

After the 'great storm' of 2010 By Daniel Boase-Jelinek

Issue 75

Spring 2010

Time of Kambarang and Birak in the Nyoongar calendar.

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The storm on 22 March 2010 brought Perth to a standstill. The city recorded its wettest March day for 39 years, was buffeted by 110 km/h wind gusts and was pelted by hail the size of golf balls. Flooding, landslides, power cuts, shattered roofs, smashed windows and dented cars ensued, but what of our bushland areas?



Walking through Shenton Bushland for the first time after the March hail storm was an eerie experience – complete silence – all the birds had gone. Bare trees with threads of dead leaves hanging from the bruised branches were reminiscent of a bushfire. However, the ground wasn't black or bare; it was covered with a layer of leaf litter. The grass trees were almost the only green visible.

A couple of weeks after the storm a few of the smaller bush birds could be heard amongst some of the less damaged jarrah trees which had begun to sprout new shoots. As green returned to the bushland, so did the birds. By May we noticed that the *Banksia* and *Casuarina* trees were sprouting new shoots along their branches which still bore marks from the hail stones.

By June, the bushland had begun to look more 'normal' and seemed to have regained most of the birdlife it had before.

The storm has raised a number of questions that we need to consider as a community:

- Will our bushlands be able to survive such storm events if they become more frequent as a result of climate change?
- What happens to bushland birds during such storms? A couple of weeks after the storm some researchers from Edith Cowan University did their regular bird-banding within the bushland. They caught a bird that had been previously banded in the bushland, so some of the birds must have escaped from

Shenton Bushland a week after the storm and (below) new shoots appearing on a banksia two months later. Photos – Daniel Boase-Jelinek

the path of the storm. They may have found refuge in nearby bushland areas such as Underwood Avenue Bushland and Bold Park and made their way back to Shenton Bushland as it recovered.

- What would have happened to these birds if nearby bushland areas such as Underwood Avenue Bushland no longer existed?

Urban Nature **UPDATE** *By Julia Cullity*

Winter and spring sees the Urban Nature team busy organising and delivering training as well as the on-ground management of important bushland sites. In November we will be holding a workshop for community bushland managers on the 'Restoration of Wetlands and Woodlands on the Swan Coastal Plain'. We will also be delivering our sixth 'Managing Weeds in Bushland Course' for Department of Environment and Conservation (DEC) staff and environmental professionals. Spring is the optimal time to observe and record many animals, flowering plants, elusive annuals and to document and plan future bushland management.

Clay-based wetlands workshop *By Kate Brown*

Urban Nature held its third annual clay-based wetlands workshop during August for those involved in clay-based wetland conservation and management. The workshop focused on the seasonal clay-based wetlands in Drummond Nature Reserve, north of Toodyay. The threatened plant communities of the clay-pans at Drummond are at the eastern-most limit of their occurrence. The workshop included presentations on aquatic biodiversity, weed management in a seasonal wetland and hydrological studies of the seasonal wetlands in Drummond Nature Reserve. Presentations were followed by a field trip to the reserve.



DEC Senior Research Scientist Adrian Pinder discussing macroinvertebrate life of the clay-based wetland at Drummond Nature Reserve. Photo – Kate Brown

Wildlife help wanted

The DEC Wildcare Helpline is seeking volunteers to assist with responding to the public who need advice on care and rehabilitation of native wildlife. The service receives calls for sick, injured, and orphaned native wildlife. Referral is arranged to rehabilitation facilities, wildlife officers, and specialist veterinary clinics. Excellent on-the-job training and support is provided. Volunteers are mainly located at the DEC offices in Kensington but on a roster system the helpline may be serviced from your own home anywhere in the state. These volunteer positions will suit you if you have an interest in native wildlife, and have some free time on a regular basis. For more information contact DEC's Community Involvement Unit on 9334 0251, email hugh.maclean@dec.wa.gov.au or visit www.dec.wa.gov.au and click on 'Volunteer Programs'.

Restoration of wetlands and woodlands on the Swan Coastal Plain

Join Urban Nature on a field trip to a series of bushlands across the Swan Coastal Plain looking at work to restore and protect their conservation values. Saturday 20 November 9am–4pm. Contact Julia on 9423 2925 or julia.cullity@dec.wa.gov.au.

GPS and map making for bush regenerators workshop

By Julia Cullity

In July, Urban Nature ran a technical workshop on GPS and map making. Using the relatively inexpensive mapping software OziExplorer® and the free program GoogleEarth®, participants learnt to transfer GPS data onto a computer and create data overlays on aerial photos.

Many thanks go to participants for their patience with the odd technical difficulty and the feedback they gave to improve this initial workshop. Thanks also to Joe Tonga who showed us some alternative free software which gives us access to more internet-based aerial photography and mapping such as NearMap® (a Western Australian archive of monthly high-resolution photos). Urban Nature will hold another workshop in summer 2010–11 if there are enough participants. Email julia.cullity@dec.wa.gov.au to register your interest.

Summer Bushland News

Summer *Bushland News* contributions should be sent to Urban Nature at urban.nature@dec.wa.gov.au by **Thursday 18 November 2010**. Compiled and edited by Jo Tregonning.

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

Arum lily

By Julia Cullity

Arum lily (*Zantedeschia aethiopica*) is a widespread and abundant high priority environmental weed of the south-west. Infesting bushland, pastures and creeklines from Northampton to Albany, the arum lily is highly invasive. It can reproduce rapidly, form dense monocultures and severely impact on a range of wetland and terrestrial communities on the Swan Coastal Plain, forest areas and offshore Islands.

Also known as calla lily, pig lily, trumpet lily or funeral flower, arum lily originates in South Africa and was introduced to Western Australia as a garden plant. It spreads mainly by seed that is dispersed primarily by birds, but also through water and soil movement and by foxes and stock. A Declared Plant throughout the state, landowners are required to contain existing populations and are prohibited from moving the plant or seed, including offering the plant for sale.

Biology

Arum lily is a perennial herb that arises from a rhizomatous tuber. Growing to 1 m tall, it has large dark-green, fleshy, arrow-shaped leaves and white funnel-shaped flowers with a yellow central flower spike. All parts of the plant are poisonous. Plants die back in summer to an underground tuber-like rhizome, re-sprouting in autumn and flowering in winter and spring from June to November. Large quantities of seed are set in orange fleshy fruits which are attractive to birds. Seed has short-term persistence, being viable for less than one year, with germination occurring in autumn and winter. Reproduction from tuber fragments and offset tubers also occurs, leading to localised spread.

Ecological impact

Arum lily is a common weed of freshwater wetlands, particularly on the Swan Coastal Plain. Many of these wetlands are important for biodiversity conservation and are key components in maintaining ecological functions associated with the hydrological cycle.



Arum lily has the capacity to invade undisturbed, high value bushlands, creating monocultures in the understorey. A large perennial herb, arum lily is distinctive and not easily confused with other species. Photo – Karen Bettink

Arum lily is a major threat to these areas, as it rapidly reproduces to form dense monocultures, can invade undisturbed bushland and readily out-competes the native understorey – changing vegetation structure and wildlife habitat.

Arum lily is not confined to wetland ecosystems. A widespread infestation occurs at Garden Island where arum lily is considered the most serious weed threat to the island's ecology. Dryland areas with limestone derived soils, such as the offshore islands, are particularly at risk from this weed.

Management

As arum lily is so widespread, controlling new, small or localised infestations or infestations close to native vegetation in good condition should be a priority for management. Mapping arum lily is an important first step and is most easily done in spring when the plants are in flower.

For extremely localised infestations, the whole plant can be manually removed. Care must be taken as any tuber fragments or offsets will produce new plants.

There are several herbicides that are effective on arum lily, best applied between June and September. Early management prevents flowering and seed set but may miss later sprouting tubers. The use of metsulfuron methyl at 0.4g/L plus glyphosate 15ml/L and Pulse® penetrant 2ml/L has been very effective, but great care must be taken to avoid off-target damage to native vegetation as glyphosate is not a selective herbicide. Herbicide may induce tuber dormancy so control programs need to continue for five years. Seedlings take two to three years to mature and set seed, so control programs can be left between years before revisiting a site.

More information

Brown, K., Brooks, K. (2001) *Managing weeds in bushland brochure: Arum Lily (Zantedeschia aethiopica)*. Environmental Weeds Action Network. Available www.environmentalweedsactionnetwork.org.au/

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

WA's jewel beetles

By David Knowles



Australia is home to around 1,400 of the world's 20,000 species of jewel beetles (Family Buprestidae) and many of these are under threat due to habitat loss. Western Australia has about 40 per cent of Australia's jewel beetles, with a high degree of endemism in the southern bioregions.

Jewel beetles are active during the day and can often be seen on flowers feeding on nectar or feeding on leaves. They are variable in size and their bodies are elongated and flattened. They are brightly coloured and often have a metallic sheen which is why they are referred to as jewel beetles. Australian jewel beetles may be roughly split into two categories: those species whose adults use nectar and pollen as their food source; and those that chew bark or leaves.

Ecological roles of larvae

Most beetle larvae (grubs) live in concealed habitats. The distinctive 'flat-necked' larvae of most jewel beetles are believed to be borers in living, dying or dead plant tissue. A small number of larvae form above ground, or in subterranean galls in living plant tissue – especially in plants of the pea and sheoak families. Those species that feed on the living tissue of plants may be classed as 'plant population controllers'.

A minority of jewel beetle larvae are suspected of being external feeders of living or dying roots. Those species feeding on dead and dying roots may be classed as 'recyclers'.

Ecological roles of adults

Beetles are holometabolous. This means that their larvae pupate before emerging as adult insects. Jewel beetle species that visit the flowers of the species their larvae exploit may 'give back' to the plant by pollinating it. Those species that visit flowers of plants that their larvae do not breed in confer a 'generous' service in the form of potential pollination. I say 'may' and 'potential' to underline that flower visitation does not necessarily mean that pollination occurs – though it appears that in the case of these beetles that they do pollinate, as the grains regularly adhere to the bodies of beetles.

Not surprisingly, most Australian flower-visiting beetles visit the blossoms of our most dominant plant family the Myrtaceae – particularly the generalised 'brush' flowers of *Eucalyptus* and *Melaleuca*, and the generalised 'cup' blossoms of *Leptospermum*, *Thryptomene* and *Scholtzia*. There are few examples of 'single (only one plant species) pollinator vector' in this family of beetles. This type of focused pollination syndrome is seen more often in bees and flies. Almost all species of jewel beetles gather together with wasps, flies and other beetle families to form 'pollination guilds'. Insect pollinators tend to be attracted to the



(Above) Flower feeding jewel beetle *Temognatha gloriosa* from the Bullabulling area of WA. (Below) Leaf-chewing jewel beetle *Melobasis* sp. (undescribed) from the Billabong area of WA. (Photo composites) Photos – David Knowles©

floral colours of white, cream, pink and purple rather than the red, orange and bright yellow colours favoured by birds.

Current 'state of play'

Sadly, our national parks and nature reserves are riddled with the highly competitive and insidiously displacing feral and commercial hive honeybees (*Apis mellifera*). In a bioregion famous for its floral biodiversity, the majority of which I estimate to be pollinated by insects, I might imagine that the study of 'pollination ecology' would hold premier position as a fundamental knowledge tool informing conservation decisions. To date, I have never met a formally trained WA pollination ecologist experienced in both plant and animal ecology and believe there is a big gap in our knowledge.

For more information contact David at Spineless Wonders on 9247 5772 or spineles@iinet.net.au.

Have you sighted this robin?

The western yellow robin (*Eopsaltria griseogularis*) has recently been sighted in Pagononi Swamp Reserve and at Stake Hill around the Woodland Parade and Riverland Drive area. They were last seen in central Perth in the 1930s and are now very rare on the Swan Coastal Plain. In 2003, a small colony was found at Karnet and since then two or three colonies have been found in Yalgorup National Park at Bouvard and Preston Beach. The Mandurah Bird Observers Group and Peel Branch of Birds Australia WA would like to be notified by anyone who sees these birds. Please phone Dick Rule on 9581 1894 if you spot one.



Photo – Rick Dawson

Great Cocky Count news

Monthly counts of the endangered Carnaby's black cockatoo (*Calyptorhynchus latirostris*) by volunteers during 2010 have provided data on bird populations and movements in the Perth region. A brief summary of some of the findings so far:

- The 2010 Great Cocky Counts have investigated some 222 sites and helped to increase the number of known roosts from 70 to 129.
- Counts have been carried out at 97 of these roost sites.
- On any given evening, approximately half of the roosts are occupied.
- There was no significant difference in the number of Carnaby's black cockatoo

at each roost location in 2006 compared with the 2010 count. However, the trend was towards there being fewer birds per roost in 2010.

- The decline in the number of birds at two roost locations since 2006 appears to be a direct result of pine removal (R2 went from 2,480 birds to no birds recorded in 2010, and DEC14 from 574 to no birds recorded in 2010).

The Great Cocky Count 2010 total count of 6,672 birds supports an estimated population of 8,000 to 10,000 Carnaby's black cockatoos for the Greater Perth region. For more information contact Dr Geoff Barrett on 9423 2907 or geoff.barrett@dec.wa.gov.au.

Observers needed for Shorebirds 2020

By Liz Bonner

Shorebirds 2020 is a Birds Australia initiative to count birds on wetlands to help us learn more about the migratory shorebirds that visit the southern hemisphere each summer. As part of *Implementing the Peel-Yalgorup Ramsar Management Plan: A priority coastal hotspot*, the Peel-Harvey Catchment Council secured Federal NRM Caring for our Country funding to run two workshops. Supported by the City of Mandurah, the workshops increased the capacity of volunteers and local community groups. More than 50 participants this year enabled coverage of most of the Peel-Yalgorup Ramsar System from Mandurah to Myalup.

High numbers of waterbirds were recorded using the 2020 system this year. Banded stilts were the most abundant bird (26,824), followed by grey teal (10,020), migratory sharp-tailed sandpipers (6,015) and red-necked stints (4,481). The total number of waterbirds across the Ramsar wetland was 71,148. This is higher than the number counted in 2009 (approximately 29,000) and 2008 (approximately 32,000).

If you are interested in helping with the counts in February 2011 contact the Peel-Harvey Catchment Council's Ramsar Coordinator on 9550 3283 or email Dick Rule on randjrle@westnet.com.au.

Bush Forever formalised a decade after introduction

On 22 June, the *State Planning Policy for Bushland in the Perth Metropolitan Region and the Metropolitan Region Scheme (MRS) Amendment 1082/33 Bush Forever and Related Lands* was gazetted in State Parliament. This is a major milestone in the regulatory protection of 51,000 ha of vegetation on the Swan Coastal Plain portion of the Perth Metropolitan Region, 10 years after the *Bush Forever* policy was first endorsed. The policy will establish a statutory framework and greater planning recognition for the protection and future management of all *Bush Forever* areas. The policy also provides regulatory certainty for landowners whose properties are to be affected by the *Bush Forever* amendment, providing them with a statutory means to access compensation from the state. The policy is available from the Planning WA website at www.planning.wa.gov.au.



The first case of glyphosate herbicide resistant annual ryegrass was recently identified in South Australia. Resistance has been selected by roadside management practices, that is, 20 years of glyphosate application. Visit www.glyphosateresistance.org.au for information on glyphosate resistance, a register of glyphosate resistant weed populations and management guides. Photo – Australian Glyphosate Sustainability Working Group

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 9am**
Bushcare activities with the Friends of **Brixton Street** Wetlands are on the third Saturday of each month. Call Regina 9459 2964.
-  **Bushcare activities** with the **Mt Henry** Conservation Group are on the fourth Saturday of each month. Email Jan.King@acquinas.wa.edu.au.
- Sundays 9am–10.30am**
 **Bushcare activities** at Throssell Reserve, **Eastern Hills**. Phone Una Bell 9572 1447.
- 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 9am–11am**
 **Bushcare activities** with **Cottesloe** Coastcare are on the first Sunday of each month. Visit www.cottesloe.coastcare.org for details or contact Robyn on 9384 7668 or info@cottesloe.coastcare.org.
- 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 Hogarth bhogarth@ozemail.com.au, linda@johnstanley.cc or visit www.friendsofpiessebrook.org.au.
- 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, Wednesdays, Fridays 9am–12 noon**
 **Bushcare activities** and wetlands walk trail maintenance with **Yanchep** National Park Volunteers. Call Julia 9405 0771.
- Tuesdays, Thursdays 8am–11am**
 **Koala maintenance** at **Yanchep** National Park. Call Julia 9405 0771.

- Thursdays 8am–9am**
 **Bushcare activities** every Thursday with **Byford** Enviro-Link. Call Johanne Garvey or Kristy Gregory 9526 0199.
-  **Conservation Volunteers Australia activity schedule.** Overnight country trips or one-day activities. Call Andrew 9227 5711 or visit www.conservationvolunteers.com.au.
-  **Research into bird populations** with the **Herdsmen Lake** Bird Banding Group. People are welcome to call Bill Rutherford (ABBS Coordinator) 0438 910 252 and organise a visit.

October


- 3 Sunday 9am–1pm**
 **Planting** at Market Garden Swamp. Barbecue lunch provided. Contact **CC**.
- 3 Sunday 9am–12.30pm**
 **Walk the Zig Zag** annual 3 km walk. Access via Park and Ride from Maida Vale Reserve or Stirik Park. Tenth anniversary. Displays, entertainment and kids activities. Contact Shire of Kalamunda 9257 9999 or vanessa.robinson@kalamunda.wa.gov.au.
- 9 Saturday**
 **Biological survey at Dempster Head, Esperance.** Vegetation monitoring with the Conservation Council of WA. Contact Nic Dunlop on 9420 7282 or nic.dunlop@conservationwa.asn.au.
- 9 Saturday 9.30am**
 **Cape to Cape Clean Up** with the Friends of Marmion Marine Park and Joondalup and Stirling Coast Care groups. Meet at Fisheries, Hillarys Boat Harbour. Email Lynda arnoldlynda@iinet.net.au.
- 10 Sunday 9am–12 noon**
 **Bushcare day** at Falls Park, Hovea with the Friends of Jane Brook Catchment. Spraying, weeding, planting. Contact Jenny on 9295 4557 or jenny605@bigpond.com.

Registration/Contact details

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| <p>BNC Busselton Naturalists Club
Meetings at RSL Hall, Causeway Dr, Busselton. Bus bookings contact Bernie Masters 9727 2474 or bmasters@iinet.net.au.</p> <p>CC City of Cockburn Registrations essential for all events. Contact Environmental Services 9411 3444 or customer@cockburn.wa.gov.au.</p> | <p>FLG Friends of Lake Gwelup
Meet at the scout hall car park, Huntriss Rd. Contact Christine 9447 2983 or folg@mail@iinet.net.au.</p> <p>FWB Friends of Warwick Bushland
Meet at bowling/tennis club car park, Lloyd Dr, Warwick. Contact Janina Pezzarini 9404 8756 or friendsofwarwick@gmail.com.</p> | <p>WSWA(P) Wildflower Society of WA (Perth Branch)
Subiaco Community Centre. Email wildflowers.perth@ozemail.com.au.</p> |
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- 12 Tuesday 8pm**
 **Research highlights at the Botanic Gardens and Parks Authority** with guest speaker Bob Dixon. Email **WSWA(P)**.
- 13 Wednesday 7.30pm**
 **Guided owl and possum spotlight** along Possum Trail, Ludlow Tuart Forest National Park. Bring torch. Contact **BNC**.
- 15 Friday 7.30pm**
 **Guided night walk** with the Friends of Lake Gwelup. Contact **FLG**.
- 16 Saturday 8am–9.30am**
 **Guided walk** with the Friends of Lake Gwelup. Contact **FLG**.
- 16 Saturday 10am–12 noon**
 **Weeds of National Significance in the Hills** workshop. Learn how to identify and treat these weeds. Lesmurdie Hall. Contact Joanne Woodbridge on 9424 2216 or joanne.woodbridge@emrc.org.au.
- 17 Sunday 9am**
 **Bushcare** on the Cape to Cape Track, Naturaliste to Sugarloaf Rock. Bring tools and lunch. Contact **BNC**.
- 17 Sunday 9am–1pm**
 **Planting** at Market Garden Swamp. Barbecue lunch provided. Contact **CC**.
- 17 Sunday 9am**
 **Bushcare** at Warwick Bushland. Contact **FWB**.
- 18 Monday 6.30–8.30pm**
 **Native Tree** Workshop. Information session with Robert Powell and Amy Krupa (SERCUL). Kenwick Community Centre corner Kenwick Rd and Brixton St, Kenwick. Call Regina 9459 2964.
- 24 Sunday 9am**
 **Guided wildflower walk** at Ludlow tuart forest mine site revegetation site and wildflower reserves around Capel. Bus \$10. Bring lunch. Contact **BNC**.

November

- 6 Saturday 9–11am**
 **Flora Walk** at Brixton Street Wetlands. Includes insect display, morning tea and world music by Caryn. Call Regina 9459 2964

- 7 Sunday 7.30am–8.30am**
 **Bush Breakfast** at Bungendore Park, Bedfordale. Cereal, fruit, cooked breakfast followed by presentation on Aboriginal bush food. Admiral Rd entrance. \$9/person. Bookings essential. Call Miriam 9498 1570 or Don 9399 1893.
- 9 Tuesday 8pm**
 **Recent orchid discoveries in south-west Western Australia** with guest speaker Andrew Brown. Email **WSWA(P)**.
- 19 Friday November**
 **Black cockatoo** seminar with the Urban Bushland Council WA. Call Marg Owen 9420 7207.
- 21 Sunday 10.30am**
 **Nature walk and picnic** at Warwick Bushland. Contact **FWB**.
- 21 Sunday 9am**
 **Excursion to Wallcliffe House and Basildene.** Bus tour and afternoon tea \$20. Contact **BNC**.

December

- 8 Wednesday 6pm**
 **Christmas party** with the Busselton Naturalists Club. Contact **BNC**.

Please send us your January, February and March 2011 events by Thursday 18 November 2010.

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.



Highlights

October

Nearer to Nature activities

by DEC for children 4–12 years at Mundaring, John Forrest, Canning River, Woodman Point or Yanchep. Visit www.dec.wa.gov.au/n2n or contact 9295 2244 or n2n@dec.wa.gov.au.

1 Friday–4 Monday October Great Greenie Gobfest

Introduction to citizen science at Woody Island, Esperance. Take part in monitoring biodiversity (penguins, bird banding, flora survey, seaweed herbarium, fish monitoring with underwater cameras). Come for one or all four days. BYO food and accommodation at www.woodyisland.com.au. Bookings contact Nic Dunlop on 9420 7282 or nic.dunlop@conservationwa.asn.au.

1 Friday–16 Saturday October

Tiwest Great Australian Marsupial Night Stalk. Join in a local night stalk. Visit www.perthzoo.wa.gov.au/nightstalk.

9 Saturday October

Festival of the Lakes at Cockburn Wetlands Education Centre, Bibra Lake. Celebrating the environmental, cultural and recreational values of the wetlands and bushland around Bibra Lake and North Lake. For more details call Lee on 0431 222 207.

11 Monday–14 Thursday October

13th International River Symposium, Perth. Visit www.riversymposium.com.

23 Saturday 11am–24 Sunday October 2pm

BIOBLITZ 2010 is a 24-hour biodiversity survey at Blackboy Ridge Reserve, Chittering. Help scientists to search for plants, animals, birds and creepy crawlies. To register contact Helena Mills, WWF-Australia, on 0427 387 644 or hmills@wwf.org.au.

23 Saturday–30 Sunday October

Conservation Week organised by the Conservation Council of WA, aims to connect the community and environment, as well as celebrate the work of conservation organisations, community groups and individuals across WA. Visit www.conservationwa.asn.au/content/view/64/202/.

October-December

Gingin Observatory offers stargazing nights, telescope instruction, and guest speaker Peter Birch on Galaxies and Jupiter. More information and bookings 9575 7740 or www.ginginobservatory.com.

2 Wednesday–5 Saturday February 2011

Integrated Water Management Conference. Murdoch University. Visit www.iwm2011.com/pages/program.html.

2011 State NRM

Conference to be hosted by Perth Region NRM. For more information visit www.isde7.net/.

Learning opportunities

Mussel Watch WA needs distribution data

Freshwater mussels have important roles in ecosystem health by filter feeding on small particles such as algae and plankton, keeping our waters clear and healthy and maintaining oxygen levels in river sediment for healthy invertebrate and fish populations. They have an interesting life cycle; their larvae, known as 'glochidia', must attach to fish to complete their development and as a means of distributing their population. Carter's freshwater mussel (*Westralunio carteri*) is the only unionoid species of freshwater mussel in the south-west of WA. The species is listed as 'Vulnerable' by the IUCN, meaning it is at risk of becoming endangered in the medium-term future, and is a 'Priority 4' species on DEC's species to watch and monitor list. These listings are the result of observed population decline from factors such as salinisation of freshwater in the south-west.

Researchers at Murdoch University are researching the biology, abundance and distribution of *W. carteri*. They have partnered with SERCUL to create a website for public education and to identify the mussel's distribution with an interactive mapping feature. The 'Mussel Watch' Team is asking for your help in updating the freshwater mussel's distribution. When found, please photograph the mussel for identification purposes and then return to the water. Visit www.musselwatchwa.com or contact Michael Klunzinger on 9360 7419 or m.klunzinger@murdoch.edu.au.

'In the Wild West' Harry Butler Lecture Series 2

'In the Wild West' Harry Butler Lecture Series 2 is a program of lectures by WA Museum scientists and associates at locations in Perth, Fremantle, Albany, Geraldton and Kalgoorlie-Boulder during October and November. Visit www.museum.wa.gov.au/whatson/year-of-biodiversity.asp.

Funding opportunities

Round three Groundworks South West

Groundworks invests in biodiversity protection, coastal management and sustainable agriculture. Approximately \$800,000 is available for on-ground focussed projects across the south-west. Open to land managers from local government, community groups and individuals. Application forms available at www.swccnrm.org.au. Applications **close 4 October 2010**.

regionalreports

Fauna research at Paganoni *By Leonie Stubbs*



Friends of Paganoni Swamp received a 2010 Environmental Community Grant to continue our efforts in eradicating Geraldton carnation weed from Paganoni Swamp Reserve. We are currently tagging areas to be targeted for spraying. This will be followed by hand weeding in October and November.

We were also pleased to receive funding to improve the status of brush-tailed phascogales in the reserve. Under the supervision of Dr Brian Chambers and Dr Roberta Bencini from The University of Western Australia, the project will

trap marsupials in the reserve and then track some individuals during a four to six week period. The Friends will assist with trapping and tracking as well as surveying for suitable tree hollows. If it is found that a lack of tree hollows is limiting the population size, then the installation of nesting boxes may be considered.

Members of our group recently attended an extremely informative presentation by Dr Chambers on 'The Fauna of Marlee and Paganoni Swamp Reserves' organised by Friends of Marlee Reserve and Peel Preservation Group Inc and supported

by David Templeman and the City of Mandurah. It was evident from the number of people who attended that there is a high level of interest in learning more about our native fauna and what we can do to assist in their protection.

For more information on activities such as walks or weeding please contact Leonie of Friends of Paganoni Swamp on 0439 921 298 or FoP@westnet.com.au. For information on volunteering opportunities with Rockingham Lakes Regional Park ring 9431 6500.

Please send us your regional report (150–200 words) and a photo by Thursday 18 November 2010. Text may be edited in response to volume of submitted reports.

Growth at the Spectacles Wetlands

By Mandy Grubb

Since an extensive fire burnt the Spectacles Wetlands in late 2007, there has been significant re-growth of *Banksia* and *Acacia*. This has been helped by a spraying program by the Friends of the Spectacles and DEC. The Friends planted 1,300 plants this year. We are looking to improve on 2009's plant retention (approx 70 per cent) with a donation from DEC of a disused water tank and access to a bore at the Bio-Wise facility across the road from the wetlands.

The Friends continue to engage the local community in caring for the wetlands. Our volunteers have grown in the past year with 10 to 15 people attending the monthly bushcare days. The local scouts group are conducting their community service at the wetlands and we are talking with teachers at Gilmore College about involving the horticultural students in bush rehabilitation.

We continue to work with local Nyoongar Elders to better understand the area and raise awareness in the community of the rich Indigenous heritage of the wetlands. The wetlands are situated on the traditional lands of the Beeliar Wadjuk people and are part of the ancient trade route that connected the Swan and Murray Rivers peoples. On 8 July we held a NAIDOC Week walk and planting day in conjunction with DEC's *Healthy Parks Healthy People* program, the Heart Foundation and the Medina Aboriginal Cultural Centre. More than 60 people attended, enjoying Indigenous stories, a cultural walk and traditional bush tucker.

For more information contact Lynda Smith on 9439 1928 or fotsmail@gmail.com.

Revival of the Friends of John Forrest National Park

By Joe King

The Friends of John Forrest National Park (West) had in previous years worked on controlling *watsonia*, but with a recession in work for several years the *watsonia* has spread vigorously. A revival of the Friends group is now under way and nearly 400 hours of effort in the latter six months of 2009, and another 150 hours this year has brought encouraging results. Most of that effort comes from one retired volunteer, so extra help at any time is welcome. Many other weeds have been tackled in addition to *watsonia*; anything feral is likely to be targeted in its season.

Permission to embark on weed control was sought from DEC officers in Mundaring early last year, and after consultation they provided herbicide and pump spray applicators.

The target area is approximately 150 ha, west of Park Road. Most of the terrain is hilly, traversed by three or four streams and some spectacular granite outcrops. Access by vehicle is difficult, but on four occasions in October, DEC rangers Doug Giles and Rebecca Hamilton used a 400-litre spray unit mounted on a four-wheel drive utility to tackle areas from the fire breaks, where the *watsonia* dominated the native vegetation. Following flowering, many flower stalks were removed before seed set. Some unexpected help was received from kangaroos that eat the fresh flower buds, and dig up corms during the summer where the ground is soft.

For more information on activities contact Joe on 9255 3025 or joejanking@bigpond.com.



Watsonia in John Forrest National Park is out-competing native vegetation in some areas and spraying by volunteers and DEC is trying to combat *watsonia* hotspots. Photo – Jan King

SERAG – a new conservation group on the Swan

By Cathie O'Neill

Concern about the health of our magnificent Swan River Estuary and its associated reserves has been mounting during recent years. The three small class 'A' reserves of Milyu, Pelican Point and Alfred Cove, and a scattering of parks, are now all that sustain what were once large populations of both migratory and local waterbirds and other native fauna. These reserves are the estuary's precious jewels; but they are suffering under the pressures of

incompatible urban activities, and are in need of urgent support.

A group of interested members of the Perth community has decided to form the *Swan Estuary Reserves Action Group (SERAG)* to:

- Enhance the long-term ecological health of the Swan River Estuary class 'A' reserves and adjacent river parks for the benefit of its native fauna and for the enjoyment of

current and future generations of the Perth community.

- Support the managing authorities and those organisations involved in the restoration of the natural environment of the Swan River Estuary.

If you are interested in becoming involved in this wonderful challenge, please contact Cathie on 9339 2439 or oneillc@westnet.com.au.

2010 Fungi surveys *By Roz Hart*



PUBF project and community volunteers surveying fungi at Talbot Road Reserve. Photo – Jeff Langley

In winter 2010, Neale Bougher from the Perth Urban Bushland Fungi Project (PUBF) and experienced fungi volunteers carried out 10 non-public surveys at Kings and Bold parks. PUBF also teamed up with bushland friends groups to conduct three public fungi surveys in local bushland.

Sixty people gathered at Talbot Road bushland following winter rains earlier in the week. Talbot Road bushland is a special area of rare Ridge Hill Shelf bushland and it was wonderful to have such a good range of fungi fruiting in the five different vegetation types. The Friends group arranged a very welcome barbecue lunch. Several of the fungi have been vouchered for permanent record in the WA Herbarium

In July we teamed up with the City of Joondalup and the Friends of Craigie bushland. Although heavy rains deterred some people, 35 took part in a search

for fungi in the recently fenced Craigie bushland, behind the leisure centre. The City of Joondalup is hoping to re-introduce native animals. The rain stopped once we entered the tuart woodland and we recorded a good range of fungi.

We also led a fungi foray with the Friends of Lake Gwelup. A total of 43 people took part and a good range of different fungi were encountered.

Funding provided by the WA Naturalists' Club and from member donations was crucial to the project and enabled PUBF to conduct these events in 2010. The Fungilab, including PUBF facilities and operations, will be moving to the new Western Australian Conservation Science Centre at Kensington when the WA Herbarium moves, probably in December 2010. We hope to continue PUBF in 2011 with the support of the WA Naturalists' Club, Urban Bushland Council and DEC. Visit www.fungiperth.org.au.

Fungi foray at Talbot Road *By Jan Lynn*

The Friends of Talbot Road Bushland, led by experienced fungi leaders, hunted for fungi as part of a PUBF foray. We were shown how to search for bumps in the ground, carefully remove top soil and dig deep to extract the fungus. We were shown the fine threads called hyphae, which are the feeding and growing areas of the fungi. The importance of the fungi to the health of the bushland was explained, as well as how nutrients are distributed through the decomposition of organic material such as leaf litter, wood and dung. Nutrients are supplied to bushland plants by the hyphae and fungi can also provide food to animals including beetles or bandicoots and other bush marsupials. These creatures spread the fungi through the spores contained in their dung.

Each of the five walking groups recorded about 20 different fungi which were photographed and a GPS reading recorded. Some fungi were collected, wrapped and later examined by mycologist Neale Bougher. The more unusual specimens were taken to the WA Herbarium for permanent storage. All other specimens were returned to the area in which they were found. Some of the fungi collected included *Boletellus sinapecruentus*, *Amanita umbrinella*, *Inocybe* sp., *Pycnoporus coccineus* (scarlet bracket fungi) and *Mycena* spp.

Local biodiversity conservation efforts recognised



By Renata Zelinova

Winners of the 2010 Local Government Biodiversity Conservation Awards were announced recently at the 2010 Local Government Convention in Perth. The awards, introduced this year to mark the International Year of Biodiversity, extended our existing biodiversity milestone awards program.

Winners of the new award categories were:

- **City of Belmont** for progressive revegetation of local natural areas in the *Excellence in Local Biodiversity Management* category;

- **City of Armadale** and **City of Cockburn** for *Excellence in Community Engagement to Support Local Biodiversity Conservation*. Both local governments demonstrated long-term commitment and continuous improvement to their programs encouraging biodiversity conservation on private land.

The **Shire of Serpentine-Jarrahdale** received a special commendation in recognition of its new stewardship program *Healthy Habitats*.

Eight local governments were presented with a Biodiversity Milestone Award for their progress in the local biodiversity

planning process. The Town of Bassendean, cities of Armadale, Bayswater and Belmont, and the shires of Chittering Mundaring achieved a major milestone by adopting a final local biodiversity strategy including an action plan.

The Shire of Chapman Valley and the City of Geraldton-Greenough received their first milestone for commencing work on their local biodiversity strategy. Congratulations to these local governments for their commitment to local biodiversity conservation. For more information visit www.pbp.walga.asn.au.

That feral cat bait

By Dave Algar

Predation by feral cats is recognised as a significant threat to fauna conservation in Australia. Not only do feral cats prey on native fauna and have the potential to spread diseases, but they have also proven to be an obstacle to fauna reintroduction programs. As a consequence of these impacts, DEC initiated a feral cat control research program within the umbrella program *Western Shield*.

Prior to commencement of this research, baiting programs for feral cats had been ineffective, principally because the baits used were for other introduced predators such as foxes and wild dogs and were unattractive to cats. DEC researchers conducted an extensive series of trials in an endeavour to develop a bait medium that was palatable to feral cats and capable of carrying a toxin. The baits had to be relatively easily and cheaply manufactured and stay intact when distributed from an aircraft over broad-scale areas. These trials have led to the development of the feral cat bait known as 'Eradicat®'. The bait, which is injected with a toxin, resembles a small sausage and contains kangaroo meat mince, chicken fat and flavour enhancers to attract feral cats.

Use in feral cat management

Baiting campaigns using Eradicat® have proven to be an effective method for reducing feral cat numbers and the bait is now used as a control tool for feral cat management at a number of mainland sites in arid and semi-arid regions. A recent project has gone a long way to demonstrating that the sustained control of introduced predators (both feral cats and foxes) in the southern rangelands can

also be achieved using this bait. Eradicat® is most effective in late autumn and winter when cats are hungry because of a shortage of live prey. Under the right conditions, feral cat densities have been reduced by more than 80 per cent.

Baiting campaigns using Eradicat® have also been used effectively to eradicate feral cats from several islands, including Hermite Island in the Montebellos and Faure Island in Shark Bay. Following feral cat eradication, successful translocation of a number of native species to these islands has occurred. A feral cat eradication campaign is being planned for Dirk Hartog Island, the largest island off the Western Australian coast. The Dirk Hartog project would become, globally, the largest feral cat eradication campaign attempted on an island. The island could potentially support one of the most diverse native mammal assemblages in Australia, following successful eradication of feral cats, and contribute significantly to the long-term conservation of several threatened species.

Feral cats have recently been shown to predate threatened mammal species in the south-west and it would be desirable to implement cat baiting in this area.

Managing pet cats to protect wildlife

A study carried out by Murdoch University assessed the efficacy of a collar-worn pounce protector CatBib™ for reducing the number of vertebrates caught by pet cats. Fifty-six pet cats identified as hunters were studied in Perth during November and December 2005. Cats spent three weeks wearing a device and three weeks without it. During this period the cats caught 65 birds (13 species), 67 herpetofauna (11 species) and 164 mammals (five species). The colour of the CatBib™ or the addition of bells gave no additional protection. Cats wearing CatBibs™ reduced the prey caught to 25 per cent of birds, 43 per cent of herpetofauna and 36 per cent of all mammals captured. Although consistent use of CatBib™ on pet cats reduces predation, confinement of pet cats eliminates attacks on wildlife and protects cats from hazards such as road traffic and fighting.

Reference: Calver, M., Thomas, S., Bradley, S., McCutcheon, H. (2007) Reducing the rate of predation on wildlife by pet cats: The efficacy and practicability of collar-mounted pounce predators. *Journal of Biological Conservation* 137: 341-348.

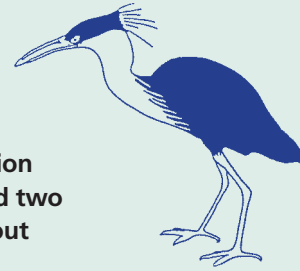
There are some concerns that non-target species such as chuditch, dighters and bush rats may also be at risk from the palatable cat bait, and trials are currently under way to examine the uptake of baits by these species. Through the incorporation of encapsulated toxins and the appropriate bait spacing, it is believed that non-target risks can be minimised and the cat bait used in the south-west to secure native fauna in this biodiverse area.

If further fauna declines are to be averted and reintroductions are to succeed, integrated management programs which address threats must be implemented. Effective control strategies for feral cats must be an integral component of these management programs. DEC researchers are developing feral cat control techniques and strategies that address these concerns. For more information email dave.algar@dec.wa.gov.au.



Feral cats (*Felis catus*) are formidable hunters of our native fauna. Photo – Babs and Bert Wells/DEC

Waterbird Conservation Group By Ruth Clark



Initially formed 26 years ago to rehabilitate waterfowl, the Waterbird Conservation Group later shifted its attention to habitat conservation. The Group has managed two wetlands in Baldvis for the past 17 years and with renewed energy has carried out major conservation work in recent years.

The Waterbird Conservation Group formed in 1984 in response to a severe outbreak of botulism in waterbirds at Thomsons Lake in Munster. Hundreds of sick and dying birds including pelicans, swans, ducks and wading birds were rescued during the outbreak. The group's initial focus was on the rescue and rehabilitation of sick, injured and orphaned waterbirds. During the past 15 years, the group has moved its attention to addressing the causes of waterbird deaths, such as the loss of wetlands, their degradation, pollution and poor management, rather than the symptoms.

Since 1993 two wetlands in Baldvis – Folly and Maramanup pools – have been vested in the Group. Both wetlands are located along the Peel Main Drain which flows into the Serpentine River. They are important conservation areas, and provide homes for wildlife in the area, as well as a stopover point for birds migrating along the Beeliar Wetland Chain. To assist in managing the wetlands and improving habitat, the group has been very successful in receiving a number of grants during the past four years.

In 2009–10, an Australian Government Coastcare grant enabled the Group to resolve the incorrect alignment of fencing on the eastern side of the wetland reserves. This was a major task and our largest undertaking to date.

It took more than six months of letters, phone calls and negotiations with adjacent landowners. The resulting installation of nearly two kilometres of new fencing now provides protection from grazing cattle, sheep and horses. The Department of Regional Development and Lands, the City of Rockingham and the Water Corporation provided valuable assistance for surveying, firebreaks, crossovers and rubbish collection. Many members and friends helped remove and clean up the old dilapidated fencing.

In July 2010, Group members, family and friends began revegetating one of the newly protected areas at Maramanup Pool. Prior to planting, the area was ripped and disced to loosen the soil and make it easier to use pottiputikis (planting tubes). The pottiputikis were kindly loaned by the City of Rockingham and the South East Regional Centre for Urban Landcare. Even though the ground had been softened, we abandoned hammers and took to inventing special tools for getting the stakes in the hard ground. Tree guards are needed to protect the vulnerable seedlings from hungry rabbits, curious swamp-hens and other local inhabitants.

We successfully planted more than 4,700 seedlings during 10 planting days including:

Juncus pallidus, *Melaleuca teretifolia*, *M. lateritia*, *M. preissiana*, *M. raphiophylla*, *Astartea fascicularis*, *M. viminea*, *Acacia saligna*, *Viminea juncea*, *A. cyclops*, *Gahnia trifida* and *Eucalyptus rudis*. Volunteers will return in late October to plant 2,000 rushes along the water's edge.

Planting volunteers were treated to freshly baked scones with jam and cream for morning tea and a hot sausage sizzle for lunch. While sitting and resting and enjoying the food, helpers took pleasure in watching the bird life. Of the many delights, a family of wrens flew around and a rufous whistler sang a song.

This year the Group has received funding from an Australian Government's Caring for our Country Community Action Grant and a DEC Environmental Community Grant, to rehabilitate newly protected areas. Further funding will be sought to complete rehabilitation of the eastern side of the wetlands.

The Group is appreciative of all the work members, friends, family and state agencies have contributed in helping to achieve success at these wetlands. For more information or to get involved call Ruth on 9339 5501 or email waterbirds@mac.com.



Left: Group members get creative in dismantling the old fence at the wetlands in readiness for the new fence and gate. Right: Volunteers boost biodiversity at Maramanup Pool, Baldvis by planting thousands of native seedlings. Photos – Ruth Clark

Resources

New publications

Freshwater Fish of the Ellen Brockman Catchment. Brochure available from Chittering Landcare Centre on 9571 0400 or email chitteringlandcare@inet.net.au.

WALGA Eco-News is a bimonthly newsletter about current environmental news, views, events and projects from the association and local governments around the state. Contact Sarah Molloy on 9213 2049 or at smolloy@walga.asn.au to subscribe or visit www.walga.asn.au/about/policy/environment_waste/docs_pubs/econews/.

Website watch

NearMap provides high resolution aerial photography of Perth and areas of south-west WA. Updated monthly. Free for non-commercial use. Visit www.nearmap.com.

ClimateWatch was developed to understand the effects climate change is having on established flowering times, breeding cycles and migration movements and other phenological changes. Australians are asked to collect and record data to help shape the country's scientific response to climate change. Visit www.climatewatch.org.au/.

Operation Climate Change aims to provide a learning experience for students in years 5 to 10 to explore issues associated with global warming. Students are encouraged to look at their behaviour in relation to consumption and waste, biodiversity, transport, and energy and water use to reduce the carbon footprint of their family home. Visit www.operationclimatechange.com.au.

Goodheart's Extreme Science is a blog about the wonders of our natural world and how science illuminates these wonders. Some amazing photos and fascinating facts. Visit www.goodheartextremescience.wordpress.com/.

Plants for Carnaby's is a tool that enables you to describe your site, purpose for planting or desired plant characteristics and compare with the features of plants used by Carnaby's black cockatoo (*Calyptorhynchus latirostris*) for feeding, night roosting and nesting. The resulting list of matching species can then be considered in decision-making processes or for revegetation. Visit www.dec.wa.gov.au/plantsforcarnabys.

Carnaby's black cockatoo tracker. Hosted by Birds Australia and building on a UWA research project, this citizen science website collects data on the daily movement patterns of Carnaby's black cockatoo. Visit <http://birdsaustralia.gaiaresources.com.au>

Perth Biodiversity Project has a new website. Visit www.walga.asn.au/about/policy/pbp.

Biodiversity 2010 is a website developed as part of the Council of Australasian Museum Directors International Year of Biodiversity project. Access seeding grants, promote biodiversity news and events, showcase stories, and share your ideas, photos and short videos. Visit www.biodiversity2010.org.au/ or contact catherine.belcher@museum.wa.gov.au or 9921 5080.

Recent research

Interim graceful sun-moth report is available online at www.dec.wa.gov.au/content/view/5695/1813/ or phone Carly Bishop on 9334 0310.

Archibald R.D, Bradshaw J, Bowen B, Close D, McCaw L, Drake P, and Hardy, G. (2010) Understorey thinning and burning trials are needed in conservation reserves: The case of Tuart (*Eucalyptus gomphocephala* D.C). **Ecological Management and Restoration**: 11(2): 108-112.

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