

Satellite tracking Carnaby's cockatoo *By Christine Groom*

Issue 86

Winter 2013

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

**Urban Nature
Update** Page 2

**Bandicoot Brook
Reserve** Page 2

**Weedwatch:
Freesia** Page 3

**Econote:
Hibbertia** Page 4

**TEK Noongar
database** Page 5

**2013 Great
Cocky Count** Page 5

What's on Page 6

**Funding
opportunities** Page 7

Regional reports Page 8

**Trailer for
bushcare work** Page 10

**Group profile:
Herdsmen Lake** Page 11

Resources Page 12

Understanding how the endangered Carnaby's cockatoo (*Calyptorhynchus latirostris*) survives in Perth's urban landscape is the purpose of a PhD project being undertaken through The University of Western Australia. The study will investigate where Carnaby's cockatoos find food, water and shelter (night roosts), and also how they move in between these resources. This knowledge is important to conserving the species in the Perth area.

As part of the study, satellite tracking devices have been fitted to 20 rehabilitated Carnaby's cockatoos. Another four will be attached before the end of the year. This is the first time such devices have been attached to a black cockatoo species in Australia. They are providing insights into the daily lives of Carnaby's cockatoo that hasn't previously been possible.

The data is revealing new roost site locations, daily movement patterns and long distance movements. Study birds have travelled as far north as Arrowsmith, south to Lake Preston and inland to Clackline, but most have stayed in the metropolitan area while being monitored. Older established suburbs such as Nedlands, Mt Lawley and Bayswater with mature exotic food trees including liquid amber, pecan and macadamias have been popular, as well as suburbs with large blocks and remnant banksia woodland such as Wandi and Banjup.

The satellite tracking devices are tiny, weighing just 17 g, and are attached to the underside of the two central tail feathers. When the feathers moult the tracking device will detach from



A satellite tracked Carnaby's cockatoo perched on a cannalily in a Perth garden. You can see the tail markings, leg band and the tip of the aerial of his tracking device poking out the end of his tail feathers that identify him as a study bird. Photo – Christine Groom

the bird with the feathers. They are programmed to switch on and off to extend battery life. The data received by the satellites can be downloaded by researchers via the internet and provides approximate location fixes (at best within 250 m) about once an hour.

The signal being sent from the tracking devices can also be picked up by a suitable radio receiver and this is used to follow the flocks containing study birds while foraging. This provides valuable information on size of flocks containing study birds and feeding observations. These observations will help develop a food calendar (what the cockatoos feed on and when), and to calculate the size of the area around each night roost used for foraging.

The satellite tracked cockatoos have had part of the white panels of their

tail feathers coloured pink, blue or green so they can be spotted more easily in the field and are marked with an individual identifying letter. They have also been fitted with a leg band for individual identification. You can help by looking out for them.

Please report any sightings of black cockatoos with colourful tails to Christine Groom on 0409 087 631 or email christine.groom@dec.wa.gov.au.

The project is being undertaken in collaboration with the Department of Environment and Conservation (DEC), Murdoch University, Perth Zoo, Kaarakin Black Cockatoo Conservation Centre and Native Animal Rescue.

If you'd like to follow the progress of the project please visit <http://carnabyscockatoo.blogspot.com.au>.

Urban Nature Update By Julia Cullity

It's with sadness that I pass on the news that DEC's Director General Keiran McNamara passed away in March from cancer after a short illness. Our condolences are sent to Keiran's family, friends and colleagues. We would like to remember the huge contribution Keiran made to nature conservation across the state and his support of the Urban Nature program.

As of 1 July 2013, DEC work will be carried out by the newly created Department of Parks and Wildlife (DPAW) responsible for biodiversity conservation and the management of national parks and nature reserves. Urban Nature will be working within DPAW and, although the name and logo will change, we will continue to provide technical advice and on-ground support for land managers working to protect, manage and restore our bushlands and wetlands.



Vale Keiran McNamara. Photo – Peter Nicholas



Newly discovered in the Pilbara, *Cochlospermum macnamarae* is named in memory of Keiran McNamara. Photo – Daniel Brassington

Protection for Bandicoot Brook By Kate Brown



Seasonally inundated claypans in full flower during spring at Bandicoot Brook Reserve. Photo – Kate Brown

A recent addition to DEC-managed lands, Bandicoot Brook Reserve lies on the eastern side of the Swan Coastal Plain just north of Waroona. A management committee with members from the Shire of Waroona, the Shire of Murray, the Waroona Landcare Centre and DEC has been formed to implement a management plan for the reserve. Bandicoot Brook Reserve protects threatened woodlands and seasonal wetlands and is a significant addition to the conservation estate.

The Urban Nature Program will be involved in on-ground management of the reserve and monitoring changes over time in claypan communities. We also plan to run our annual workshop for managers of clay-based seasonal wetlands at Bandicoot Brook next spring. The reserve is located north of Waroona on the South-West Highway and is a beautiful place to visit as the wetlands dry and the annual herbs and geophytes flower in late October and early November.

Contacts

Urban Nature office

Julia Cullity 9423 2925
Kate Brown 9423 2905
Grazyna Paczkowska 9423 2914

Department of Environment and Conservation, Swan Region office
7 Turner Avenue, Bentley WA 6102

PO Box 1167, Bentley Delivery Centre
WA 6983

Fax 9423 2901

Email urban.nature@dec.wa.gov.au

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

Spring Bushland News

Spring *Bushland News* contributions should be sent to Urban Nature at urban.nature@dec.wa.gov.au by

Thursday 22 August 2013.

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.

This publication is available in alternative formats on request.

Freesia By Monique Anderson

Freesia was bought to Australia for ornamental purposes and has since become a garden escapee and an environmental weed. It is capable of invading a large range of soil types from sand to clay and has been noted as a thriving weed in many different vegetation types.

Freesia (*Freesia alba x leichtlinii*) is a South African geophyte hybrid, crossed between two native South African species, *F. leichtlinii* found in deep sands and *F. alba* found in sandy to very stony soils.

Freesia is restricted to 10–40 cm in height with linear leaves sheathing from the base up to 20 cm long and 1 cm wide. Stems are erect with a horizontal bend just below the flowers, unbranched, glabrous and green in colour. Flowers are tubular in appearance (3–6 cm long), typically in lots of 3–5 per stem with small leafy bracts at the base of each flower. The flowers can be pale purple on the outside, white on the inside and have a yellow smear towards the base. Petals are partially fused and are gathered in lots of six. Flowers occur between July and October and emit a perfume scent.

Biology

Freesia is a cormous perennial herb that remains dormant over summer and starts protruding in autumn following rain. Seeding is the most common form of reproduction and seed dispersal may occur via water, soil and birds. Seedbank persistence is generally short (days to one year) with low mortality after fire.

Control

Controlling freesia should be assessed on a case-by-case basis. The extent of the infestations may require different control strategies. Generally, starting on the outskirts of larger infestations and working inward will help limit its spread into undisturbed areas. Hand-weeding should be conducted early on in its growth stages (August–September) before contractile roots are formed; however, weeding can commence as early as May when shoots start to appear. Herbicide spraying methods are extremely effective in the control of freesia. Current herbicide



Freesias invading intact bushland at Kings Park. Photo – Kate Brown

controls involve spot spraying, which should be conducted at corm exhaustion when the plant is flowering but before it starts to yellow. The optimal time for herbicide control is usually in the months of July and August. Use metsulfuron methyl at a concentration of 0.2/15 L plus Pulse® penetrant. Metsulfuron methyl is a semi-selective herbicide that at this low rate will incur minimal damage to non-target species; however, avoid using on windy days or when rainfall is expected. Untreated corms will recolonise the area of disposal if not destroyed. Hand removed corms should be removed to deep burial in landfill.

More information

Brown K and Brooks K (2002) *Bushland Weeds – A practical guide to their management with case studies from the Swan Coastal Plain and beyond*. Visit http://sustainableagricultureperth.targeton.com/sites/sustainableagricultureperth.targeton.com/files/bushlandweedsbook_0.pdf.

Managing Weeds in Bushlands – Biology and Control; *Freesia alba x leichtlinii*. Visit www.environmentalweedsactionnetwork.org.au/images/pdf/freesias.pdf.

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/18392>.

Hibbertia – guinea flowers

By Julia Cullity

Spring is without doubt the wildflower season in south-west WA, but bushwalks in winter will often be brightened by the yellow flowers of the common and long-flowering *Hibbertia*.

Belonging to the family Dilleniaceae, *Hibbertia* are small to medium shrubs with five petals and five sepals. There are more than 150 species – most are endemic to Australia with the remainder found in the Gondwanan countries of Madagascar, New Caledonia, New Guinea and Fiji. There are 40 taxa (species and subspecies) that occur on the Swan Coastal Plain – with many of them endemic to the South West.

Most *Hibbertia* have yellow or gold flowers but *Hibbertia stellaris* and *H. miniata* are orange. The best features to tell the species apart are leaf shape, whether flowers are stalked or stalk-less, and if the stamens are arranged in a circle or are all on one side of the ovary.

H. hypericoides (yellow buttercups) is a ubiquitous species in Perth bushland and is often the dominant shrub in the understorey of banksia and tuart woodlands, jarrah forest and heath. It flowers profusely from August through to October. The flowers produce no nectar, close at dusk and reopen in the morning.

Green jewel beetles (*Diphucephala affinis*) are often seen resting on yellow flowers. Originally thought to be pollinated by beetles, *Hibbertia* are pollinated by pollen-collecting native bees and pollen-eating flies by buzz pollination. The stamens are arranged in such a way that the bee must hold onto the flower and vibrate to get the pollen out.

Propagation

The seeds have arils – fleshy appendages to the seed – and may be attractive to ants, or seed-eating rodents or insects. Fruits are prone to insect damage and poor seed set. Once the seed is ripe the fruits dry out and open and release the seed. This usually occurs in mid to late summer and bagging unripe fruits with cotton or pantyhose may ensure some seed is collected.

Growing *Hibbertia* from seed is very difficult and most plants are grown from cuttings. Dormancy is thought to be driven by a poorly developed embryo which requires time to grow inside the seed before germination. The cues to begin embryo growth are a complex combination of seasonal fluctuations in temperature and moisture with varying exposure to light and smoke. These environmental triggers in turn vary between species. It is also possible to germinate seed after removing the seedcoat. Most species are rare to find for sale but they can be found grown by enthusiasts such as the Wildflower Society or some of the specialist local native nurseries.

More information

Cochrane A 2002 *Seed Notes for Western Australia No. 17* Hibbertia Wildflower Society of Western Australia, Perth.



Hibbertia hypericoides has small, glossy oblong leaves with a rounded tip and stalk-less flowers with the stamens arranged on one side only.
Photo – Vicky Hartill



Hibbertia stellaris, one of the rare orange flowered Hibbertias. Note the long, narrow leaves, stalked flower and stamens arranged in a circle.
Photo – Liz Penter

Hidayati S N Walck J L Merritt D J Turner S R Turner D W Dixon K W 2012 Sympatric species of *Hibbertia* (Dilleniaceae) vary in dormancy break and germination requirements: implications for classifying morphophysiological dormancy in Mediterranean biomes. *Annals of Botany* 109(6): 1111–23.

Hawkeswood T J 1989 Notes on *Diphucephala affinis* (Coleoptera: Scarabaeidae) associated with flowers of *Hibbertia* and *Acacia* in Western Australia *Plant Systematics and Evolution* 168, 1–5.

Tucker S C and Bernhardt P 2000 Floral ontogeny, pattern formation, and evolution in *Hibbertia* and *Adrastaea* (Dilleniaceae). *American Journal of Botany* December 87 (12): 1915–1936.

Traditional Ecological Knowledge Noongar Database By Marissa Verma

Do you know what the resin from balga is used for?

Noongar people collected resin as a key ingredient to make bush glue. The glue was used to make a tool for cutting food.

Perth Region NRM have developed a Traditional Ecological Knowledge (TEK) website link capturing Noongar knowledge of flora and fauna to assist environmental groups and other interested people working in environmental fields. Many consultations with local Aboriginal community members were conducted to allow them to share their own cultural knowledge. The TEK database will enable the wider community to better understand the traditional uses of flora and fauna. The contribution of traditional ecological



Resin found at the base of balga was crushed and used by Noongar people to make bush glue which was then used to make tools. Photo – Sharon Munro

knowledge will assist managers with on-ground works to help protect these species. This knowledge will help to better protect those endangered species and help restore them for future uses such as bush medicines and bush tucker. Though the database is hosted by Perth Region NRM, it is important to note that the Noongar people are the true owners of this knowledge.

TEK can be accessed through Perth Region NRM's website www.perthregionnrm.com/pr-nrm-programs/cultural-heritage.aspx. Information on flora is available, with fauna, bush medicine and tool making to follow. For more information please ring Marissa Verma on 9374 3319 or Sharon Munro on 9374 3313.

2013 Great Cocky Count update By Tamara Kabat

Another huge effort by volunteers saw the completion of BirdLife Australia's fifth Great Cocky Count (GCC) survey on 7 April 2013. More than 270 volunteers surveyed 243 sites from north of Geraldton, around Perth, and across the south-west as far as Esperance. The largest roost this year was in the Pinjar pine forest north of Perth, where 800 cockatoos were recorded. Once again, the survey was greatly assisted by local people identifying new roost sites and coordinating volunteers in their areas, particularly around Bunbury, Yancheep, Margaret River, Dunsborough, Geraldton, Esperance and Narrogin.

The GCC aims to count as many Carnaby's cockatoos at their night-time roost sites as possible on a single night each April. With increased numbers of people taking part, and more survey sites identified across the south-west region, we're building a stronger picture of important roosting habitat for both Carnaby's and their cousins, Baudin's cockatoo. As the fourth survey in a row, this year's GCC will also increase our understanding of how Carnaby's are using the Swan Region around Perth, which provides key over-wintering habitat for northern and western Carnaby's populations.

The final report will be ready in a few months, so keep an eye on www.birdlife.org.au/carnabys/great-cocky-count. The 2012 and 2013 GCCs were funded by Perth Region NRM through the federal government's *Caring for our Country* program.

Sourcing seed for restoration on the Coastal Plain and Perth hills By Julia Cullity

In March this year, the Urban Nature Program organised a workshop for DEC staff to address issues around sourcing seed for restoration projects in the Region. Conservation officers and managers from Swan Coastal District, Perth Hills District and Regional Parks Unit attended. Science Division staff from the Flora Conservation Program presented a series of talks on variation in the flora of the region and the implications for sourcing seed for revegetation and restoration projects.

Opening with a presentation on the patterning of variation within species, examples were given of species that have local variants, have distinct dryland and wetland types, are known to hybridise with horticultural species or interbreed with other variants of their species and lose vigour or form sterile progeny. Species commonly used in revegetation in the region that vary considerably across their range including *Acacia saligna*, *A. pulchella* and *Calothamnus quadrifidus* were discussed in detail. Physical appearance, regeneration strategies or genetic differentiation can account for the variation amongst their numerous sub-species. The final presentation looked at sourcing seed based on known genetic or physical variation, health of source populations, pollination strategies and revegetation objectives. The use of local provenance material minimises the introduction of potentially weedy native species, conserves biodiversity at the scale of local variants and genes and improves restoration outcomes.

The day concluded with a group discussion of how to define local provenance for our region and a recognition that appropriate provenance collection zones vary depending on species and revegetation or restoration aims. At the moment we are considering broadly defining seed collection zones as major landform units on the Coastal Plain and for the forest, the Landscape Conservation Units defined as part of the *Forest Management Plan*.

More information

Millar M A, Byrne M and Coates D J (2008) Seed collection for revegetation: Guidelines for Western Australian flora. *Journal of the Royal Society of Western Australia* 91: 293–299.

what's on

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

Recurrent activities

-  **Saturdays 15 minutes before sunrise Research into bird populations** with the **Herdsmen Lake** Bird Banding Group. Contact Bill Rutherford (ABBBS Coordinator) on 0438 910 252 or calidris@inet.net.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 **Booragoon and Blue Gum Lakes**. First Saturday of the month. Contact Heather 9364 1739 or heja13@bigpond.com.
-  **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 1.30-3.30pm Bushcare activities** with the **Mt Henry** Peninsula Conservation Group are on the fourth Saturday of each month. Contact Jan 0409 299 861 or Jan.King@acquinas.wa.edu.au.
-  **Saturdays, Sundays 9am-12 noon Koala maintenance** at **Yanchep** National Park. Call Ciara 9303 7771.
-  **Sundays 9am-11am Work morning** with the **Wilson Wetlands** Action Group. First and third Sunday of the month. Contact WWAG 9258 7301 or wilsonwetland@gmail.com.
-  **Sundays 8am-9am Guided walks** with Friends of **Marangaroo**. Fourth Sunday of the month. Meet at Gate 3, Decourcey 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 carpark. Contact Margaret 0402 105 649 or s3mmatthews@hotmail.com.
-  **Sundays 8.30am-9.30am Guided walks** followed by meeting with Friends of **Mirrabooka**. First Sunday of 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 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 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@inet.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. Contact Unice 9398 71269 or unicerobinson@gmail.com.
-  **Mondays, Wednesdays, Fridays 9am-12 noon Bushcare activities** and wetlands walk trail maintenance with **Yanchep** National Park Volunteers. Call Ciara 9303 7771.
-  **Thursdays 8am-9am Bushcare activities** every Thursday with **Byford** Enviro-Link. Call 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 **Baldvis** Children's Forest. Email mary.rayner@education.wa.gov.au.
-  **Conservation Volunteers activity schedule**. Free one-day local activities or overnight country trips. Call Jodi 9335 2777 or visit www.conservationvolunteers.com.au.
-  **Coastal planting in winter**. Visit **Cambridge Coastcare** at www.cambridgecoastcare.com.au and **Joondalup Community Coastcare Forum** at www.joondalupcoastcare.com.

July

-  **2 Tuesday 6pm Biodiversity of banksia woodlands** on the SCP with guest speaker Stephen Hopper. Urban Bushland Council, West Perth. Call UBC 9420 7207 or email John Baas jdbaas@bigpond.com.
-  **4 Thursday 9am Planting** at Key West parking station, Mullaloo. Email Sharon Mearthur smearthur63@gmail.com.
-  **5 Friday 7.30pm Western swamp tortoise** with guest speaker Nicki Mitchell. Contact **WA Nats(P)**.
-  **6 Saturday 6 July Planting** with Friends of Allen Park. Meet at the cottage 118 Wood St, Swanbourne. Bring gloves, water and sun protection.
-  **6 Saturday 12 noon-4pm SERCUL** 10th Anniversary Open Day, Beckenham. Presentations, displays, tours and children's activities. Call Amy 9458 5664.
-  **6 Saturday, 11 Thursday, 21 Sunday 9am Guided walk** with Friends of Bold Park Bushland Volunteer Guides. Bookings 9480 3996 or friendsbp@bgpa.wa.gov.au or www.bgpa.wa.gov.au.
-  **7 Sunday 9am-12 noon Planting** at Thomas Oval, Rowson Rd, Medina. Contact **CoK**.
-  **9 Tuesday 7.45am-6pm Kwongan workshop** on the ecology of WA's arid zone, University of Western Australia. Call Barbara Jamieson 6488 1782.
-  **13 Saturday 8.30am-10.30am Planting** with Bicton Environmental Action Group. Contact **BEAG**.
-  **13 Saturday 10am-12 noon Building a bat nest box** demonstration and information on local bat species, Kalamunda. Morning tea provided. Contact **BSFH**.
-  **14 Sunday 9am-12 noon Planting** at Lake Claremont. Contact **FoLC**.
-  **14 Sunday 9am-12 noon Planting** at Bertram Sanctuary Reserve, Waterfields Dr, Bertram. Contact **CoK**.
-  **21 Sunday 8.30am-11am Planting** at Star Swamp. Meet at Henderson Environment Centre, Groat St, North Beach. Sausage sizzle and show bag for participants. Contact Jo Taylor 0408 913 255 or Jo.Taylor@stirling.wa.gov.au.
-  **27 Saturday 8.30am-10.30am Planting** with Bicton Environmental Action Group. Contact **BEAG**.
-  **28 Sunday 9am-12 noon Planting** at Lake Claremont. Contact **FoLC**.
-  **28 Sunday 2pm Planting** at Key West parking station, Mullaloo. Email Sharon Mearthur smearthur63@gmail.com.
-  **28 Sunday 9am-12 noon Planting** at Wildflower Reserve, Sandringham Park, Nottingham Pkwy, Orelia. Contact **CoK**.

August

-  **2 Friday 7.30pm Wildlife in the suburbs** with guest speaker Giles Pickard. Contact **WA Nats(P)**.
-  **3 Saturday 10am-12 noon Botanical drawing workshop**, Parkerville. Contact **BSFH**.
-  **4 Sunday 9am-11am Planting** at Trigg Bushland. Meet corner of Duart Rd and Garland Way, Trigg. Sausage sizzle and show bag for participants. Contact Jo Taylor 0408 913 255 or Jo.Taylor@stirling.wa.gov.au.
-  **8 Thursday 9am-3.30pm Great Southern Great Science 2013 Symposium**, Albany. Local research and development in agriculture, anthropology, energy, engineering, environmental science, medicine, natural resource management, statistics, and more. Visit www.cenrm.uwa.edu.au/community/conference.

Registration/contact details

BEAG Bicton Environmental Action Group work in the Point Walter Bush Forever site and along Blackwall Reach. Contact Peter Neesham 0439 467 855 or pneesham1@bigpond.com.

BSFH Bush Skills for the Hills Bookings 9424 2216 or environment@emrc.org.au.

FoLC Friends of Lake Claremont Meet south end of Strickland Street, Swanbourne. Visit www.friendsoflakeclaremont.org or call 0416 614 696.

CoK City of Kwinana Contact Angela Jakob on 94390418 or angela.jakob@kwinana.wa.gov.au.


WA Nats(P) WA Naturalists Club (Perth) Hew Roberts Lecture Theatre, UWA Extension. Clifton St, Nedlands. Email info@wanaturalists.org.au. \$2 door entry.

Please send us your October, November, December 2013 events by Thursday 22 August 2013.

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.

11 Sunday 9am–11.00am

 **Quenda survey** at Dianella Regional Open Space. Contact Jo Taylor 0408 913 255 or Jo.Taylor@stirling.wa.gov.au.

11 Sunday 10am

 **Spring bushwalk** at Koondoola Regional Bushland. Meet at corner of Koondoola and Burbridge Avenue. Call UBC 9420 7207 or email John Baas jdbaas@bigpond.com.

18 Saturday 10.00am–4.00pm

 **Southwest Super Science Spectacular**, Ocean Forest Lutheran College, Dalryellup. Archaeology and antiquity, human body and movement, energy and transport, environment and nature, health and medical, space and astronomy, innovation and technology. Contact Inga McQueen mcqueeni@oceanforest.wa.edu.au.

24 Saturday 8.30am–10.30am


 **Foreshore clean-up** at Blackwall Reach Pde, Bicton. Contact **BEAG**.

September

6 Friday 7.30pm

 **Weather changes** with guest speaker Neil Bennett. Contact **WA Nats(P)**.


7 Saturday 9am

 **Flora walk** with the Friends of Queens Park Bushland. Meet at the gate opposite 261 Station St, East Cannington. Email Sian Mawson fqpbushland@gmail.com.


14 Saturday 9.30am–12 noon

 **Dieback: Managing the Menace** workshop, Parkerville. Contact **BSFH**.

14 Saturday 8.30am–10.30am

 **Weeding** with Bicton Environmental Action Group. Contact **BEAG**.

30 Monday 10am

 **Spring bushwalk** at Anstey-Keane Dampland with UBC, Friends of Forrestdale and Wildflower Society (Perth). Call UBC 9420 7207 or email John Baas jdbaas@bigpond.com.

Highlights

21–26 July

Building a Sustainable Earth through Remote Sensing, Melbourne. IGARSS 2013: IEEE International Geoscience and Remote Sensing Symposium. Visit www.igarss2013.org/.

31 July–2 August

2013 WA State Coastal Conference, Esperance. 'Balancing Communities and Coasts'. Visit www.2013wacoastalconference.com.au.

1 September–16 October

Night stalk is easy, fun and something everyone can do in their local forest/bushland. Record all of the mammals, birds, reptiles and frogs that you find and email to Perth Zoo. For more information and a Spotter's Log www.perthzoo.wa.gov.au/nightstalk.

9–11 September

2013 BiodiverCities Conference, Joondalup, Perth. The program will feature group discussions, field trips and presentations from environmental experts addressing biodiversity conservation in a changing climate. Visit www.joondalup.wa.gov.au/Live/Environment/BiodiversityConference2013.aspx.

15–20 September

Solving the Groundwater Challenges of the 21st Century, Perth Convention and Exhibition Centre. International Association of Hydrogeologists 2013. Visit iahcongress2013.org/.

8–11 October

Greenhouse 2013, Adelaide. Conference on climate change science, communication and policy. Visit www.greenhouse2013.com.

Bibbulmun Track Foundation events suit all ages and most fitness levels. From guided walks to learning how to cook on a fuel stove. Visit www.bibbulmuntrack.org.au/walk-the-track/events-calendar/.

Nearer to Nature school holiday events. Visit www.dec.wa.gov.au/n2n.

DEC volunteer programs visit www.dec.wa.gov.au/community-and-education/volunteer-programs.html.

Funding opportunities

State NRM Community Grants of between \$10,000 and \$50,000 are available to eligible groups for any on-ground activity that will assist in the conservation, restoration, rehabilitation or enhancement of a local natural area, including land, water or marine areas, or the conservation of biodiversity. Total grant pool is \$3 million. **Closes Friday 5 July 2013**. Visit www.nrm.wa.gov.au/grants/state-nrm-program.aspx.

Lotterywest Conservation of Natural Heritage Grants are available to not-for-profit organisations and local government authorities to conserve natural habitats and maintain the diversity of animal and plant species, e.g. planting, fencing, weed and feral animal control, equipment and newsletters/pamphlets. Applications can be made at **any time**. Visit www.lotterywest.wa.gov.au/grants/grant-types/heritage-and-conservation/natural-heritage.

Foundation for National Parks & Wildlife

Conservation Grants are available for both field projects and education programs that have a direct outcome for nature conservation in Australia. Grant amounts vary greatly, however most range from AUD \$5,000 to \$20,000. The next funding round is scheduled for **August 2013**. Visit www.fnpw.org.au/foundation-grants/conservation-grants.

City of Gosnells Community Sponsorship

supports community organisations to deliver high quality services to the local community. Conservation groups would be eligible under the 'Innovative Program or Project' and 'Strategic Initiatives' categories for \$1,000–\$5,000. **Closes: August 2013**. Visit www.gosnells.wa.gov.au/Lifestyle/Get_involved/Community_sponsorship_program.

Track assistance welcome *By Ruth Clark*

The Waterbird Conservation Group has recently completed a project to put in limestone tracks around key parts of their wetland reserves. The new tracks were completed in April and will ensure members and conservation volunteers can carry out more revegetation and weed control all year round. The establishment of these permanent firebreak tracks and more effective management of the reserves by the Group will also reduce the fuel load. The tracks were well used by volunteers during eight weekend planting days in June.

Thank you to Lotterywest, the Western Australian Planning Commission and

Water Corporation for their generous financial support. Thanks also to the many helpers with in-kind support during the 12 months. Particular thanks goes to our hard working contractor Jeff who managed to overcome many hurdles to get the job to completion. Jeff went above and beyond his paid contract and said he is looking forward to seeing the now accessible areas planted and conserved.

For details on helping at planting days email Ruth at waterbirdgroup@gmail.com. Sedge planting on the banks are scheduled for November. Everyone welcome!

DEC Corella wing tagging study

The little corella (*Cacatua sanguinea*) and the eastern long-billed corella (*Cacatua tenuirostris*) are not native to southern Western Australia but have become established as a result of aviary escapees. DEC is undertaking a wing tagging study to determine the movements and population size of corellas in the Perth metropolitan area. If you sight a bird with a wing tag please record tag colour (black, pink, blue, green, gold or unsure), tag code (e.g. KO, 4B, OP or unsure), date, location sighted, suburb, street, species and flock size. Forms are available at <http://museum.wa.gov.au/explore/online-exhibitions/cockatoo-care/western-long-billed-corella>. Contact Mark Blythman at mark.blythman@dec.wa.gov.au or 0419 904 997 or 9219 8723.

Please send us your regional report (150–200 words) and a photo by Thursday 23 August 2013. Text may be edited in response to volume of submitted reports.

Shorebird 2020 Count *By Thelma Crook*

More than 70 volunteers braved the 40 degree heat on Sunday 10 February to take part in the Peel-Harvey Catchment Council's ninth annual national Shorebird 2020 Count – the largest Shorebird 2020 count in Australia.

Volunteers from Birdlife WA Peel Branch, Birdlife WA, Murdoch University, Myalup Bird Observers, DEC and the Canoe Trail Friends of Mandurah and Pinjarra, along with a large number of individual volunteers, joined the Mandurah Bird Observers Group and the Peel-Harvey Catchment Council to count migratory and resident shorebirds that feed, roost and nest across the 26,000 hectares of the Ramsar-listed Peel-Yalgorup System wetlands.

A high number of birds were counted but there were fewer of the significant migratory shorebirds this season. Disturbances such as the large number of crabbers, boats, four-wheel-drive vehicles and dogs impacting on the shorelines was of great concern to counters and may have resulted in the lower than normal numbers of migratory shorebirds recorded on the day.



Mavis Russell (from left) and Bill Smart, long time volunteers from the Mandurah Bird Observers Group, taking part in the Shorebird 2020 Count at Coodanup foreshore on 10 February 2013. Photo – Roz D'Raine

Thanks to recent Alcoa funding, the Peel-Harvey Catchment Council has been able to continue to assist volunteer groups such as the Mandurah Bird Observers Group in protecting, monitoring and raising awareness of locally vulnerable species such as the EPBC-listed fairy tern (*Sternula nereis*) as well as the internationally important

migratory shorebirds that visit the Peel Yalgorup System wetlands.

More information on Shorebird 2020 counts can be found at www.peel-harvey.org.au.



Quenda recovery project *By Jo Taylor*

The City of Stirling, in collaboration with DEC, recently released 16 quendas (Priority 5 species) into Dianella Bushland Reserve. This project forms part of the City's implementation of its Local Biodiversity Strategy which aims to restore habitat for threatened, endangered and priority species.

Quenda (*Isoodon obesulus*) activity was first documented by the City's natural areas conservation staff in 2010. Following confirmation by DEC's Dr Geoff Barrett and Alice Reaveley, arrangements were made for the introduction of other quendas to sustain the local population. Under a DEC project, quendas displaced from habitat loss through land clearing in various parts of the metropolitan region are relocated to surrogate habitats.

Since the first discoveries, a lot of preparation, planning and hard work have

been undertaken by the City's natural areas conservation team with the assistance of DEC, the Friends of Star Swamp and the Friends of Dianella Bushland.

The recent release marks the first of many that will occur over the next few years in other reserves including Star Swamp and Trigg Bushland, where similar sightings have been made.

The City looks forward to continuing to work with DEC and community groups in the conservation of this unique species through field surveys, on-ground GPS mapping, high definition remote camera monitoring, weed management, control of predatory animals such as foxes and feral cats, dieback disease prevention, revegetation using local native plants, installation of bushland protection fencing, regulatory signage and community awareness programs.



Craig Olejnik releasing a quenda at Dianella Regional Open Space as part of the quenda recovery project. Photo – Jo Taylor

For more information contact Jo on Jo.Taylor@stirling.wa.gov.au or 9205 7160.

Weed invasion from private property *By Leonie Stubbs*

The Friends of Paganoni Swamp Reserve have been busy hand weeding unwanted species and their efforts have been magnificent. Since the prescribed burn of 90 ha in 2010, there has been an increase in pigface (*Carpobrotus sp.*), inkweed (*Phytolacca octandra*) and dune onion weed (*Trachyandra divaricata*) in that patch. In one three-hour session a volunteer bagged four large rubbish bags full of pigface. Apple of Sodom (*Solanum linnaeanum*) is found around the western and southern boundaries of the reserve and each week we are now finding cottonbush (*Gomphocarpus fruticosus*) which has rarely been seen in the reserve to date. This weed, along with dune onion weed and apple of Sodom, are present in high densities on surrounding privately owned land. The problem is that local councils do not have the power to enforce owners to control weeds on their properties and there is no incentive for the owners to do so.



Cottonbush (Gomphocarpus fruticosus) weed is present in high densities on many privately owned blocks in the City of Rockingham, including land adjacent to Paganoni Swamp Reserve. Cottonbush was discussed at a weed control workshop for landowners on 29 May. Photo – David Mort

With ongoing threats from climate change and patch fragmentation due to urban development, it is vital that we try to push out the boundaries of our bush reserves. However, if surrounding land is degraded or weedy it cannot provide a refuge and so the resilience of species is reduced. We need to

raise awareness about the value of quality bush and what services it provides. Some obvious services are air quality, climate regulation, biological controls, pollination, recreation and cultural values. Owners of bushland close to public reserves need to be encouraged, educated and recompensed

for maintaining their land to be weed-free and habitat-friendly, thus reducing threats to our public reserves and providing more resources for our flora and fauna.

For details of our activities please contact Leonie at FoP@westnet.com.au or 9536 8195.

Help restore Lake Claremont *By Heidi Hardisty*



Be part of the biggest planting project ever at Lake Claremont! This year, volunteers from the Friends of Lake Claremont (FOLC) will continue their work restoring the conservation category wetland and woodland area around Lake Claremont and we need your help. Planting has already commenced and will continue through July. Please come to one of our remaining public planting days: 9am–12 noon Sunday 14 July and National Tree Day Sunday 28 July. Meet at 9am at the south end of Strickland Street, Swanbourne. Our goal will be to plant 3,000 plants at each session. FOLC volunteers will instruct participants on how and where to plant. We hope that participants can discover the beauty and importance of Lake Claremont, contribute to the community, and have fun!



The 'Big Help Mob' restoring the wetland buffer at Lake Claremont. Photo – Heidi Hardisty

This year a total of 83,000 native seedlings will be planted by volunteers from the local community, schools and corporations.

The park, which is a Bush Forever site, is proving increasingly popular with local wildlife and families.

For more information visit www.friendsoflakeclaremont.org or phone 0416 614 696.

Compiling a bushland restoration kit By Karen Bettink, Monique Anderson and Julia Cullity

Groups undertaking bushland restoration work require an array of equipment, depending on the type of work being undertaken. The following list is an essential kit for any person or group undertaking such work.

A bushland restoration kit should include a variety of general work equipment such as hand tools, protective equipment and clothing, spray equipment, and measuring devices such as tapes, pegs and stakes which are useful for carrying out surveys and monitoring. Suncream and a first aid kit (from basic hikers to four-wheel-drive off-road) should always be part of this general kit. Surplus clean water in 20-litre containers is always handy – whether for drinking, cleaning up, washing spilled chemical off the skin or flooding the eyes in case of an emergency.

Depending on the location you're working in, a dieback (*Phytophthora cinnamomi*) kit may be needed to ensure you do not spread infected material between sites. This kit only needs to consist of a few basic items, such as small brush, spray bottle, screwdriver or similar (for reaching clumps of soil trapped in tools and shoes) and methylated spirits. Even if dieback is not known from the area, it is good practice to disinfect your tools and equipment post work.

There are a number of additional items such as insect repellent and wellington boots which, although not listed, can at times make life a lot easier!



Student volunteers using the DEC Regional Parks bushcare trailer. Photo – Stuart Harrison

Kits for loan

If you don't want to invest in your own kit there are some available for loan.

DEC Regional Parks – for loan to groups working in Regional Parks. The trailer contains numerous planting and weeding tools and a barbecue and first aid kit. Phone Regional Parks on 9219 9290.

RoleyBushCare – containing dieback treatment gear. Phone Ian Colquhoun on 0427 800 732 at least a week prior.

Eastern Metropolitan Regional Council – for loan to groups working in the shires of Mundaring and Kalamunda and the City of Swan. The trailer contains numerous planting, weeding and spraying tools, protective equipment and wet weather gear, sharps container and tongs, signage and witches hats and a first aid kit. Phone Karen Warner on 9424 2242 at least a week prior for a week day booking. Weekend bookings must be prearranged with Bushcare officers who will also attend.

City of Melville – for loan to groups conducting restoration in a City of Melville reserve. A watering trailer is available as are a collection of planting tools. Contact Kellie Motteram on 9364 0283 or kellie.motteram@melville.wa.gov.au. Bookings are on a first-in first-served basis. Two to three days' notice is required but two weeks' notice is preferred.

South East Regional Centre of Urban Landcare (SERCUL) WA – for loan to community landcare groups undertaking volunteer activities. Contains planting and dieback treatment tools, and marquees. Phone the SERCUL office on 9458 5664 a week prior to determine availability.

Perth Region NRM Community Coastcare Trailer – for loan to groups undertaking coastal dune rehabilitation activities. The trailer contains planting tools and first aid kit and is located in Kwinana. Phone Craig Wilson on 9439 0433.

Spray equipment

safety glasses, PVC elbow length gloves, protective overalls and respirator masks and replacement filters (depends on chemicals used).

small spray bottles and application bottles.

15 L backpack sprayer.

Glyphosate 1 L, surfactant or wetting agent 1 L, dye 1 L, Metsulphuron methyl 40 g. Straps or ropes (for securing equipment on vehicle trays)
soap and bleach.

General hand tools and planting gear

garden gloves.

spade/shovel, handheld pick, mattock, small and large peter levers.

loppers, secateurs and pruning saw.

trowels.

pottiputki and kidney buckets.

bamboo stakes, tree guards and mallet.

pitch fork.

Tools for surveying, monitoring and mapping

clipboard, pen and pencil.

GPS (optional) and camera.

paint markers and permanent pens.

steel survey stakes including fence droppers and short star pickets (wooden stakes will perish in a fire).

measuring tape 50 m and/or 100 m
flagging tape 25 mm (variety of colours).

Herdsman Lake bird banding study

By Bill Rutherford

Bird banding has been conducted at Herdsman Lake since the 1970s, providing a wealth of information on bird species, migratory movements and population changes over time.

Otto Müller carried out bird banding at Herdsman Lake during the 1980s and 1990s under the authority of the Australian Bird and Bat Banding Scheme (ABBBS) with approval from DEC (formerly Department of Conservation and Land Management). In December 2001, Bill Rutherford became the project leader of what subsequently became known as The Herdsman Lake Bird Banding Group. The Group studies bird communities at Herdsman, including a band ovalisation trial on grebes (*Podiceps* sp.). Since 2001, banding has been conducted most weekends at Herdsman with more than 70 volunteers handling and banding birds, as well as many others in other roles.

In 2007, targets were introduced to stimulate volunteer interest and as an incentive to commit to longer hours and additional sessions. The 1,500 bird target was finally achieved during 2011 and a new benchmark of 1,615 birds were caught and processed. The target was easily surpassed again the following year with 1,931 birds from 47 species processed during 2012 (Table 1).

Banding results of 2012

In 2012 there were 26 volunteers who put in just over 2,100 field work hours (excluding administration). Five put in more than 200 hours each and another two volunteers put in more than 150 field work hours. Three volunteers were from overseas.

2012 bird banding results included several wader species not usually seen at Herdsman. Additionally, two new species were added to those banded at Herdsman – whistling kite (*Haliastur sphenurus*) and nankeen kestrel (*Falco cenchroides*).

The federal government, under the auspices of the ABBBS, manages the collation of information on threatened and migratory bird and bat species. Data collected by the Group at Herdsman is reported to the ABBBS.

A silveryeye (*Zosterops lateralis*) banded at Herdsman was subsequently caught by other banders at Rottneest Island during 2012. This is the first recorded sea crossing of the western subspecies of silveryeye.

A tree martin (*Petrochelidon nigricans*) banded at Herdsman was re-trapped at the same site after an elapsed time of 6 ½ years – the oldest bird of its species recorded in Australia.

Ninety-four western gerygones (*Gerygone fusca*) were banded in 2012 confirming that the species is in ascendancy at Herdsman. It was the second most banded species after silveryeye during the 2012 year, and for the first time replaced the singing honeyeater (*Lichenostomus virescens*) as the third most banded species for the project in the early months of 2013. Re-trap rates of western gerygone in 2012 were once



A first-year western gerygone (*Gerygone fusca*) banded at Herdsman Lake during autumn 2012. Photo – Bill Rutherford

Total	2012	2011	2010	2009
New birds	1,422	1,376	820	1,095
Re-traps	509	239	199	234
All birds	1,931	1,615	1,019	1,329
Re-trap rate	26.35%	14.79%	19.52%	17.60%
Species	47	50	44	48

Table 1: Summary of bird banding results collected by Herdsman Lake Bird Banding Group at Herdsman Lake for the period 2009–2012.

again very high (23.5 per cent of all captures) and well over the national average for the species of 17.1 per cent.

As at 30 June 2012, there were 12,986 banding records from Herdsman for the period December 2001 to 30 June 2012 with 10,877 new birds banded from 13 orders and 76 species. There have been 2091 re-traps including banded birds observed in the field during this period.

Publication to mark ten-year milestone

Last year marked a 10-year milestone under the current project leader, which will be celebrated by the preparation of a 10-year study of the birds of Herdsman Lake. Compilation and analysis of the data is well advanced and we look forward to publication in the next year or so.

Volunteers interested in assisting the Herdsman Lake Bird Banding Group on Saturday mornings can contact Bill on 0438 910 252 or calidris@iinet.net.au.

Resources

New publications

Perth's Bush Forever Report Card

Proceedings from a one-day conference in December 2012 are available from the Urban Bushland Council at www.bushlandperth.org.au/resources/publications for \$10 using PayPal. Hard copies for \$28 (including postage) are available by emailing ubc@bushlandperth.org.au.



van Dyck, Gynther and Baker (2013) **Field companion to mammals of Australia** intended to be taken outdoors, includes 389 species, photographs, line drawings and maps and new, comprehensive identification keys. To be used in conjunction with the more comprehensive Mammals of Australia. Published by Octavo. RRP \$45. 512pp.

Apps

Weeds Ute Guide app has been modified by the Grains Research and Development Corporation to assist in the identification of the most common, annual, biennial and perennial agricultural weeds in Southern Australia. The application allows users to search, identify, compare and email photographs of weeds. Visit www.grdc.com.au/Resources/App-Store.

Website watch

Honey possum diets in banksia heathland infested with *Phytophthora cinnamomi*. Download Bulletin 2 at www.foresthealth.com.au/html/resources_bulletins.php.

Identifying marri canker disease

The fungal pathogen *Quambalaria coyrecup* has been identified as the causal agent of the severe canker disease contributing to the decline in marri (*Corymbia calophylla*). Correct diagnosis can be difficult but there are some key symptoms to look for. Download Bulletin 3 at www.foresthealth.com.au/html/resources_bulletins.php.

Research and conservation: Western Australia's microbialites

symposium held by DEC Species and Communities Branch in October 2012 now has the presentations and discussion summaries available at www.dec.wa.gov.au/management-and-protection/threatened-species/wa-s-microbialites-research-and-conservation-symposium.html.

State Recovery Plan for Carnaby's cockatoo under DEC policy statement 44 'Wildlife Management Programs' can be found at www.dec.wa.gov.au/management-and-protection/threatened-species/saving-carnabys-black-cockatoo.html.

Research

Barber P A and Hardy G 2012. Restoring the canopy health of native urban bushland and parkland trees. *Australian Plant Conservation* 21: 23–24.

Harris I M, Mills H and Bencini R 2010. Multiple individual southern brown bandicoots (*Isodon obesulus fusciventer*) and foxes (*Vulpes vulpes*) use underpasses installed at a new highway in Perth, Western Australia. *Wildlife Research* 37(2): 127.

Poot P and Veneklaas E J 2013. Contrasting water relations are associated with species distribution and crown decline in four common sympatric eucalypt species in south-western Australia. *Plant and Soil* 364:409–423.

Ruthrof K X, Renton M and Dixon K 2013. Overcoming restoration thresholds and increasing revegetation success for a range of canopy species in a degraded urban Mediterranean-type woodland ecosystem. *Australian Journal of Botany* 61, 139–147.

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