks and Wildlife, this special talk is for anyone interested in learning more about phascogales. Registered wildlife rehabilitator Peter Vickridge has successfully rehabilitated and released many phascogales over the years and would like to share some of his extensive knowledge about this fascinating animal.

The talk will be held on Thursday evening, 30 October at the Keiran McNamara Conservation Science Centre, Parks and Wildlife Kensington Office. The cost is \$25.

Contact 9334 0251 or community.involvement@dpaw.wa.gov.au.

Please send us your regional report (150–200 words) and a photo by Thursday 20 November 2014. Text may be edited in response to volume of submitted reports.

Hidden vine thickets reveal secrets *By Malcolm Lindsay*

Collaboration between Environs Kimberley, Bunuba Aboriginal rangers and the community volunteer group Society for Kimberley Indigenous Plants and Animals (SKIPA) has shed some light on the eco-culturally important monsoon vine thickets of the limestone ranges in the Kimberley.

Parts of the limestone Oscar and Napier ranges, such as Windjana Gorge, Tunnel Creek and Geiki Gorge, are well known to passing tourists. However, these labyrinthine ranges, which once hid the Bunuba

Aboriginal freedom fighter Jandamarra, also hide undescribed ecologically and culturally important sites and species, such as a network of monsoon vine thicket patches. These rainforest-aligned ecosystems are rich in plant diversity and cultural importance.

During a two-week period, a team of Bunuba rangers, Environs Kimberley ecologists, Bunuba elders and SKIPA volunteers conducted the first documented ecological survey of these vine thickets.

We found an extensive network of patches containing species largely restricted to vine thickets, such as the three-leaf black plum (*Vitex acuminata*), *Celtis australiensis*, currant bush (*Grewia breviflora*) and white currant (*Flueggea virosa*). We were pleased to see that just as the limestone labyrinth has kept them hidden from the scientific community for all these years, it has also protected the majority of patches from cattle, weeds, fire and land clearing. We were reminded of their cultural importance with most patches associated with formally inhabited caves and rock art.

This successful collaboration between an environmental NGO, community nature group and local Aboriginal ranger group shows that along with our usual work conserving threatened bushland in the Kimberley, we are also often lucky enough to be the first to document eco-culturally important ecosystems and share them with the scientific and wider community for the first time.

This project was led by Environs Kimberley and funded by a grant from the Australian Government and Rangelands NRM.

Contact: Malcolm Lindsay, Environs Kimberley. Email: malcolm@environskimberley.org.au. Phone: 9192 1922.



Scattered patches of vine thicket among the labyrinthine Oscar Ranges. Photo – Malcolm Lindsay

Lake Meelup recovery program *By Peter Wilmot*

Our journey to return Lake Meelup to a healthy wetland by augmenting water levels continues. Since the diversion weir in the Meelup Main Drain was commissioned in June 2012 the lake has held water year-round, although it almost dried out during autumn 2014. Water quality has been good and destructive acidity controlled.

In 2013, Parks and Wildlife installed a drop-board culvert in the channel connecting Lake Meelup and the Meelup Main Drain. This has resulted in more control of lake water levels and prevents estuarine water entering Lake Meelup during storm surges.



Lake Meelup Preservation Society member Jan Knight carrying out a survey for residual *Typha orientalis* plants, October 2013. Photo - Peter Wilmot

Waterbird numbers have been much higher, with up to 2000 birds counted compared to fewer than 100 before the recovery program. New species have also been recorded, including two transequatorial migratory waders.

Extensive control work prior to commissioning of the diversion weir, combined with the subsequent higher water levels, have enabled us to reduce *Typha orientalis* coverage of the lake bed from 80 per cent to zero.

Parks and Wildlife, Lake Meelup Preservation Society and our partners continue to monitor the condition of the lake and use this information to manage water levels to optimise lake health.

Contact: Peter Wilmot, Lake Meelup Preservation Society. Phone: 0417 938 826.

Paperbarks and pardalotes By Catherine O'Neill

The Swan Estuary Reserves Action Group recently organised a very successful community education event focusing on the ecological and social values of Alfred Cove.

The morning began at Glyde-In – a vibrant community learning centre based in East Fremantle – with Robert Harvey speaking about the unique natural beauty and importance of the remnant areas of various species of samphire, the sedge-banks of *Juncus kraussii* and the pockets of melaleuca and eucalypt woodland along the Alfred Cove foreshore.

Robert also outlined aspects of the Cove's social history, including events which brought irreversible change to the landscape, such as its use as rubbish tips in the 1950s and 60s and for dumping spoil from river dredging.

Around a dozen people came down to the river and were taken on a guided walk along the foreshore and through adjacent bushland areas to see the progress of some of the restoration currently being undertaken. The importance of remnant



A striated pardalote (Pardalotus striatus) in its nesting hollow in a very old Eucalyptus rudis in Alfred Cove. Photo – Jane Leahy-Kane.

vegetation to the area's diversity of bush and water birds, including to the tiny striated pardalote, was seen firsthand. 'Before and after' photographs helped to tell an encouraging story – but of course there still remains much to do.

Contact: Catherine O'Neill, Swan Estuary Reserves Action Group.
Email: oneillc@westnet.com.au.

Rabbits and weeds at Woodman Point By Earle Seubert

Another successful collaboration between Parks and Wildlife's Regional Parks Branch and the Friends of Woodman Point Recreation Camp came to fruition in June this year. A concerted effort during the past two years has seen the eradication of invasive weeds and grasses throughout the regional park and the Department of Sports and Recreation site. The project was then extended to control rabbit and feral animals by 'laying' rabbit haemorrhagic disease virus and destroying warrens throughout the regional park.

The continual resurgence of the vigorous bridal creeper remains a concern to the Friends and it is agreed that a combined effort should be concentrated in this area when any future community grants become available. Bridal creeper is now classified as a weed of national significance and is regarded as one of Australia's 20 worst weeds. Future projects will also aim to reduce the spread of onion weed.



Limestone remains of the official boundary of the Woodman Point Quarantine Station. Photo – Earle Seubert.

These ongoing collaborative projects are necessary to maintain and preserve the vegetation and wildlife that are unique to the coastal woodland of this historic area.

Earle Seubert is Honorary Historian, Friends of Woodman Point Recreation Camp

Contact: Earle Seubert.
Email: winterhawk8@bigpond.com.

Funding opportunities

Australian Geographic Society sponsorships round two

Sponsorship is available to support scientific research, protect and foster a love for our environment and natural heritage, encourage the spirit of discovery and spread the knowledge of Australia to Australians and the world.

Up to \$3,000 is available for the seed grant sponsorships and \$5,000 to \$15,000 for project sponsorships. The total amount of funds allocated in each funding round for seed grants and project sponsorships will be a maximum of \$25,000.

Applications **close** on Sunday **30 November**. Visit www.australiangeographic.com.au/society/sponsorship.

Peel Biolinks – Connecting Landscapes, Connecting People

Greening Australia and its community partners have a vision of creating a landscape scale biolink within the Peel Harvey Catchment, connecting the Darling Scarp to the shores of the Peel Estuary. Funding, provided by Alcoa of Australia, is available to develop suitable projects involving:

- revegetation using local native species on non-productive land-use zones
- buffering of remnant vegetation and conservation of ecologically sensitive areas
- biodiversity and habitat restoration to enhance connectivity
- assisting landowners with natural resource management and Landcare objectives.

This funding will support project sites with costs associated with site selection, planning and preparation, revegetation using best practice direct seeding technologies and/or native seedling plantings, ongoing Landcare consultation, support and advice, and continued monitoring and evaluation.

Contact: Bayden Smith, Greening Australia. Email: bsmith@gawa.org.au. Phone: 0427 087 023.

Community Landcare grants

As part of the 25th anniversary of Landcare, the Federal Government has announced a one-off small grants round of between \$5,000 and \$20,000, which will be available to local groups to enhance their natural resources and engage with their communities. Visit www.nrm.gov.au.

Community-driven NRM study identifies conservation priorities for Canning River tributaries

By Michael W Klunzinger

The South East Regional Centre for Urban Landcare (SERCUL) received funding from the WA State NRM office to undertake on-ground works to restore riparian vegetation and identify important refuge points for Perth's endemic freshwater fauna in tributaries of the lower Canning River during 2013-2014. As part of the on-ground works program, SERCUL commissioned Murdoch University's Freshwater Fish Group and Fish Health Unit to undertake aquatic fauna surveys within the Yule-Woodlupine Brook waterways and Bickley Reservoir.

Given community concerns over the state of declining habitat quality in Yule and Woodlupine brooks, two tributaries that flow into the lower Canning River, along with rainfall decline and increasing summer temperatures, the primary aim of the study was to identify important refuge points for freshwater fauna in the waterways. Additionally, Bickley Reservoir was targeted for study as a likely summer refuge for native freshwater fauna. Results of the study and recommendations for protection and management were provided in a presentation by aquatic ecologist Stephen J Beatty and through a technical report presented to SERCUL.

Key findings of the study indicate that Yule Brook, Woodlupine Brook and Bickley Brook support several native freshwater fishes and provide spawning habitats as well as some summertime refuge pools. The waterways also support a variety of native frogs, reptiles, water birds and macroinvertebrates. Significant populations of marron, blue-spot gobies and freshwater mussels along with a wealth of aquatic macroinvertebrates, waterbirds, turtles, frogs and other freshwater fauna and native

flora were found in Bickley Dam. The dam's fauna also includes Carter's freshwater mussel (*Westralunio carteri*), a priority 4 and probably vulnerable endemic species; in fact this is probably one of the last remaining populations of the species in the lower Canning River.

Woodlupine Brook contains two rather large, permanent water bodies with the potential to act as summer refuges for freshwater fauna. Unfortunately the study found that the fish fauna was dominated by koi carp (*Cyprinus carpio*), an introduced environmentally-destructive pest. The impact of this invader was evident from the low diversity of aquatic macroinvertebrates and almost complete lack of native freshwater fishes in the brook.

Clearly, the proverbial 'seedbank' of conservation-dependent species, such as the Carter's freshwater mussel population in the Bickley Dam refuge, needs conservation management in order to maintain freshwater biodiversity in the lower Canning River. The large, permanent wetlands in the Woodlupine Brook waterway could also serve as refuges for native freshwater fauna if koi carp were eradicated.



Field Technician James Keleher holding two large koi carp (*Cyprinus carpio*) caught in Woodlupine Wetlands. Photo – MW Klunzinger



Carter's Freshwater Mussel (*Westralunio carteri*), a priority 4 species is found in Bickley Dam. Photo – SJ Beatty

Contacts: Michael Klunzinger, Murdoch University. Email: m.klunzinger@murdoch.edu.au. Steve Beatty, Murdoch University. Phone: 9360 2813. SERCUL. Phone: 9458 5664

| System | NRM values | NRM challenges | Recommended NRM strategies |
|----------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Yule Brook, Woodlupine Brook & Bickley Brooks | <ul style="list-style-type: none"> House several native freshwater fishes that would utilise the systems for spawning and recruitment Has some smaller pools that could serve as refugia for native freshwater fauna Waterway supports native frogs, water birds and macroinvertebrates | <ul style="list-style-type: none"> Impacts from urban land use (nutrient runoff, etc.) Degraded riparian zones Low water levels in dry summers High abundances of introduced fishes, future introductions likely Lack of connectivity between refuge points (at least one instream barrier likely preventing migrations at Brixton St) | <ul style="list-style-type: none"> Mitigate impacts from urban land use (nutrient runoff, etc.) Enhance habitats through revegetation with native flora to provide shading and habitat structure Determine ecological water requirements Review instream barrier locations (Dep. Water) Assess the Brixton St weir for potential fishway installation (mindful of introduced species) Restock with native Freshwater Mussels |
| Bickley Dam | <ul style="list-style-type: none"> Significant populations of Blue-spot Goby, Mussels and Freshwater Mussels Waterbird habitat Native flora Nature-based recreation Summer refuge for native fauna | <ul style="list-style-type: none"> Introduced Yabby and Eastern Gambusia present and the latter would be having a considerable ecological impact Dam wall preventing upstream-downstream native and introduced fish migrations Freshwater mussels confined to Bickley Dam and not able to re-colonise the Lower Canning River and Bickley Brook due to lack of host fish migration | <ul style="list-style-type: none"> Determine feasibility of utilising the dam as a potential resource for stocking native freshwater fishes, crayfishes and freshwater mussels (Water Corporation, Dep. Fisheries) |
| Woodlupine Wetlands | <ul style="list-style-type: none"> Large, Permanent water bodies with high potential to act as refuge for aquatic fauna Relatively intact riparian vegetation May offer refuge for waterbirds and threatened black cockatoos | <ul style="list-style-type: none"> High abundance of Eastern Gambusia and high biomass of Koi Carp and Goldfish, and likelihood of future introductions Possibly contaminated with hydrocarbons, heavy metals and other contaminants Lack of native freshwater fishes, mussels and low aquatic macroinvertebrate diversity | <ul style="list-style-type: none"> Improve habitat conditions to a suitable quality that would support native freshwater fauna Conduct an eradication program (intensive boat electrofishing) of Koi Carp and Goldfish Control fringing weeds and re-vegetate with native species Liaise with stakeholders to determine applicability of environmental legislation (e.g. WA Contaminated Sites Act 2003 or Waterways Conservation Act 1976) Restock with native south-west freshwater fishes and crayfishes (Dep. Fisheries) |

Kanyana Wildlife Rehabilitation Centre Inc. By Robyn McCaughey



Kanyana Wildlife Rehabilitation Centre Inc. is a not-for-profit organisation dedicated to protecting and caring for some of WA's most threatened native wildlife.

At its Lesmurdie facility in the Perth Hills, Kanyana Wildlife rehabilitates sick, injured, orphaned and displaced wildlife, and undertakes broad-based training and education for community and corporate groups. Kanyana actively promotes its key messages of rehabilitation, breeding, education and research.

From a backyard to today's operation

Kanyana had its beginnings in 1962, when June and Lloyd Butcher purchased 1.2ha of land in Gooseberry Hill, on the Darling Escarpment. They named their property 'Kanyana', a word derived from the local aboriginal dialect meaning 'gathering place'. The spot appealed to Lloyd, because as state manager of Ansett Airlines, he had an unimpeded view of Perth Airport, and could use binoculars to keep a close eye on the activity within the aircraft maintenance sheds.

As more and more houses were built in the area, the human impact on the local wildlife increased. June, a child health nurse, began to take in and care for injured animals. She remembers the first animal she ever rescued – a galah she found on the side of Kalamunda Road near Guildford Cemetery, injured after being hit by a car. At a time when veterinary knowledge of native animals was almost completely unavailable, June applied the same principles she used when caring for sick and injured children to her rescued animals. Every year the number of animals brought to Kanyana grew. In 1986, after receiving 70 admissions, Lloyd built a small hospital on the property to treat and rehabilitate the Butcher family's native bird and animal patients.

Caring for the animal patients was initially undertaken by the Butcher family, with occasional assistance from a neighbour. Over time the number of volunteers assisting June increased, and systems of care and treatment were developed.



A young quenda (Isoodon obesulus) is given much-needed sustenance by a Kanyana volunteer. Photo - Kanyana



Kanyana founder June Butcher with Henry. Photograph courtesy of Houndstooth Studios

Many children in the community displayed an interest in caring for animal patients and made themselves useful on weekends by undertaking essential animal husbandry tasks.

Kanyana Wildlife Rehabilitation Centre was incorporated in 1996, and in 2002 Lloyd and June were made Members of the Order of Australia for their contribution to wildlife conservation. In 2000, when the needs of the organisation had exceeded the capacity of their personal home, the search began for alternative premises. It took six and half years to find a suitable site and then another two years of structural work to make the Paxwold buildings habitable and suited to the task of rehabilitating wildlife. While funding was provided by Lotterywest, the volunteers themselves contributed a huge amount time and labour to the refurbishment of the facility.

Kanyana moved to the Paxwold site in 2010 and continues to receive animal patients, participate in the breeding of threatened species and run educational tours through its Discovery Centre. June still has a strong involvement with the organisation today, has a hand in the day to day operations, and holds the position of Board Chairperson. Sadly, Lloyd passed away in 2010.

Contact: Robyn McCaughey, Kanyana Wildlife.
Phone: 9291 3900. Email: marketing@kanyanawildlife.org.au.

Resources

New publications

Australian

Carnivorous Plants

2012 Greg Bourke and Richard Nunn. Poole: Redfern Natural History Productions 197pp \$70.00 Beautiful

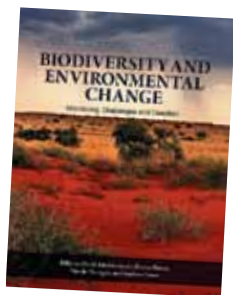


coffee table book with extensive colour photos of all carnivorous plant genera found in Australia. Incorporating 180 images of more than 150 species taken over the past two decades by acclaimed wildlife photographers and carnivorous plant experts, Greg Bourke and Richard Nunn, this visually striking book is the first work dedicated to highlighting the beauty of Australian carnivorous plants in the wild through high quality photographs.

Biodiversity and Environmental Change –

Monitoring, Challenges and Direction 2014

David Linder Mayer, Emma Burns, Nicole Thurgate and Andrew Lowe (editors) CSIRO Publishing RRP \$120. This data-rich book demonstrates the value of existing national long-term ecological



research in Australia for monitoring environmental change and biodiversity. Long-term ecological data are critical for informing trends in biodiversity and environmental change. The Terrestrial Ecosystem Research Network (TERN) is a major initiative of the Australian Government and one of its key areas of investment is to provide

funding for a network of long-term ecological research plots around Australia (LTERN). This book highlights some of the temporal changes in the environment that have occurred in various systems. Many important trends and changes are documented and they often provide new insights that were previously poorly understood or unknown.

Recent Research

Algar D, Onus M and Hamilton N (2013). Feral cat control as part of the Rangelands Restoration at Lorna Glen (Matuwa), Western Australia: the first seven years *Conservation Science Western Australia* 8 (3): 367-381 www.dpaw.wa.gov.au/about-us/science-and-research/76-publications-and-resources/103-conservation-science-wa-journal.

Davis RA and Wilcox JA (2013). Adapting to suburbia: bird ecology on an urban-bushland interface in Perth, Western Australia. *Pacific Conservation Biology* 19 (2) 110-121.

Keighery G (2013). Weedy native plants in Western Australia: an annotated checklist *Conservation Science Western Australia* 8 (3): 259-275. <http://www.dpaw.wa.gov.au/about-us/science-and-research/76-publications-and-resources/103-conservation-science-wa-journal>

Valentine LE, Fisher R, Wilson BA, Sonneman T, Stock WD (2014). Time since fire influences food resources for an endangered species, Carnaby's cockatoo, in a fire-prone landscape. *Biological Conservation* 175 1-9.

Website watch

Rivers of Emotion

The Rivers of Emotion project explores the deep emotional significance for historic and contemporary peoples who have drawn upon the Derbarl Yerrigan and Djarlgarro Beelier, the Swan and Canning Rivers, as a functional, pleasure and spiritual resource. This website has been created so everyone can share their experiences and feelings about the rivers: www.riversofemotion.org.au.

Eremaea eBird – an online bird atlas

Record the birds you see, keep track of your bird lists, explore dynamic maps and graphs, share your sightings and join the eBird community, contribute to science and conservation. Data are rigorously checked for quality and are automatically shared with BirdLife Australia's Atlas program, as well as online biodiversity data portals including the Atlas of Living Australia and the Global Biodiversity Information Facility. Visit <http://ebird.org/content/australia/>.

Outdoors October

A month-long celebration of activities in the outdoors. Find or add a new activity or event. Visit www.outdoorsoctober.com.au.

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