

## Behavioural change needed for waterway health

Issue 83

**Spring** 2012

*Time of Djilba and Kambarang in the Nyoongar calendar.*

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*By Jason Menzies*

**In an effort to reduce nutrients and contaminants entering the Swan Canning river system, the Swan River Trust is using innovative strategies to change household and business behaviours.**

The Swan River Trust aims to reduce nutrients entering the Swan and Canning river system from land-based activities. Fertiliser use through residential and recreational application has been identified as the main source of nitrogen and second highest source of phosphorus entering our river system. Increasing urbanisation is likely to amplify this issue and highlights the need for major behavioural change at a community and organisational level.

Many environmental agencies are focused on fixing past problems. The Trust understands that community engagement, education and behaviour change is paramount to river health in a preventative sense, as it encourages citizens to take action and reduce nutrients entering the system by changing simple things at home.

Our first step was to better understand our target market – the Perth community. The Trust recently undertook some formative research with the help of Perth's leading practitioners in the fields of science, education and community engagement, and developed a new Behaviour Change Strategy to help guide the River Guardians program.

The River Guardians program was launched by the Trust in 2008 and aims to educate the wider



*Fountain Lake in Bennett Springs Estate is the last basin before the catchment drains into Bennett Brook, highlighting the importance of limiting nutrient input from surrounding residential areas to maintain water quality health. Photo – Leah Botten*

Perth community on 'RiverWise' practices. Projects encourage participants to make small and simple changes to their behaviours in their homes and gardens to help reduce nutrients and other non-nutrient contaminants finding their way into our river system and adversely affecting water quality (for example, causing algal blooms and fish deaths).

A two-year pilot project in Bennett Springs Estate will start in spring 2012 and involves the Trust working in partnership with the City of Swan, Department of Water, Great Gardens and the Bennett Springs residential, commercial and school communities.

Bennett Springs Estate was identified as the target area for the pilot project because long-term water quality monitoring suggests that the residential estate, or area surrounding it, is a significant source of nitrogen

and phosphorus input to Bennett Brook. The development began in 1999 and is now almost complete. In total, the area has about 1,200 dwellings, an 8,000 m<sup>2</sup> shopping complex and several surrounding schools.

Through the Bennett Springs Behaviour Change pilot project, the Trust will deliver a range of new RiverWise messages using a variety of innovative delivery mechanisms. Specifically, the pilot will involve personalised coaching during household visits to Bennett Springs residents, work with businesses to clearly identify and promote RiverWise household and gardening products, work with the school communities, a free fertiliser swap event, and a RiverWise garden competition.

For more information on these programs visit [www.riverguardians.com](http://www.riverguardians.com).

## Fire and biodiversity

By Julia Cullity

**In June, Urban Nature coordinated a seminar for 120 participants on *Fire and Biodiversity: recent work on the Coastal Plain and in the Perth Hills*. Speakers from the Department of Environment and Conservation (DEC), Edith Cowan University, Centre for Excellence for Climate Change Woodland and Forest Health, and The University of Western Australia presented some of their recent research findings.**

Presentations were given on DEC fire policy, fire response of threatened plant species and ecological communities, prescribed burning in tuart woodland, post-fire juvenile periods and weed impacts in a banksia woodland flora, re-colonisation of fauna after fire, reptile responses, biodiversity of fire-dependent insects, chemical and environmental impacts of fire in wetlands and guidelines for ecological burning in banksia woodland derived from the work of the Gnarara Sustainability Strategy. Visit [www.water.wa.gov.au/sites/gss/reports.html](http://www.water.wa.gov.au/sites/gss/reports.html). The day finished with concurrent, interactive workshops on four major themes of ecological regimes, weeds, wetlands and fauna. Our thanks go out to all the people who made the day a great success.

## Restoration work on Perth's coastal islands

By Kate Brown

**The Shoalwater Islands vegetation provides critical habitat for a restricted form of Australian hollyhock (*Malva preissiana*). The white-flowering island form of the hollyhock was first collected from Penguin Island in 1883. Since that time it has been collected across the Shoalwater Islands and from Green (off Rottnest), Carnac and Garden islands. It has not been seen on Penguin Island since the 1970s and in recent years has disappeared from all islands except Carnac. Its preferred habitat is seabird guano deposits.**

The nutrient-rich status of these island sites makes them particularly vulnerable to weed invasion, and this appears to be a major cause of the disappearance of the Australian hollyhock from Perth's islands. Urban Nature, together with DEC's Swan Coastal District, has been working on weed management on the islands for a number of years. We recently initiated a project to reintroduce the Australian hollyhock back onto



*The white-flowering island form of the Australian hollyhock (*Malva preissiana*) will be reintroduced onto Penguin Island. Photo – Kate Brown*

Penguin Island. Plants will be grown from seed recently collected from Carnac Island and from seed collected from Shag Island a number of years ago.

## Quenda/bandicoot survey a success By Geoff Barrett

**DEC and WWF-Australia would like to thank everyone who took part in the 2012 quenda survey. The survey began in November 2011 and is now complete.**

Observers sent sightings from 1,000 sites in the DEC Swan Region (Lancelin, south to Preston Beach and east to York). Reports of quendas or southern brown bandicoot (*Isodon obesulus*) were also received from as far afield as Margaret River, Manjimup and Albany. This response confirms just how accessible and popular quenda are, often making themselves at home in people's backyards. They are, however, dependent on nearby areas of bushland, from which they travel into suburban areas. More than 200 people sent in photos confirming that in almost all cases people were able to identify bandicoots accurately. Causes of mortality were also reported, giving us a clearer understanding of threats to quenda.

A summary of this information will be available when the report is completed but initial analysis shows that causes of death include road kills, and predation by dogs, cats and foxes, as well as poisoning and drowning.

The 2012 survey results provide a record of where quenda currently occur around Perth that can be compared with future surveys, as well as with an earlier DEC survey from 1990. The results will also enable us to check our map of potentially important habitat and identify potential sites for translocation of quenda that have been displaced by land clearing.

For updates on the quenda survey visit <http://blog.wwf.org.au/tag/quenda/>. For more information about quendas visit [www.dec.wa.gov.au/content/view/full/7009/1979/](http://www.dec.wa.gov.au/content/view/full/7009/1979/). Contact WWF-Australia species conservation manager Katherine Howard at [Khoward@wwf.org.au](mailto:Khoward@wwf.org.au), or DEC Swan Region ecologist Geoff Barrett at [geoff.barrett@dec.wa.gov.au](mailto:geoff.barrett@dec.wa.gov.au).

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

Current and archived issues of *Bushland News* are available at [www.dec.wa.gov.au/programs/urban-nature/index.html](http://www.dec.wa.gov.au/programs/urban-nature/index.html).

## Summer Bushland News

Summer *Bushland News* contributions should be sent to Urban Nature at [urban.nature@dec.wa.gov.au](mailto:urban.nature@dec.wa.gov.au) by **Thursday 15 November 2012**.

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

## Sparaxis: a wetland invader

By Kate Brown

**A major threat to the native flora and plant communities of clay-based wetlands of the Swan Coastal Plain is invasion and competition from South African geophytes such as *Sparaxis bulbifera*.**

The plant communities of seasonal clay-based wetlands of the Swan Coastal Plain have recently been listed under the federal *Environment Protection and Biodiversity Conservation Act 1999*. On the southern Plain, about 240 ha of clay-based wetlands remain, which is considerably less than 10 per cent of their original occurrence. Where *S. bulbifera* invades these wetlands it forms dense monocultures, displacing the rich native herbaceous flora.

### Biology

*S. bulbifera* is a summer-dormant geophyte, sending up its first shoots with autumn rains. It has a corm that is renewed annually when the plant is actively growing. A daughter corm, sometimes two, is produced as the previous year's corm exhausts and dies. Flowering occurs in early spring, and as summer approaches plants produce prolific amounts of seed and occasional stem cormels. With the onset of summer the leaves die back and the corm goes into dormancy. Studies indicate the seed remains viable in the soil seed bank for less than 12 months.

### Dispersal

While water flow plays a major role in seed dispersal into undisturbed bushland, fire probably also facilitates the spread of *S. bulbifera*. South African geophytes that occur in the fire prone environment of the Cape Region of South Africa are well adapted to surviving summer fires. Soil offers very effective insulation to the summer dormant corms and some have contractile roots that pull the corms of young plants deeper into the soil, helping them avoid lethal fire temperatures. Fire can break down corm dormancy and can stimulate flowering, followed by prolific seed production. The post-fire environment then offers space and light where seeds can germinate and seedlings can establish in the absence of larger trees and shrubs. Keeping frequent fire out of the wetlands is probably quite important in preventing spread of *S. bulbifera*.

### Control

The current herbicide control recommendations are to spot spray metsulfuron methyl 0.2 g/15 L + Pulse® or 2.5-5 g/ha + Pulse® just on flowering at corm exhaustion, usually in early spring. Importantly, chemical control techniques are often only one part of an effective strategy for managing the spread *S. bulbifera*. Hand removal of small isolated populations in undisturbed areas can also be an effective part of a control strategy. The wetland soils are still soft in early spring and entire plants including corms come out quickly and easily with minimal soil disturbance.



*Sparaxis bulbifera* a) summer, dormant corm b) late autumn, corm begins to sprout c) early spring, flowering and corm exhaustion d) spring to early summer, leaves begin to die back, seed and stem cormels are formed. Illustrations by Libby Sandiford. From: Brown K and Brooks K (2002) Bushland Weeds: A practical guide to their management. *Environmental Weeds Action Network*, Greenwood, WA.



*Sparaxis bulbifera* at Brixton Street Wetlands. Photo – Kate Brown

### More information

Brown K and Brooks K (2003) *Sparaxis bulbifera* (Iridaceae) invading a clay based wetland on the Swan Coastal Plain – control methods and observations on the reproductive biology. *Plant Protection Quarterly* 18(1): 26–29.

Brown K and Paczkowska G (2008) Seed biology of two invasive South African geophytes and implications for natural area management. *Ecological Management and Restoration* 9(3): 232–234.

Brown K L and Bettink K A (2009–) Swan Weeds: Management Notes, *FloraBase* — The Western Australian Flora. Department of Environment and Conservation. <http://florabase.dec.wa.gov.au/browse/profile/1558>.

# Extinction forestalled

By Kevin Thiele

**On average, 50–100 new species of plants are described in Western Australia each year. A number of recent plant discoveries have highlighted the existence of short-range endemics surprisingly close to Perth—and rediscovered a species presumed extinct.**

Short-range endemic plants are species that occur naturally only in a very restricted area. They occur throughout WA, though mostly in areas that are floristically diverse, such as the Mount Lesueur area, Fitzgerald River National Park, the Banded Iron Formation ranges on the edge of the South West Botanical Province and, perhaps surprisingly, the Swan Coastal Plain.

In 2010, during a flora survey of clay-based wetlands in the Kenwick area of Perth, botanist Cate Tauss collected an unusual specimen of *Ptilotus*. Unable to name the specimen, Cate brought it to the attention of *Ptilotus* expert Rob Davis at the WA Herbarium. Rob had also not seen another *Ptilotus* like it. The specimen was subsequently described as the new species *Ptilotus christinae* in 2011.



*Presumed-extinct species Ptilotus pyramidatus was recently discovered 15 km from the Perth CBD. Photo – Cate*

Further research at the herbarium, however,

uncovered a small drawing of the presumed-extinct species *Ptilotus pyramidatus*, described by a French botanist in 1849 based on a specimen collected by colonial botanist James Drummond a few years previously. Labelled simply 'New Holland', the specimen was clearly collected somewhere in south-west WA. The drawing and the new species were similar. Careful examination of an original specimen of *P. pyramidatus* at the National Herbarium of Victoria showed that they matched. *Ptilotus pyramidatus*, not seen for 160 years and listed as 'presumed extinct' by DEC, had been rediscovered less than 15 km from the Perth CBD!

A similar rediscovery, this time in a highly cleared area of the Avon Wheatbelt, again involved Colonial botanist James Drummond. In 2009, botanist Mike Hislop at the WA Herbarium brought to me a specimen of *Hibbertia* he had collected several years previously near Goomalling. It was collected while surveying remnant bushland on private property as part of the DEC-WWF Woodland Watch project. Again, this matched no recognised species of *Hibbertia*.

Searching through the herbarium brought to light three other specimens which were all collected since 2003 in the same general area. A literature survey revealed a species that appeared to match—*Hibbertia leptopus*, described in 1863, again based on a single specimen collected by Drummond.



*Hibbertia leptopus was rediscovered near Goomalling after 160 years. Photo – Kevin Thiele*

Examination of the original specimen showed that it was indeed the same. *Hibbertia leptopus* had been rediscovered after 160 years. In this case, the species was not listed as presumed extinct, having been removed altogether several years previously from the census of WA plants.

These rediscoveries highlight the continuing importance of botanical research, both in the field and at the WA Herbarium. Research such as this has in recent years reduced the list of presumed extinct plant species in WA from 53 in 1991 to 13 at present. This is a significant achievement for conservation.

Completely new and highly localised species are discovered every year, many of them rare and restricted. Unfortunately, the high incidence of short-range endemics in areas such as the Swan Coastal Plain and Avon Wheatbelt also means that clearing probably resulted in many species becoming extinct before they were discovered or scientifically described. These are lost forever.

For the two species discussed here, extinction has been forestalled, at least for now, by careful floristic surveys and taxonomic research. It remains for equally careful planning and conservation efforts to ensure that these vulnerable species continue to thrive in their special and restricted habitats.

## Great Western Woodlands project: call for volunteers

By Liz Fox

**BirdLife Australia, in partnership with The Nature Conservancy, has started a new project on the birds in the Great Western Woodlands (GWW). The GWW is the largest intact Mediterranean woodland on Earth and covers 16 million hectares. It lies between the WA Wheatbelt and Nullarbor Plain, and includes much of the Goldfields region. It is an excellent place to see species such as Gilbert's whistler, southern scrub-robin and chestnut quail-thrush. When the eucalypts are in flower you can find large flocks of purple-crowned lorikeets and numerous honeyeater species such as the yellow-plumed, white-eared, purple-gaped, and brown-headed.**

BirdLife will be conducting bird surveys in small groups in a variety of locations across the region in every season to 2014. The summer survey will be held 28 December 2012–2 January 2013 and the autumn survey will be held during Easter. Expressions of interest are sought from potential group leaders as well



*Chestnut quail-thrush (Cinclosoma castanotus) which occurs in the Great Western Woodlands. Photo – Chris Tzaros*

as participants. Four-wheel drives are required in most areas and volunteers will need to be self-sufficient. Survey dates are flexible. Please also contact Liz if you are interested in future surveys but are unable to make the upcoming dates.

For more information contact Liz Fox on 0427 947 009 or 9287 2716 or [liz.fox@birdlife.org.au](mailto:liz.fox@birdlife.org.au).

## Taxonomists aboard electronic 21st century

By Kevin Thiele

**Recent changes to the rules governing the naming of plants have resulted in an easier, faster and more modern process for naming the many new species that are discovered every year in WA.**

The naming of plants (nomenclature) is governed by the International Code of Nomenclature for algae, fungi, and plants (ICN) which is discussed and voted on at a week-long meeting of the International Botanical Congress (IBC)—the world's largest scientific botanical meeting, held every six years. The most recent IBC, held in Melbourne in July 2011, saw some of the most important and far-reaching changes to the ICN for many years.

One change allows species to be described in fully electronic journals whereas previously only printed journals were

recognised. Another change overturns a centuries-old tradition that required a description in Latin, the once-universal language of science, to accompany the description of new species.

These changes come at an opportune time for the WA Herbarium, which recently moved towards electronic publication of its taxonomic journal *Nuytsia*. The changes are helping staff at the herbarium describe some new species more rapidly. Recently, *Tetratea spenceri* was named in *Nuytsia* just six months after its discovery near Kalgoorlie. Of course such rapid publication can only happen when the considerable skills needed to recognise the new species are available, and when the taxonomy is relatively straightforward. The ICN changes will help us deliver a more rapid taxonomy which will help our attempts to save and conserve WA's remarkable plant biodiversity.

## Searching for boneseed

By Luke McMillan

**Community groups and land managers joined forces for the annual WA Boneseed Blitz from 7–14 September. Spring is the ideal time to target this noxious weed as it produces conspicuous bright yellow flowers. Boneseed (*Chrysanthemoides monilifera* subsp. *monilifera*) is known at only 39 locations in the south-west of WA, but 37 million hectares are considered at risk of boneseed invasion. Infestations have been found from Geraldton in the north to Albany in the south, with concentrations in the Perth hills and in Wheatbelt towns around Narrogin. It is important that any boneseed plants still hiding in backyards or bushland are reported.**





The WA Boneseed project is funded through the Australian Government's *Caring for our Country* program and managed by Perth Region NRM. If you think you've seen boneseed, take a photo and report potential sightings to the DAFWA Pest Info line on 1800 084 881 or [info@agric.wa.gov.au](mailto:info@agric.wa.gov.au). Alternatively, contact Luke McMillan, WA Boneseed Coordinator, on 0466 744 960 or 99374 3321 or [luke.mcmillan@perthregionnrm.com](mailto:luke.mcmillan@perthregionnrm.com).



*Boneseed has bright yellow flowers during spring, making this weed easy to identify and eradicate. Photo – Hillary Cherry*

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

## Recurrent activities

-  **Saturdays Bushcare activities** with the Mt Henry Conservation Group are on the fourth Saturday of each month. Email Jan.King@aquinas.wa.edu.au.
-  **Saturdays 8am-9am Guided walks** with Friends of Koondoola. Second Saturday of the month. Meet at Gate 2, corner of Koondoola and Burbridge Ave.
-  **Saturdays 8am-9am Guided walks** and meeting with Friends of Landsdale. First Saturday of the month. Meet at third gate Landsdale Rd, east of Landsdale Farm School, Darch.
-  **Saturdays 9am Bushcare activities** with the Friends of Brixton Street Wetlands are on the third Saturday of the month. Meet Alton St, Kenwick. Contact Regina 9459 2964 or tjdrd@bigpond.net.au.
-  **Saturdays, Sundays 9am-12 noon Koala maintenance** at Yanchep National Park. Call Kerstin 9303 7771.
-  **Sundays Work morning** with the Wilson Wetlands Action Group. Exact site is decided a week prior. Email wilsonwetland@gmail.com.
-  **Sundays 8am-9am Guided walks** with Friends of Marangaroo. Fourth Sunday of the month. Meet at Gate 3, Decourcy Way.
-  **Sundays 8am-10am Bushcare activities** every Sunday with the Friends of Shenton Park Bushland. Contact Dani 9381 3470 or bojel@it.net.au.
-  **Sundays 8.30am Bushcare activities** with the Friends of Wireless Hill are on the second and fourth Sunday of each month. Meet at main car park. Contact Margaret 0402 105 649 or s3mmatthews@hotmail.com.

-  **Sundays 8.30am-9.30am Guided walks** followed by Friends of Mirrabooka meeting. First Sunday of the month. Call Jan 9344 2872.
-  **Sundays 9am-11am Bushcare activities** with Cottesloe Coastcare are on the first Sunday of each month. Visit www.cottesloecoastcare.org for details or contact Robyn on 9384 7668 or info@cottesloecoastcare.org.
-  **Sundays 9am-10.30am Bushcare activities** at Throssell Reserve, Eastern Hills in the Jane Brook Catchment are on the second Sunday of each month. Call Una Bell 9572 1447.
-  **Sundays 9.45am-12 noon Bushcare activities** with the Friends of Piesse Brook are on the third Sunday of each month. Contact Gerry Brown 9293 2517, Bridgett bhogarth@ozemail.com.au or linda@johnstanley.cc.
-  **Sundays 9am-12 noon Bushcare activities** with the Friends of the Spectacles (Kwinana) are on the third Sunday of each month. Contact Lynda Smith on 9439 1928 or outback3@iinet.net.au.
-  **Mondays 8.30am-10am Bushcare activities** with the Friends of Mary Carroll Lake (Gosnells). Volunteers also work the fourth weekend of each month. **FMCL**
-  **Mondays, Wednesdays, Fridays 9am-12 noon Bushcare activities** and wetlands walk trail maintenance with Yanchep National Park Volunteers. Call Kerstin 9303 7771.
-  **Thursdays 8am-9am Bushcare activities** every Thursday with Byford Enviro-Link. Call Johanne Garvey or Kristy Gregory 9526 0199.
-  **Thursdays 9am-2pm Bushcare activities** in Margaret River with the Capes Volunteer Team. Call 9757 2202.

-  **Thursdays 9am-11am Bushcare activities** on the fourth Thursday of the month at Baldviss Children's Forest. Contact Jo 0410 341 087 or jo.tregonning@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.
-  **Research into bird populations** with the Herdsman Lake Bird Banding Group. Call Bill Rutherford (ABBBS Coordinator) 0438 910 252.

## October

-  **3 Wednesday Wildflower walk** at Island Point Reserve, Herron. Meet 9am at Mandurah DEC office or 9.45am at Island Point barbecue area. Call Peg 9535 8401.
-  **5 Friday 6.45pm-9.30pm Night stalk** with Friends of Ellis Brook Valley. **CoG**
-  **5 Friday 7.30pm Birds** with guest speaker Stephen Davies. **WA Nats(P)**
-  **6 Saturday, 11 Thursday, 14 Sunday, 20 Saturday 9am Guided walks** with Friends of Bold Park Bushland Volunteer Guides. Contact **FBPB**.
-  **9 Tuesday 8pm Native bees and wildflowers** with guest speaker Terry Houston. **WSWA(P)**
-  **10 Wednesday 7.30pm Fungi after fire** with guest speaker Richard Robinson. **WA Nats(B)**
-  **14 Sunday 9am-11.30am Nature ramble** with Friends of Ellis Brook Valley. **CoG**
-  **14 Sunday 9am Cape to Cape Track maintenance.** **WA Nats(B)**
-  **16 Tuesday 6pm Role of invasive plants in facilitating human parasites** with guest speaker Richard Mack. UBC. Citywest Lotteries House, West Perth. Visit www.bushlandperth.org.au/.
-  **20 Saturday 7.30pm Guided night walk** at Dianella bushland. **FDB**
-  **20 Saturday 8.30am Work day** with Canning River Regional Park Volunteers. Call Jo 9458 3669 or email Pam admin@canningriver.org.au.
-  **21 Sunday 9am-11am Guided bird walk** with Birdlife Australia at Baldviss Children's Forest. **BCF**
-  **26 Friday 7.30pm Nocturnal walk** with Friends of Star Swamp Bushland. Bring a torch. Contact Christine 0430 013 364 or randccurry@three.com.au.

## Highlights

**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/).

### 1 Saturday September-16 Tuesday October

**Night stalks** sponsored by Tronox are happening in your local area. Visit [www.perthzoo.wa.gov.au/nightstalk](http://www.perthzoo.wa.gov.au/nightstalk) or email [nightstalk@perthzoo.wa.gov.au](mailto:nightstalk@perthzoo.wa.gov.au).

### 2 Tuesday-13 Saturday October

**School holiday activities** with *Nearer to Nature*. Visit [www.dec.wa.gov.au/content/view/3404/1885/](http://www.dec.wa.gov.au/content/view/3404/1885/).

### 8 Monday-11 Thursday October

**18th Australasian Weeds Conference 2012**, Melbourne. Developing solutions to evolving weed problems. Visit [www.18awc.com](http://www.18awc.com).

### 29 Monday October-2 Friday November

**Australian Network for Plant Conservation 9th National Conference: Plant Conservation in Australia - Achievements and Future Directions**. Canberra. Visit [www.anpc.asn.au/conferences/2012](http://www.anpc.asn.au/conferences/2012).

### 31 Wednesday October

**12.30pm-5pm WA Sustainable Education Forum 2012: Our next courageous steps.** Naturaliste Marine Discovery Centre, Hillarys. Cost \$20 or \$10 student. Visit <http://admail.adcorp.com.au/ch/23477/2dcv4q/1751330/e0266gtz5.pdf>

### 25 Sunday-29 Thursday

**13th International Conference Wetland Systems for Water Pollution Control**. Murdoch University. Visit [www.promaco.com.au/events/wetlandsystems2012.html](http://www.promaco.com.au/events/wetlandsystems2012.html).

### 27 Tuesday-29 Thursday

**November Australasian Wildlife Management Society Conference 2012**, Adelaide. Visit [www.awms.org.au/pages/events.html](http://www.awms.org.au/pages/events.html).

### 28 Wednesday-30 Friday

**November Conference of the Society for Ecological Restoration Australasia**, Perth. Visit [www.seraustralasia.com/pages/conference.html](http://www.seraustralasia.com/pages/conference.html).

### 3 Monday-7 Friday

**December Ecological Society of Australia 2012 Annual Conference**, Sebel Albert Park, Melbourne. Ecology: Fundamental Science of the Biosphere. Visit [www.esa2012.org.au/](http://www.esa2012.org.au/).

### 18 Monday-22 Friday

**February Global Herbicide Resistance Challenge Conference**, Perth. Visit [www.herbicideresistanceconference.com.au](http://www.herbicideresistanceconference.com.au).

**WA Citizen Science Conference** has been postponed from November 2012 until 2013. For revised conference notices visit [www.ccwa.org.au/content/citizen-science-conference](http://www.ccwa.org.au/content/citizen-science-conference).

## Registration/contact details

- BCF Baldviss Children's Forest**  
\$10 adults, \$5 children (5-16 years). Bookings Michelle 0405 998 598 or [bookings@baldviss-childrens-forest.com.au](mailto:bookings@baldviss-childrens-forest.com.au).
- CoG City of Gosnells** Registrations essential. Contact Peta 9397 3111 or [plucas@gosnells.wa.gov.au](mailto:plucas@gosnells.wa.gov.au).
- FBPB Friends of Bold Park Bushland** Meet at WA Ecology Centre, Perry Lakes Dr, Floreat. Call 9480 3996, email [friendsbp@bgpa.wa.gov.au](mailto:friendsbp@bgpa.wa.gov.au) or visit [www.bgpa.wa.gov.au](http://www.bgpa.wa.gov.au).
- FDB Friends of Dianella Bushland** Meet at reserve car park. Enter from Dianella Dr, Gay St, then Channel 7 Private Rd. Contact Jan 9344 2872 or [bant@aapt.net.au](mailto:bant@aapt.net.au).

- FMCL Friends of Mary Carroll Lake Gosnells.** Eudoria St car park. Contact Unice 9398 7126 or [unicerobinson@gmail.com](mailto:unicerobinson@gmail.com).
- WA Nats(B) WA Naturalists Club (Busselton)** RSL Hall, Busselton. Call Bernie 9727 2474.
- WA Nats(P) WA Naturalists Club (Perth)** Hew Roberts Lecture Theatre, UWA Extension. Clifton St, Nedlands. Email [info@wanaturalists.org.au](mailto:info@wanaturalists.org.au). \$2 door entry.
- WSWA(P) Wildflower Society of WA (Perth)** Subiaco Community Centre. Email [wildflowers.perth@ozemail.com.au](mailto:wildflowers.perth@ozemail.com.au). \$2 door entry.

Please send us your January, February and March 2013 events by Thursday 15 November 2012.

**26 Friday 8am–3.45pm**

**Canoeing** at Canning River Regional Park. Contact Amy 9458 5664 or amykrupa@sercul.org.au.

**27 Saturday 6.30pm–8pm**

**Night stalk** (Halloween theme) at Baldvins Children's Forest. **BCF**

**28 Sunday 7.30am–10.30am**

**Breakfast with the birds** with Friends of Mary Carroll Park. **CoG**

**28 Sunday 8.30am–10am**

**Bushcare activities** with Friends of Mary Carroll Lake. **FMCL**

## November

**2 Friday 7.30pm**

**The use of biota in mineral exploration** with guest speaker Mel Linton. **WA Nats(P)**

**3 Saturday, 8 Thursday, 18 Sunday 9am**

**Guided walks** with Friends of Bold Park Bushland Volunteer Guides. Contact **FPPB**.

**4 Sunday 8.30am–12 noon**

**Native plant sale** with Friends of Kings Park. Exhibition Ground (off Fraser Ave). Rare and unusual native plants. Visit [www.friendsofkingspark.com.au](http://www.friendsofkingspark.com.au).

**7 Wednesday 9.30am**

**Wildflower walk** at Pinjarra Nature Reserve. Meet at gate, south end of Phillips St. Call Graham 0400 893 499.

**10 Saturday 9.30am–12.30pm**

**Native grass workshop** with Bush Skills for the Hills, Mahogany Creek hall. Contact EMRC 9424 2216 or rebbekah.lamont@emrc.org.au.

**13 Tuesday 8pm**

**Regional variation in salmon gum communities in the Great Western Woodlands – preliminary findings** with guest speaker Judith Harvey. **WSWA(P)**

**14 Wednesday 7.30pm**

**Geothermal energy from hot dry rocks** with guest speaker Dennis Gee. **WA Nats(B)**

**16 Friday 7.30pm**

**Tuarts** with WA Naturalists Club (Kwinana Rockingham Mandurah Branch). Naragebup Rockingham Regional Environment Centre. Email [info@wanaturalists.org.au](mailto:info@wanaturalists.org.au). \$2 entry.

**17 Saturday 8.30am**

**Jewel beetle walk** at Dianella bushland. **FDB**

**19 Monday 9.30am**

**Guided insect walk** with Phylis Robertson and Friends of Paganoni Swamp. Meet at entry near powerlines. Contact Leonie 0439 921 298 or FoP@westnet.com.au.

**24 Saturday 8.30am–10am**

**Bushcare activities** with the Friends of Mary Carroll Lake. **FMCL**

**25 Sunday 9am**

**Aquatic life** in the Vasse Wonnerup estuaries. **WA Nats(B)**

## December

**8 Saturday**

**Shorebirds 2020 training workshop.** Identification and monitoring of shorebirds of the Perth metropolitan coast. Contact Coastcare officers Craig Wilson 9439 0433 or [craig.wilson@kwinana.wa.gov.au](mailto:craig.wilson@kwinana.wa.gov.au) or Kate Sputore 9285 5099 or [kate@cottesloe.wa.gov.au](mailto:kate@cottesloe.wa.gov.au).

### Activities key

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

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

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

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

## Blackberry project – 5 years on

By Andrew Hemsley

In 2007 the Department of Agriculture and Food (DAFWA) initiated the Blackberry Buffer Zone project to stop the southward spread of American blackberry (*Rubus laudatus*). The area targets a 6 km wide buffer from Australind to Darkan.

*R. laudatus* is resistant to the rust fungus developed by CSIRO to treat European blackberry (*R. anglocandicans*) in south-west WA. If allowed to spread further south, *R. laudatus* is likely to re-infest areas where European blackberry has been reduced.

The project has grown since inception and a Blackberry Working Group was formed between DAFWA, South West Catchments Council, Leschenault Catchment Council, DEC and Department of Water.

More than 420 ha of blackberry have been treated since 2009 and all *R. laudatus* infestations found south of the buffer zone have been treated or contained. Treatment effectiveness has been more than 95 per cent in nearly all infestations after the first year of treatment. An online database has also been developed for tracking blackberry control and planning future treatment and rehabilitation work.

Targeted surveillance of *R. laudatus* is planned for the Ferguson, Preston, Capel and Blackwood river systems south of the buffer zone. We will continue to encourage private landowners to control blackberry on their land and engage with other stakeholders for a coordinated approach to blackberry surveying and control.

The long-term success of the buffer zone project will depend on landowners, community and local governments in the south-west identifying, reporting and eradicating *R. laudatus* when they find it. For more information or to report *R. laudatus* infestations contact Andrew Hemsley on 9780 6120 or Ken Okamitsu on 9726 4131.



American blackberry (*Rubus laudatus*) (right) is distinguished by bright green elongated leaves. The leaves of European blackberry (*R. anglocandicans*) (left) are darker green above with a whitish underside. *R. laudatus* begins flowering one to two months earlier than its European cousin. Photo – Blackberry Working Group

## Funding opportunities

The **Biodiversity Fund** will support activities which restore, manage and better protect biodiversity on public and private land. Projects could include biodiverse plantings, protecting and enhancing existing native vegetation and controlling invasive pests and weeds. Round two 2012–13 is likely to **close 31 January 2013**. Visit [www.environment.gov.au/cleanenergyfuture/biodiversity-fund/index.html](http://www.environment.gov.au/cleanenergyfuture/biodiversity-fund/index.html).

**Landowner Biodiversity Conservation Grant** program gives financial and natural resource management training support to Cockburn landowners who wish to conserve and enhance the natural bushland and wetland areas on their property. Grants to a maximum of \$3,000. **Closes 31 October 2012**. Visit [www.cockburn.wa.gov.au/Council\\_Services/Environment/Grants\\_and\\_Subsidies/default.asp](http://www.cockburn.wa.gov.au/Council_Services/Environment/Grants_and_Subsidies/default.asp).

Please send us your regional report (150–200 words) and a photo by Thursday 15 November 2012. Text may be edited in response to volume of submitted reports.

## Congratulations Heidi *By Steve Collett*



Landcare award finalist Heidi Hardisty at work alongside Lake Claremont. Photo – Peter Randell

Heidi Hardisty, coordinator of the Friends of Lake Claremont, won the 2011 Individual State Landcare Award and was a 2012 National Individual Landcarer Award finalist in September.

Heidi has been instrumental in a project to transform an old golf course around Lake Claremont in western Perth into an 'urban biodiversity hotspot'. This winter she continued her work, leading hundreds of other volunteers to plant nearly 50,000

native seedlings. As a full-time volunteer, she has started and leads many programs and events such as Celebrate Lake Claremont, the Year 10 Community Service Program with local high school students, Walking Weeders, National Tree Day, and Clean Up Australia Day.

For more information on the Friends of Lake Claremont email Heidi on [paul.heidi@bigpond.com](mailto:paul.heidi@bigpond.com).

## Cockatoo numbers remain low

The Great Cockey Count (GCC), organised by BirdLife Australia in partnership with DEC, counts how many Carnaby's cockatoos (*Calyptorhynchus latirostris*) are at their roost sites on a single April night each year.

Thanks to the efforts of 252 volunteers across south-west WA, including regional areas, another successful GCC was held in April 2012. The minimum population size of Carnaby's in the Swan Region was 4,036 this year. This is similar to the 2011 estimate and 40 per cent lower than 2010, suggesting numbers are still down in the region. BirdLife Australia believes the Swan and Peel regions are critical winter feeding habitat essential for the survival of Carnaby's, and must be protected.

A new BirdLife Australia project for Carnaby's and Baudin's cockatoos on the Swan Coastal Plain is underway. The project will support landholders, particularly those near priority roosting sites, to plant suitable food and roosting trees and combat weed invasion. It will work with the Dieback Working Group to raise awareness about *Phytophthora* dieback and its impact on black cockatoo habitat. The project will also work with nurseries to encourage gardeners to plant local native plants suitable for black cockatoos.

Results from the 2012 GCC are available at [www.birdlife.org.au](http://www.birdlife.org.au). For more information contact Tamara Kabat on 9287 2204 or [greatcockycount@birdlife.org.au](mailto:greatcockycount@birdlife.org.au).

## Tuart forest restoration project

The Peel-Harvey Catchment Council has partnered with the federal government, DEC, Murdoch University and the Lake Clifton community to restore the collapsed tuart forest ecosystem within Yalgorup National Park. The ecosystem decline during the past 10–15 years has put extra pressure on the resident and migratory birds, as well as the endangered Carnaby's cockatoo and western ringtail possum, which both breed within the park. The project also aims to reduce threats to the critically endangered thrombolite community.

Planting and seeding started this winter and will be completed in winter 2013. A total of 30,000 tree seedlings will be planted and 25 ha of understorey species will be seeded. As the largest community-based tuart forest restoration project of its kind, success will be measured in years to come by the return of tuarts, understorey diversity and small ground-dwelling mammals and other fauna.

For more information contact Jane O'Malley on 9583 5128 or [jane.omalley@peel-harvey.org.au](mailto:jane.omalley@peel-harvey.org.au).



William (left) and Joshua unearth 'dinosaur' bones as part of activities at the Forest aimed at promoting a love of our natural environment. The Baldvis Children's Forest project won the United Nations of Australia World Environment Day 2012 Sustainability Education Award at a dinner in Melbourne on 8 June. The award recognises the projects innovative educational programs in bushland conservation, Aboriginal culture, nature play and sustainability. Visit [www.baldvis-childrens-forest.com.au](http://www.baldvis-childrens-forest.com.au). Photo – Jo Tregonning



## Heritage trail rehabilitation *By Gwyneth Dean*

The Railway Reserves Heritage Trail in the Shire of Mundaring follows the old railway lines from Bellevue to Wooroloo and includes a loop from Mount Helena. The trail is 59 km long and is one of the 'Top Trails WA'. It follows Jane Brook for many kilometres, includes rural and urban landscapes, and traverses a range of habitats almost to the Swan River. The trail corridor maintains biodiversity for vegetation and wildlife.

There are more than 70 friends groups in the shire. Volunteers from the Friends of Pioneer Park, a member of Jane Brook Catchment Group, and others have joined forces to work on rehabilitating a section of the trail.

The removal of weeds along the whole length of the trail is our dream. Other groups are working on different sections to the same aim and it would be beneficial if we could join forces and consolidate these projects. Our small section in Mount Helena includes heavy work and a DEC Environmental Community Grant will enable contractors to assist us. We will be working in partnership with bushcare officers from the shire and hope that once this section is under control we will be able to extend the vision.

*For more information contact Gwyneth on 95721447 or [gdean@netcall.com.au](mailto:gdean@netcall.com.au).*

## Topsoil used in banksia woodland revegetation

*By Eddy Wajon*

The Friends of Ken Hurst Park and City of Melville used a DEC Environmental Community Grant of \$14,410 to revegetate degraded areas, primarily tracks and edges, in the park during May–June 2012.

Topsoil from cleared banksia woodland was transported from Jandakot airport and placed in temporary stockpiles. Areas where the topsoil was to be placed were ripped to loosen compacted soil. A 2.2 m wide tractor was used so areas could be accessed without damaging vegetation. The tractor pulled a ripping bar with four tines set at 0.6 m intervals to rip the soil to a depth of 300 mm. A front-end loader carefully distributed the topsoil over the pre-ripped area. A 1.5 m wide positrack bobcat, supplemented by shovels, was used to spread the topsoil uniformly to a depth of 50–100 mm.

Forty-nine volunteers from the Friends of Ken Hurst Park, WA Native Orchid Study and Conservation Group, Emerson Stewart Consulting, Southern Metropolitan Regional Council and the Bullcreek Scout Group planted about 1,300 dryland plants in the prepared areas.



*Volunteers planting tubestock along rip lines at Ken Hurst Park. Photo – Eddy Wajon*

A second planting of 600 seedlings involved 17 volunteers and focussed on an un-ripped area of wetland within the park. Each planting hole was disturbed to a depth of 300 mm using a purpose-built narrow spade. This reduced soil compaction in unripped areas and allowed the tubestock and tree guard stakes to be easily installed.

Soaking rains, ripping the soil and follow-up watering (at least monthly between October 2012 and April 2013) is expected to result in a high plant survival rate and very good germination of the seed contained in the topsoil.

*For more information contact Eddy on 9310 2936 or 0428 345 231 or [wajonpub@bigpond.com](mailto:wajonpub@bigpond.com).*

## Tackling weeds

*By Leonie Stubbs*

Prior to 2005, Paganoni Swamp Reserve was an isolated patch of bushland with unrestricted access to the Serpentine River. Since that time there has been construction of a rail line and Kwinana Freeway on its boundaries, a widening of Paganoni Road and the encroachment of suburbia.

In May 2012, a meeting was organised with Urban Nature, DEC Regional Parks, Main Roads WA, the City of Rockingham and the Public Transport Authority. As a result, participants decided which weeds were priorities for the year and the most effective means to address the weed threat.

A City of Rockingham grant will enable our Friends group to target perennial veldt grass on the road reserve adjacent to Paganoni Swamp. This will be the first year that no herbicide spraying will be required for Geraldton carnation weed within the reserve – a great achievement! Our *Centranthus* and Cape tulip (*Moraea flaccida*) patches targeted over a number of years have significantly diminished. On the negative side, dune onion weed (*Trachyandra divaricata*) remains persistent and *Fumaria* is appearing all over the place.

We completed our first revegetation project this winter on degraded land adjacent to the railway line. We continue to carry out 'Rapid Bushland Assessments' and forward our results to Geoff Barrett at DEC. It provides an opportunity to regularly assess what is occurring within the bushland, particularly birds, and if any infestations of weeds have been overlooked.

*We are now meeting weekly instead of monthly. For more information contact Leonie on 0439 921 298 or [FoP@westnet.com.au](mailto:FoP@westnet.com.au).*



# Opera house traps threaten rakali *By Karen Bettink*

**Baited opera house style traps and fyke nets are used to catch marron and yabbies in our waterways, farm dams and commercial marron farms. Tragically our native rakali are part of the bycatch.**

Rakali or native water rat (*Hydromys chrysogaster*) is WA's only freshwater aquatic mammal and one of only a small set of top order natural predators in freshwater ecosystems in Australia.

## Threats

Rakali are protected nationally and are listed as 'priority 4' in WA. Local extinctions and substantial declines of rakali in south-west WA are attributed to drought, salinisation, habitat loss and degradation. Natural predators include snakes, birds of prey and large fish. However, the most significant threats are from introduced species and human activity, including the use of opera house traps designed to capture yabbies and marron.

As the name suggests, opera house traps resemble the form of the Sydney Opera House. They generally have two opposite funnelled rings for entrances which allow animals to enter but not exit the trap. Bycatch of these traps around Australia include platypus, water rats and freshwater turtles. Marron and yabbies form part of the rakali's natural diet. Rakali are lured into the traps by their caught prey but drown in several minutes.

In south-west WA, rakali deaths in these traps go largely unreported and unrecorded but are likely to be a common occurrence. A trap was removed last year from the Canning River in Roleystone containing a drowned rakali, with an older deceased animal nearby. Anecdotal reports and drowned animals in traps and fyke nets have been retrieved from wetlands and waterways from Ellen Brook to Northcliffe in the south. Not only are rakali victims of traps illegally set in waterways – in 2008 and 2009 approximately 20 oblong (long-necked) tortoises were found drowned in traps in Loch McNess, Yanchep National Park.

This year, the Australian Platypus Conservancy (APC) in Victoria reported two dead rakali found in an opera house trap in Wodonga in April, followed by



*A rakali found drowned in an illegally set opera house trap near Thompson Bridge, Roleystone on the Canning River in 2011. Photo – Paul Mutton*

another report of a mortality of this type in May. They have also documented rakali drownings in opera house traps set legally on a private farm dam in Gulgong, NSW.

## Finding a solution

The APC has been lobbying for a ban on the sale of opera house traps in Victoria in response to growing community concern about the problem of trap bycatch. The APC is encouraging responsible retailers to discontinue the sale of opera house traps and to market safer alternatives such as lift/hoop nets. As a minimum, retailers are encouraged to place warning tags on all opera house traps. However, the APC recognises no state or territory is likely to consider a ban on these traps until stakeholders are sure a viable option that is 'bycatch safe' is available.

## Legalities

In WA, opera house traps and fyke nets are still sold but generally without any warnings or information on regulations. It is currently illegal to use these traps in public waterways, and while they may be legally used on private property there is still the risk to rakali and freshwater turtles. Using entrance rings less than 40 mm diameter, or a wire/plastic grid over larger rings to exclude rakali and turtles, are short-term solutions. Drop nets are a safer alternative.



*Rakali (Hydromys chrysogaster) is WA's only aquatic freshwater mammal. Photo – Karen Bettink*

The Department of Fisheries releases information on legal drop net use prior to the recreational marron fishing season in January/February each year.

The use of illegal traps set in public waterways can be reported to the Department of Fisheries on 1800 815 507. Rakali sightings and deaths can be reported to Keith Morris at DEC on 9405 5159 or [keith.morris@dec.wa.gov.au](mailto:keith.morris@dec.wa.gov.au).

## More information

Australian Platypus Conservancy [www.facebook.com/pages/Australian-Platypus-Conservancy-Official/225816770830721](http://www.facebook.com/pages/Australian-Platypus-Conservancy-Official/225816770830721).

Department of Fisheries [www.fish.wa.gov.au/About-Us/Contact-Us/Pages/Fish-Watch.aspx](http://www.fish.wa.gov.au/About-Us/Contact-Us/Pages/Fish-Watch.aspx).

Karen Bettink on 9423 2904 or [19301655@student.uwa.edu.au](mailto:19301655@student.uwa.edu.au).

## Friends of Porteous Park By Mike Norman

**After a series of five fires lit by vandals in as many years, and subsequent weed invasion, the bushland of Porteous Park was going to ruin. Following a letter drop to surrounding streets, an unincorporated friends group was formed in 2002 to restore the bushland. A decade later, most of the same volunteers are still involved.**

Porteous Park in Sorrento is a sizable remnant of banksia woodland of vegetation type Cottesloe Complex – Central and South containing more than 100 species of flowering plant.

Initially, the Friends identified and targeted three aggressive weeds; perennial veldt grass (*Ehrharta calycina*), Geraldton carnation weed (*Euphorbia terracina*) and *Pelargonium capitatum*. The concept of zero tolerance weeding was adopted, that is, removal of those weed species over the entire park before seed shed. Manual removal methods were used by the Friends (herbicide use is not permitted) and the City of Joondalup sprayed the grasses using grass-selective herbicides. Of these, veldt grass is still somewhat of a problem due to incomplete coverage of the spraying in some years. The Friends now manually remove any missed veldt grass a month or two after spraying.

The number of weed species removed has increased to 22. Much of the work is done in July and August prior to seed set to avoid the need to bag the weeds, thereby increasing weeding efficiency. Bulbous weed species are bagged. Special tools have been designed and manufactured to assist with the efficient manual removal of weed species, especially those with bulbs. Given that the ground is quite hard and stony in places, the weeds cannot be quickly removed using a standard hand trowel.

Community weeding and planting events are held at least once a month during winter and spring. Our work is augmented by the use of grant-funded specialist contractors under Friends Group Coordinator supervision. In 2012, another Environmental Community Grant of \$3,850 and a Special Purpose Grant of \$2,000



Not all hard work – Mike (left) and some members of the Friends of Porteous Park enjoying morning tea. Photo – Mike Norman

has been received from DEC and the City of Joondalup respectively. These grants are currently being used to target the complete removal of Cape tulip (*Moraea flaccida*) and *Gladiolus caryophyllaceus*. Relatively small grants such as these have been very effective in achieving bushland restoration objectives.

Planting of local provenance seedlings supplied by the City of Joondalup has been used to infill degraded areas. However, the focus on zero tolerance weeding has seen a large amount of natural regeneration occur to the point that most of the bushland is now in good condition.

More work is needed over the next few years to bring remaining aggressive weed species down to very low levels. Will we be able to eliminate them entirely? Time will tell!

While working in Porteous Park we are often joined by Carnaby's cockatoos feeding in parrot bush (*Dryandra sessilis*) only a few metres away. This year we have seen at least one fledgling being fed by its mother. Sadly, cockatoo numbers are down on what they were just five years ago. Preserving our local bushland can only help this threatened species.



David (left) and Kara with bulbous weeds gladiolus and Cape tulip following only two hours work in August 2012 using our specifically designed 'super trowel'. Photo – Mike Norman

Our website [www.porteouspark.org.au](http://www.porteouspark.org.au) features photos of the flora and fauna of Porteous Park. For more information on activities contact Mike on 0438 710 527 or [mike.norman@bigpond.com](mailto:mike.norman@bigpond.com).

# Resources

## New publications

**An Introduction to Coastal Gardens** brochure encourages residents living close to beach dunes to plant local native gardens. This will assist with reducing weed invasion from gardens into the dune vegetation and also support native fauna. Download at [www.stirling.wa.gov.au/Resident/Sustainability-and-environment/Sustainability/Gardening at home/ Gardening at home information/Growing plants - Coastal Gardens.pdf](http://www.stirling.wa.gov.au/Resident/Sustainability-and-environment/Sustainability/Gardening%20at%20home/Gardening%20at%20home%20information/Growing%20plants%20-%20Coastal%20Gardens.pdf)

Buchanan R (2009) **Restoring natural areas in Australia**. New South Wales Government. Covers mapping, describing and assessing vegetation, resilience, project management and techniques for managing weeds, fire and responding to climate change. \$44.

Hopper S D (1994) **Kangaroo Paws and Catspaws – a natural history and field guide**. DEC. RRP \$24.95. Available to all readers at the special discounted price of \$4.95 per copy! This field guide is still a definitive text on these world-famous WA plants. How do you identify the species? Why have so many species evolved? How do they respond to fire? What pollinates them? How do you grow and hybridise them?



## Website watch

**2012 Great Cocky Count** survey report. Visit [www.birdlife.org.au](http://www.birdlife.org.au).

**Perth Green Events** View the calendar to see what events are coming up or list your own. Visit [www.perthgreenevents.com/](http://www.perthgreenevents.com/).

**Weed Society of WA** has updated their website. Visit [www.wswa.org.au/](http://www.wswa.org.au/).

**Caring for our Country** review report. Visit [www.nrm.gov.au/about/caring/review/index.html](http://www.nrm.gov.au/about/caring/review/index.html).

**WetlandCare Australia** is a national not-for-profit, non-government science-based organisation, dedicated to supporting the community in on-ground action to repair wetlands. The website provides resources for staff, researchers and the general public. Visit [www.wetlandcare.com.au/](http://www.wetlandcare.com.au/).

**Coastal Research** is a web portal to national, regional and local research on Australian coasts. It has short, acronym-free research summaries, links to freely available data, metadata and research under Creative Commons licence. TERN will manage the website. Visit [www.coastalresearch.csiro.au/](http://www.coastalresearch.csiro.au/).

## Recent research

Ooi M K J (2010) Delayed emergence and post-fire recruitment success: effects of seasonal germination, fire season and dormancy type. *Australian Journal of Botany* **58**(4): 248–256.

Rayner K, Chambers B, Johnson B, Morris K D and Mills H R (2012) Spatial and dietary requirements of the chuditch (*Dasyurus geoffroii*) in a semiarid climatic zone. *Australian Mammology* **34**(1): 59–67.

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