

Forest Management Plan 2014–2023 released

Issue 88

Summer 2013-2014

*Time of Birak and
Bunuru in the
Noongar calendar.*

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The Forest Management Plan 2014–2023 covers an area of more than 2.5 million hectares of land vested in the Conservation Commission of Western Australia from Lancelin north of Perth to Denmark on the south coast. It is the key policy framework for managing south-west forests into the next decade. While the plan covers all tenures its focus is on managing State forest and timber reserves as these land categories are primarily where disturbance activities are permitted. The plan comes into effect on 1 January 2014.

Development of the plan has been a two year undertaking for the Conservation Commission of Western Australia and the Department of Parks and Wildlife (DPaW). It has involved wide-ranging consultation across conservation and industry groups, with the seven native title working groups in the plan areas representing Noongar interests, working together with local and state government agencies and input from the community. The release of the draft plan for public review in August 2012 resulted in over 5,000 submissions, identifying over 500 separate comments or issues. A comprehensive overview of the steps involved in the plan's development and preparation is available from the department's website, Preparing the *Forest Management Plan 2014–2023*.

The plan is based on scientific knowledge and the potential impact of climate change has been taken into account.



Members of the Wildflower Society contributing to the comprehensive survey of the Whicher Scarp. The plan recognises the newly documented biodiversity values of this area in a proposal for extensive additions (4010 ha) to the Whicher National Park. Photo – Mark Brundrett.

Right: The Forest Management Plan 2014–2023 comes into effect 1 January 2014

The overall goals of the plan are to conserve biodiversity; sustain the health, vitality and productive capacity of ecosystems; protect soil and water resources; sustain the contribution to global carbon cycles; and to provide for social, cultural and economic benefits. The plan incorporates a number of management activities to help achieve these goals.

The plan builds on the previous 10-year plan (2004–2013), some key features of the Forest Management Plan 2014–2023 include:

- a proposal to increase protected areas by adding 4,000 ha to Whicher National Park near Busselton;
- continues to protect all old-growth forest;
- retaining large marri trees, which provide nesting and food for black cockatoos;
- retaining habitat logs for native animals such as numbats;



- improved monitoring and reporting on the health and diversity of the forest;
- a new objective to protect and conserve the value of the land to Noongar culture and heritage;
- continue to provide for a sustainable native forest products industry based on the principles of ecologically sustainable forest management.

The plan is available at www.dpaw.wa.gov.au/management/forests/managing-our-forests/161-a-plan-for-managing-our-state-s-south-west-forests

Or request a copy of the plan by emailing forestmanagementplan@conservation.wa.gov.au

Revisiting seasonal clay-based wetlands during spring 2013 By Kate Brown

In winter/spring 2012 the floristic communities of the seasonal clay based wetlands on the Swan Coastal Plain were listed as critically endangered under the federal *Environmental Protection and Biodiversity Act 1999*. Following the listing, a series of floristic plots established in these communities during the early 1990's were re-located and re-scored as part of a joint Urban Nature/Science and Conservation

Division project. The aim was to gain a better understanding of change over the last 20 years, impacts of threatening processes and the current conservation status of our seasonal clay-based wetlands. With the driest July on record and a below average winter/spring rainfall in 2012, the plots required revisiting in 2013 to ensure our data was not just a reflection of a particularly dry season.

After this year's below average winter rainfall for Perth, including the driest June on record we weren't hopeful. However spring 2013 opened with record-breaking September rains and as the wetlands dried though October and November we recorded many species not present in 2012. One of the more interesting species that hardly made an appearance in 2012 but turned up in nearly all plots in 2013 was *Trithuria bibracteata*.



Spring flowers in seasonal wetlands from Gingin to Austin Bay. (L-R) Brixton St Wetlands: dwarf triggerplant (*Stylidium despectum*). Bandicoot Brook Reserve near Waroona: water levels were over the top of our gumboots in most plots following record breaking September rains and *Tribonanthes violacea* in bloom. Pink fan triggerplant (*Stylidium utricularis*) at Mundijong Rd. *Drosera menziesii* ssp. *menziesii* at Yule Brook. Photos – Kate Brown

An update on Swan Weeds By Kate Brown

Swan Weeds, available through DPaw's Florabase website, provides the most current information available on biology and ecology of the Swan Region's most serious environmental weeds. The management notes also include recommendations for appropriate control techniques and are continually updated as new information becomes available.

Management notes that have been updated over the last three months include Geraldton carnation weed (*Euphorbia terracina*), ice plant (*Mesembryanthemum crystallinum*), red valerian (*Centranthus rubra*) and pretty Betsy (*C. macrosiphon*), and *Babiana angustifolia*, *B. tubulosa* and *B. nana*.

Most of the new information provided concerns control techniques. The herbicide Logran® (750 g/kg Triasulfuron) has been found to be very effective on Geraldton carnation weed, *Centranthus* spp. and ice plant with little off target damage to co-occurring native species. Interestingly recent studies have also found that soil disturbance caused by hand removal can facilitate germination of seed from Geraldton carnation weed.

To access the management notes you can search on the species of interest and navigate to the plant profile page (leaf icon). There is also a direct link from <http://florabase.dpaw.wa.gov.au/weeds/swanweeds/> where all species in the database are listed by family.

Trithurias have recently been recognised as being closely related to the earliest of flowering plants – water lilies. This makes them an important group for understanding early evolution of flowering plants. Although also aquatic, *Trithuria* differs from water lilies in that all species are extremely small, most have an annual life cycle and grow in seasonal wetlands. There are 10 species of *Trithuria* worldwide with four endemic to the seasonal wetlands of the southwest. A number of other groups also responded to the wet spring and contributed to increased diversity across the wetlands in 2013 including trigger plants (*Stylidium*), Centrolepis and sundews (*Drosera*).

Autumn Bushland News

Summer *Bushland News* contributions should be sent to Urban Nature at urban.nature@dpaw.wa.gov.au by **Thursday 20 February 2014**. *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.

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Current and archived issues of *Bushland News* are available at www.dpaw.wa.gov.au/management/off-reserve-conservation/urban-nature/93-bushland-news

Japanese Pepper By Julia Cullity

Japanese pepper (*Schinus terebinthifolia*) is often thought of as a woody weed of wetlands and creeks, but it is also capable of invading drier areas. Unmanaged, it forms dense thickets that shade out and smother native plants. Paying careful attention to the timing and methods of herbicide application will produce good results in controlling this environmental weed.

Japanese pepper is native to tropical South America and has another, more apt, common name – Brazilian pepper. It is a medium-sized (3–7 m), evergreen shrub or tree that commonly grows in the gardens and streets of older suburbs and towns of WA. With a closed, spreading canopy they were planted as shade trees and the berries are dried and sold as pink peppercorns.

Biology

Plants are either male or female and both have small cream coloured flowers. The female carries the distinctive red berries in long drooping clusters. It flowers in spring and late autumn with the fruits held on the tree for a number of months over winter, or occasionally all year round. The seed is relatively short lived at less than a year. Trees begin flowering at three years of age.

Japanese pepper will resprout when cut resulting in a multi-stemmed trunk. It also produces root suckers and suckering is stimulated by damage to the roots or canopy. Mature trees are not killed by fire and rapidly recover if burnt. However fire may kill or slow the growth of juveniles.

Dispersal

Dispersal of the red berries is primarily by birds although mammals and water can also spread the seed. The outside of the fruit wall needs to be broken down prior to germination and this occurs when it passes through the digestive tracts of birds. The tree's ability to sucker, especially after the roots or trunk have been damaged, greatly increases local spread. Long distance spread is often because of amenity planting or dumped garden waste.

Management

Seedlings can be hand pulled. A seedling will have a tapering root when pulled whereas a sucker will snap, leaving a hockey stick shaped end.

For adult plants, herbicide application must take place in December to March when Japanese pepper actively grows. Treatment outside this timeframe is unlikely to be successful. Stem inject using 50 per cent glyphosate every 10–15 cm around the base of the trunk. Injection needs to take place within 30 seconds of drilling the hole and is best done working in pairs – one drilling, one injecting. Alternatively basal bark herbicide application is effective by spraying the bottom 50 cm circumference of the trunk with 250 ml Access® in 15L of diesel. Cut and paint techniques are not effective and they offer only temporary control. Subsequent resprouting and root suckering can take place up to two years later creating even denser thickets with

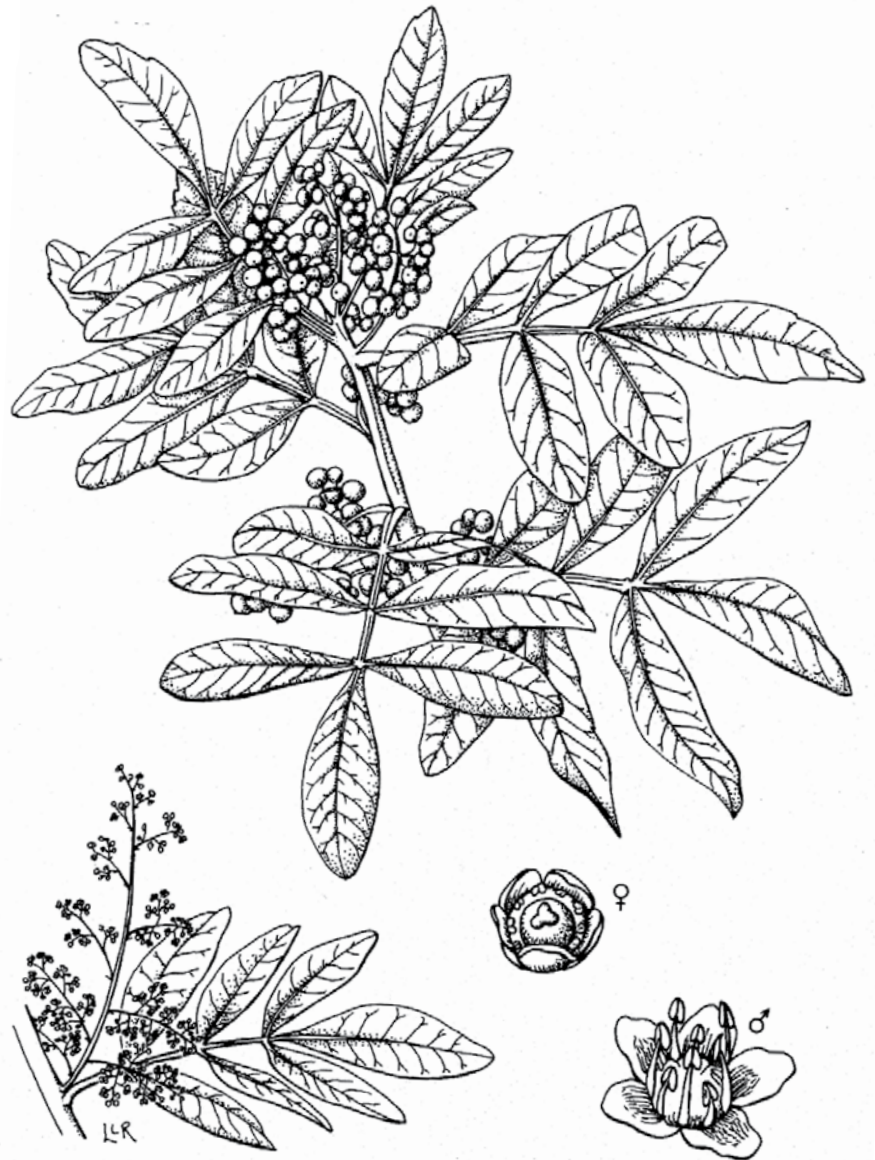
the tangled stems making future control more difficult.

Experiences controlling Japanese pepper by the Lower Moore River Working Group are shared with readers on page 9.

More information

Brooks, K. (2001) *Managing weeds in bushland: Brazilian pepper and other woody weeds*. Environmental Weeds Action Network <http://www.environmentalweedsactionnetwork.org.au/>.

Brown, K.L. and Bettink, K.A. (2009–) *Swan Weeds: Management Notes, FloraBase— The Western Australian Flora*. Department of Parks and Wildlife. *Schinus terebinthifolius* <http://florabase.dpaw.wa.gov.au/browse/profile/11027>.



Japanese pepper (Schinus terebinthifolius), an evergreen tree 3–7 m tall has dark green, leathery leaves divided into leaflets which smell of turpentine when crushed. The female plants produce red berries which are highly attractive to birds. The birds eat the berries and disperse the weed seed. Illustrations – University of Florida Center for Aquatic Plants (Gainesville). Used with permission.

Vegetation as a mapping tool on the Swan Coastal Plain By Bernhard Bischoff

Vegetation can be used to map the underlying soils and dune formation. A closer look at the vegetation units and landform of Bunbury's proposed Preston River to Ocean Regional Park has revealed some interesting geology.

The Swan Coastal Plain (SCP) extends south from Jurien to Dunsborough and east to the Darling fault line. It developed during the last three million years and covers like a veneer the thousands of metres of Mesozoic sediments of the Perth Basin. The landforms are broadly parallel to the coast and progressively younger from east to west.

To the east, the landforms are of colluvial (erosional) and alluvial (river-borne) origin derived from the older land masses of the Darling Plateau and beyond. Further west the landforms are aeolian (wind-borne) deposits, originating from marine sands created by the fall and rise of sea levels during glacial and interglacial periods of the Northern Hemisphere ice ages.

Thirty years ago I addressed the Bunbury City Council proposing a passive recreation bush and parkland link from the ocean to Preston River. The link was achieved during 1995–2008 but the area is still waiting to be formally designated a regional park. The proposed 'Preston River to Ocean Regional Park' is more than 900 ha in size and forms a continuous vegetation belt over 7 km. Aligned in an east-west direction, it links four major vegetation and landscape units characteristic of the western SCP: alluvial Pinjarra Plain; and aeolian Bassendean, Spearwood and Quindalup dunes. A fifth, the young estuarine Yoongarillup unit, is represented in the interdunal 5-Mile Brook Plain.

While it is generally assumed that Bassendean does not occur west of Spearwood dunes, the woodland vegetation either side of 5-Mile Brook Plain suggests an exemption to the rule.

Typical tuart and *Banksia attenuata* woodlands depend on particular soils and can indicate the dune formation from which their soils were derived. Thanks to intact interfaces, it is justified that the landform map shows Spearwood where the typical tuart woodland occurs and Bassendean where typical *Banksia attenuata* woodland occurs (Figure 1).

The patches of Bassendean mapped within the Spearwood dune system on either side of 5-Mile Brook Plain can only mean that Bassendean sands were once covered by Spearwood dune sands which were later eroded. This interpretation is supported by their low position in the landscape.

The assumption that banksia woodland can be used as a tool in geomorphological mapping is not the only reason for the above conclusion. There is also strong evidence based on the angle of the westerly slope of College Grove Ridge. It is much steeper than a normal windward slope of a coast parallel dune and appears to be partially eroded. How and when did the erosion occur? Only 6000–8000 years ago, during a period of higher sea levels, the ocean intruded Spearwood landscape. This transgressing ocean eroded Spearwood sands and some limestone to expose the underlying Bassendean. It left behind the Yoongarillup 5-Mile Brook Plain which is largely composed of the eroded material when it retreated.

The proposition that Spearwood overlays Bassendean opens a question – can Tamala limestone, a widespread equivalent of Spearwood sands, also form in underlying Bassendean sands? It seems likely that calccrete or calcarenite-type limestone (forms when lime-rich water percolates down and binds sand grains into stone near the base of a high Spearwood dune) can form in underlying Bassendean sand.



Figure 1: the major landforms and vegetation complexes from Boyanup to Harvey and from the Darling Scarp to the ocean tell the story of the southern Swan Coastal Plain. Map – Julia Cullity (Adapted from DPaW, Hedde Vegetation Complexes 1978 (System 6). GIS digital dataset.)

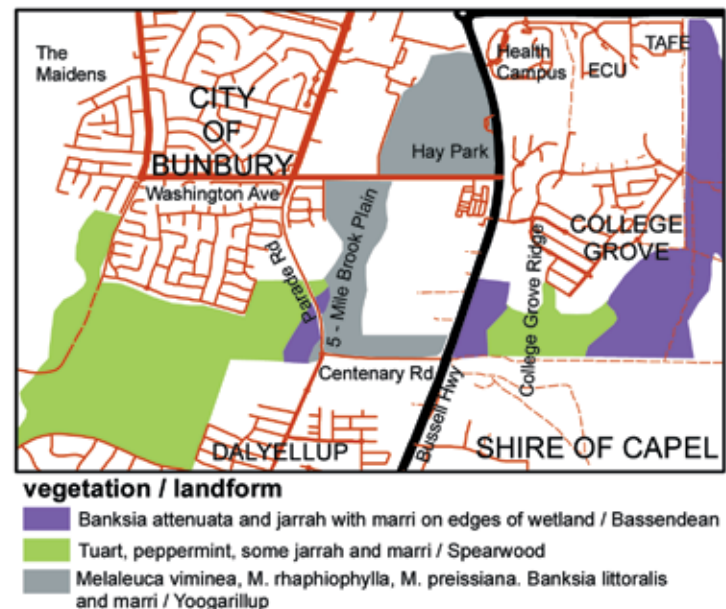


Figure 2: in southern Bunbury, tuart woodland indicates an earlier Spearwood dune phase east of Bussell Highway and later phases west of Parade Road. The interdunal 5-Mile Brook Plain is flanked by areas of *Banksia attenuata* woodland indicating the presence of Bassendean sands. Their appearance is suggested to be a result of erosion of overlying Spearwood sands and some limestone by the fairly recent (Holocene) Yoongarillup shallow marine transgression. Map – Julia Cullity (Source WAPC 2011)

Conclusions

1. *Banksia* woodland can, where interfaces are intact, be confidently used for mapping occurrences of Bassendean sands;
2. Bassendean continues westward underneath early phases of the Spearwood system; and
3. Tamala calccrete/calcarenite-type limestone can form in Bassendean sand when remaining underneath a high Spearwood dune.

More information

Bernhard Bischoff bbischoff@westnet.com.au or 9791 4113.

Preston River to Ocean Regional Park - Establishment Plan Proposal, Final Report. 2011 WAPC.

Restoring riparian icons By Kathy Dawson



Restoring denuded stretches of the iconic Warren and Donnelly Rivers is the ultimate goal of a federal Biodiversity Fund project, a collaborative effort of Warren Catchments Council, CSIRO and DPaW. Besides establishing 600,000 plants along 120 km of riverbank and floodplain, the 2017 project completion date is enabling significant investigation into the causes of the blackberry decline responsible for the altered landscape. Genomic and climate change studies that will have far-reaching and long-term effects in riparian revegetation management are other planned activities.



Lee Fontanini and John Scott erecting infrastructure for enclosure trials at a site on the Warren River. Note the absence of a mid-storey and the predominance of non-native ground covers in this decline site. Photo – Jodie Quinn

The genesis of this project was a chance discovery in 2007, during a survey in a joint CSIRO and Warren Catchments Council (WCC) blackberry project which was tasked with evaluating the effect of released biological control agents on *Rubus anglocandicans* (common blackberry). CSIRO researcher Paul Yeoh and WCC project manager, Lee Fontanini noticed a decline of blackberry at a study site. Further investigation outside the study sites revealed large areas of dead and dying blackberry. The extent and severity of the decline of *R. anglocandicans* thickets initially suggested the area had been sprayed with herbicide.

Enter PhD candidate Sonia Aghighi who, under the supervision of Professor Giles Hardy and Dr Treena Burgess (Murdoch University) and Dr John Scott (CSIRO), set about finding the cause or causes of the mysterious decline. A recently published article in *European Journal of Plant Pathology* identified a new phytophthora species, *P. bilobang*, detected from the rhizosphere soil and roots of declining or dead *R. anglocandicans*.

This pathogen, along with a multitude of other factors including other pathogens, waterlogging, the shape of the river valley, herbivore and insect damage and rust fungi may be collectively responsible for the decline syndrome of blackberry within the Warren and Donnelly River catchments. Because of the uncertainty of all causal factors and also the probable impacts of a residual blackberry seedbank on restoration efforts, CSIRO is continuing trials on blackberry to quantify seedbanks, survival of seedlings and assessing impacts of grazing pressures and shading.

New PhD student, Helen White, will be contributing to the development of a framework for riparian restoration management by analysing the Warren River riverbank ecosystem in the context of a changing climate.

To be more assured on the long-term viability of the restoration, DPaW Science and Conservation Division Director, Dr Margaret Byrne, is leading a team to genetically tag seed sources in order to evaluate the survival and performance of species selected for revegetation. Species deemed suitable to maximise biodiversity establishment, resilience and persistence will be based on this genetic analysis and demonstrated future-climate adaptability (see story page 7).

The first 18-months of the project invested in extensive assessment: overall inspection of the river systems' riparian zones to map infestation and decline sites, individual site assessments, identification of floodplain delineation and undertaking a complete herbarium collection, hitherto not compiled. Already information has been acquired that supplements existing data in the extensive range of maps and databases utilised. Sightings of *Carex tereticaulis* (Priority 1) extended the knowledge of known occurrence, and a new Priority Ecological Community site was registered (a cryptogam associated with *Trymalium* and *Chorilaena* spp).

The recent September flooding saw Lee Fontanini and WCC field officer Andy Russell paddling canoes to retrieve motion sensor cameras in danger of being

washed away from experimental sites. It provided firsthand evidence of floodplain delineation and newly gouged exposed banks reinforced the threat of erosion. Lee and Andy's extensive knowledge of flora and fauna of the local river systems is of invaluable on-going assistance to research partners.

Canoes are also used in hard-to-access sites when assessing vegetation, collecting herbarium samples and seeds DPaW researcher Dr Tara Hopley needed for DNA analysis (*Taxandria*, *Callistachys* and *Astartea* spp).

Species selected for revegetation include three over-storey, four mid-storey and 10 ground covers (sedges, rushes, grasses and herbs). The absence of native mid-storey and ground covers from the revegetation sites makes the collection of provenance seeds problematic. The bare landscape also makes it difficult to determine, definitively, what was there originally. The propagation of five of these presents another challenge – they have never before been grown in commercial nurseries. The known difficulty in germinating *Lepidosperma effusum* and *L. perescans* is being overcome by transplanting divisions.

Community assistance will be appreciated when revegetation is in full force in 2014, once the planting material is available and seasonal conditions are optimal for success. For more information contact Lee Fontanini on 9771 8180 or lee.fontanini@warrencouncil.gov.au.

what's on


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

Recurrent activities


Saturdays 15 minutes before sunrise

-  **Research into bird populations** with the **Herdsmen Lake** Bird Banding Group. Contact Bill Rutherford (ABBBS Coordinator) on 0438 910 252 or calidris@iinet.net.au.

Saturdays 8am-9am

-  **Guided walks** with Friends of **Koondoola**. Second Saturday of each month. Meet Gate 2, corner of Koondoola and Burbridge Ave.

Saturdays 8am-9am

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

Saturdays 8.30am-10.30am

-  **Bushcare activities** with Friends of **Booragoon and Blue Gum Lakes**. First Saturday of each month. Contact Heather 9364 1739 or heja13@bigpond.com.

Saturdays 9am

-  **Bushcare activities** with Friends of **Brixton Street Wetlands**. Third Saturday of each month. Meet Alton St, Kenwick. Contact Regina 9459 2964 or tjdrd@bigpond.net.au.


Saturdays 1.30-3.30pm

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

Saturdays, Sundays 9am-12 noon

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

Sundays 9am-11am

-  **Work morning** with **Wilson Wetlands Action Group**. First and third Sunday of each month. Contact WWAG 9258 7301 or wilsonwetland@gmail.com.


Sundays 8am-9am

-  **Guided walks** with Friends of **Marangaroo**. Fourth Sunday of each month. Meet at Gate 3, Decourcy Way.


Sundays 8am-10am

-  **Bushcare activities** every Sunday with Friends of **Shenton Park Bushland**. Contact Dani 9381 3470 or bojel@it.net.au.

Sundays 8.30am

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

Sundays 8.30am-9.30am

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

Sundays 9am-11am

-  **Bushcare activities** with **Cottesloe Coastcare**. First Sunday of each month. Visit www.cottesloeacoastcare.org for details or contact Robyn on 9384 7668 or info@cottesloeacoastcare.org.

Sundays 9.45am-12 noon

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

Sundays 9am-12 noon

-  **Bushcare activities** with the Friends of the **Spectacles (Kwinana)**. Third Sunday of each month. Contact Lynda 9439 1928 or outback3@iinet.net.au.


Mondays 8.30am-10am

-  **Bushcare activities** with the Friends of **Mary Carroll Wetland (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 or Kristy 9526 0199.


Thursdays 9am-2pm

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


Thursdays 8.30am-11am

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

Conservation Volunteers activity schedule


-  Free one-day local activities or overnight country trips. Call Jodi 9335 2777 or visit www.conservationvolunteers.com.au.

Activities key

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

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

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

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

Highlights

Friday 27 December 2013–Saturday 18 January 2014

Valley of the Giants Tree Top Walk summer holiday activity program, Walpole. Wildlife of Denmark, bush survival crafts and fish dissections. Visit <http://parks.dpaw.wa.gov.au/whats-on>.

Sunday 26 January 6.30pm–9pm

Evening Song guided bird walk at Beelu National Park. Identification of birds, their songs and nests. Includes light supper. DPaW Nearer to Nature \$20 / \$18 members. Bookings 9295 2244.

Friday 31 January

WA Wetland Management Conference, Cockburn Wetlands Education Centre. \$60 per person (\$20 concession). Email denise@cockburnwetlands.org.au. Visit www.cockburnwetlands.org.au

24–27 February

Hydrology and Water Resources Symposium, Pan Pacific Hotel, Perth. Visit <http://www.hwrs2014.com/>.

17–19 March

National NRM Knowledge Conference, Launceston. Visit www.conference.nrmregionsaustralia.com.au/.

24–25 March (Introductory) and 26–27 March (Advanced)

Behaviour Change Workshops, Perth. Community-based social marketing with Doug McKenzie-Mohr. For those working to promote waste reduction, water and energy efficiency, conservation, modal transportation changes, catchment protection and other sustainable behaviour changes. Visit <https://ecocentrics.com.au/>.

18 April–18 May

Western Australian Heritage Festival will celebrate Australia's historic, natural and Aboriginal heritage. Visit <http://www.nationaltrust.org.au/wa/HeritageFestReg>.

20–21 May

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

26–29 May

16th Australasian Vertebrate Pest Conference, Brisbane. Held every three years will focus on management of vertebrate pest animals across the landscape. Visit www.avpc.net.au

1–4 September

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

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

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

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



Please send us your April, May and June 2014 events by Thursday 20 February 2014.

projectsnapshot

Continued from page 5...

Genetic analysis – seed sourcing for revegetation *By Tara Hopley*

Success of revegetation projects in the longer term will need to consider the impacts of climate change on species selection to provide an ecosystem with the resilience to face changing environmental conditions. Current practices of seed sourcing for revegetation projects focus on local seed based on a premise of maximising adaptation to local conditions and may not be most appropriate under changing climatic conditions. A more appropriate management strategy may be sourcing material from populations that potentially contain adaptations to the current and future conditions of the revegetation site rather than local seed which may have significant adaptations to historical local conditions. To maximize the potential of a species to adapt, the collection of seed for revegetation projects should consider sources from a broad range of climatically diverse locations. This is particularly important for species which are specialised in their environment, such as riparian species. DPaW will undertake the genetics component of the Warren and Donnelly Rivers revegetation project to assess vegetation communities adjacent to restoration sites and undertake climate modelling for selected species appropriate for revegetation. Selection of seed source populations will be determined through assessment of adaptive variation and population genetic structure for three species along the Warren River and its tributaries. Experimental plantings of seed collected from multiple populations along a climate gradient will be assessed for establishment and performance, to determine any effects of adaptation to drier environments on current performance of germplasm in revegetation projects.

Strategic Assessment of Perth and Peel

By David Mitchell

The State and Federal governments are continuing to undertake a strategic assessment of the Perth and Peel regions. It is assessing the impact of future development on matters of national environmental significance listed under the *Environment Protection and Biodiversity Conservation Act 1999*, and preparing strategic Environmental Protection Authority (EPA) advice on State environmental matters under the *Environmental Protection Act 1986*.

The strategic assessment and EPA advice provide the opportunity to avoid and mitigate the impact of future development at a strategic scale, and achieve long-term environmental outcomes.

A Stakeholder Reference Group (SRG) has been established to allow engagement with key stakeholder groups. The SRG includes representatives from peak bodies in environment, industry, land development and the local government sector.

Consultation forums in Perth and in the Peel region have been held to give an overview and update of the strategic assessment process, to provide opportunity for input of stakeholder expertise and views in advance of the formal public comment period, and to encourage early written submissions. Draft documentation relating to the strategic assessment is anticipated to be released in 2014 for public consultation. For more information on future forums and updates visit www.dpc.wa.gov.au/Consultation/StrategicAssessment/Pages/Default.aspx.

Local Biodiversity Program 2013 Mapping Viewer update

Western Australian Local Government Association's Local Biodiversity Program has released an updated version of a public mapping viewer designed to provide access to the results of local natural area prioritisation mapping for the Perth and Peel regions. The 2013 update is based on 2013 vegetation extent mapping, updates on threatened flora, fauna and ecological communities' records as well as land use layers.

To access the Regional Framework Mapping Viewer go to http://lbp.asn.au/index_public.html.

Read the instructions, including the Terms and Conditions, tick the box and press 'Enter the map viewer'. After login, a user guide and explanatory notes are available for downloading. To use the Mapping Viewer you will need to install JAVA and allow related pop-ups on your computer.

You will find information about biodiversity values for any selected area, like a local reserve or land proposed for rezoning including for example the area of various vegetation types represented, their retention and protection status, level of relative priority based on over 30 criteria, what environmental policy is relevant or which patches of remnant vegetation contribute to connectivity locally or regionally.

For further information please contact Local Biodiversity Program Manager, Renata Zelinova on 9213 2047 or email to rzelinova@walga.asn.au

Funding opportunities

The Coastal Management Plan Assistance Program (CMPAP) assists coastal land managers to develop coastal strategies, management plans or hazard risk management and adaptation plans for areas that are, or are predicted to become, under pressure from a variety of land uses and users. Eligible applicants include coastal local government authorities outside the Perth metropolitan and Peel area; Aboriginal corporations/ land councils with responsibilities for coastal land management; and regional coastal NRM organisations outside the Perth metropolitan and Peel area working in partnership with either of the two other eligible applicants. Up to \$50,000 available per project on a first-come first-served basis. Administered by the Department of Planning on behalf of the Western Australian Planning Commission. Visit www.planning.wa.gov.au/6857.asp.

SGIO Community Grants program offers community organisations grants to engage communities in on-ground activities that address local environmental issues and raise awareness about ways they can reduce their carbon emissions. There is \$500–\$5000 available per project. **Opens: 3 March. Closes: 31 March.** Visit www.communitygrantsprogram.com.au/sgio.

SJ Shire and Byford and Districts Community Bank Branch of Bendigo Bank Community Funding Program supports environmental restoration, developing new community organisations, equipment and courses. Funding up to \$1500. **Opens January 2014. Closes: 31 March 2014.** The **Locality Funding Program** will fund revegetation of public lands within the Shire. **Opens January 2014.** Call Community Services Team on 9526 1138.

Maida Vale Reserve gladdie grab *By Nicole O'Neill*

Two hours and 20 large garbage bags later not a single pink gladioli (*Gladiolus caryophyllaceus*) was left standing on Maida Vale Reserve. Twenty enthusiastic helpers including local community volunteers, politicians, TAFE workers and Shire of Kalamunda staff joined forces on 9 October 2013 to rid the Bush Forever site of the invasive weed.

Maida Vale Reserve is a Threatened Ecological Community in excellent condition and is one of only a few of this type left across the Swan Coastal Plain. The eradication of this invasive weed will help to

protect this unique and biodiverse natural habitat which is home to more than 200 plants and animals.

Each pink gladioli is capable of producing more than 500 seeds each year and hand pulling reduces the spread of the weed by interrupting seed dispersal, reduces the core population through the removal of the parent bulbs and also avoids the use of chemicals in an identified environmentally-sensitive area.

For more information and to be put on the gladdie grab event register for 2014 phone 9257 9999. Visit www.kalamunda.wa.gov.au.



Hon Ken Wyatt Federal Member for Hasluck, Nathan Morton State Member for Forrestfield, Shire of Kalamunda CEO Rhonda Hardy, environmental staff and community volunteers get in on the action at Maida Vale Reserve. Photo – Shire of Kalamunda

Dieback Treatment in Talbot Road Bushland *By Jaya Vaughan*

Volunteers helped to tackle the plant disease *Phytophthora dieback* in Talbot Road Bushland Conservation Area on 2 October 2013. Students from Edith Cowan University (ECU), Polytechnic West Midland, members of the public and surrounding community land care groups treated 5000 m² of banksia species in the reserve to help prevent the disease from spreading further into the bushland.

Phytophthora dieback (*Phytophthora cinnamomi*) is widespread in Talbot Road Bushland, however there are still some areas within the reserve that are free of the disease. Injecting phosphite into a tree is one way to control the spread and impact of the disease, by boosting a tree's natural defences and inhibiting the disease itself.

Volunteers treated a high proportion of the banksia species along the 'disease edge' by drilling small holes in the trunk of the tree and placing a syringe loaded with diluted phosphite into the hole. The syringes were left until the contents were taken up by the tree and later collected.

The event was organised by members of the EMRC's Eastern Hills Catchment Management Program with Bob Huston from DPaW and Kat Sambrooks from the Dieback Working Group assisting with training and materials.

For more information on dieback or future volunteering opportunities contact Jaya at jaya.vaughan@emrc.org.au or 9424 2276.

50 years of mark and recapture

Excerpts from *Tortoise Tales* newsletter 17 and 18.

The Friends of the Western Swamp Tortoise began nine years ago to help save Australia's most critically endangered reptile *Pseudemydura umbrina*. One of our primary purposes is to encourage the public to assist in western swamp tortoise recovery activities that move us towards a sustainable population in WA, and to complement the work of the Western Swamp Tortoise Recovery Team. Since our inception we have presented informative talks about the tortoise to approximately 8000 people, and held displays seen by many more. In addition we have worked with sponsors to broaden the message, and released more than 200 juvenile tortoises into the wild.

The Friends (and friends of Friends!) planted 1300 native plants during June and July 2013 on bare land previously infested with weeds, near the western gate of Ellen Brook Nature Reserve. The melaleuca shrubs and other vegetation will provide cover for the tortoises and help protect them from the attention of birds like ibis, ravens and raptors. It will also encourage invertebrates that will ultimately result in more aquatic food for the tortoises.

In September 2013 we celebrated 50 years of field study of the tortoise (mark and recapture) with a gathering at Ellen Brook Nature Reserve, and were able to see female number four (estimated to be at least 65 years of age) who started it all. Five individuals were first marked by Andrew Burbidge in September and October 1963 at Twin Swamps and Ellen Brook Nature Reserves. Mark and recapture studies have also been carried out since 2000 at Mogumber Nature Reserve.

For more information on any of the group's activities, contact Jan on 9344 2872 or 0408024800 or westernswamptortoise@yahoo.com.au. Visit www.westernswamptortoise.com.

Japanese pepper – The Lower Moore River Working Group experience *By Vic McCartin*

During more than a decade of work combatting Japanese pepper in Stephens Crescent Reserve in Guilderton, the Lower Moore River Working Group has trialled many control methods with varying success.

Initially, about 5000 Japanese peppers were removed by 10 volunteers, 10 Green Corps personnel, two Shire of Gingin trucks and drivers and one front end loader over two weeks. As trees were cut, a team painted the stumps with herbicide within 30 seconds of the cut. This method resulted in about a 70 per cent permanent kill and a high follow-up workload. In follow-up work by contractors, who didn't apply herbicide immediately (i.e. up to a five minute delay), there was a kill rate below 40 per cent.

We then trialled basal bark applications. Herbicide was mixed in diesel and the bark at the base of the tree was painted to a height of 50 cm. Initial applications resulted in 100 per cent kill where the tree is dead after four months, no regrowth after 12 months and a recheck at two years with no regrowth. The paint method was labour intensive and had a fairly high risk of splashing. Even though we insisted on the use of long pants, long sleeve shirts, goggles, nitrile gloves and face masks, the risk of contamination was a concern, especially as volunteers aged and became less agile! Another problem was disposal of leftover mix and the cleaning of equipment.

We now apply herbicide in diesel using a Hardi hand held spray pack with nitrile seals that are reasonably stable with long term diesel exposure, unlike the natural rubber seals in general sprayers. We also purchase undrilled jet blanks and drill them



Japanese pepper invading along the banks of the Lower Moore River. Photo – Kate Brown

ourselves to avoid chemical wastage from the larger commercially available jets. The long wand and hose keeps the operator well away from the stump and adds to the ease of application. With this method the clean-up has been greatly reduced to washing personal safety equipment and occasional wiping and washing of the spray equipment. Spray equipment is securely stored and then reused.

A review of our data showed the kill rate was directly linked to the time of application. If applied during the growing period, early spring to early summer, then 100 per cent kill resulted (we don't work during summer as it is too hot for our volunteers). If herbicide mix is applied during the dormant period the kill rate drops off to around 80 per cent.

For more information contact Vic on vpmc@bigpond.com.

BirdLife Australia's 2013 Great Cocky Count results are in

By Matt Fossey

The 2013 Great Cocky Count (GCC) of 5800 Carnaby's cockatoos (*Calyptorhynchus latirostris*) in the Swan Region was 44 per cent greater than 2012, but numbers are still down by 14 per cent on the 6700 birds recorded in 2010. The greater number of Carnaby's counted north of the Swan River is potentially due to parts of the Gnangara, Pinjar and Yanchep pine plantations being cleared, removing feeding and roosting habitat, and causing the cockatoos to move to coastal locations where they are more easily observed.

The 2013 results also show a change in how the cockies are utilising some of the best-monitored metropolitan roosts, with numbers fluctuating as birds arrive from the Wheatbelt and move from roost to roost. Confirmed roosts in regional areas will, in time, provide additional information on Carnaby's population changes beyond the Swan Region, providing a stronger estimate of overall trends.

Thank you to everyone that participated in the 2013 GCC. I'd also like to thank Tam Kabat, who did an outstanding job coordinating the 2012 and 2013 surveys and writing the technical reports. The full report and summary is available at <http://birdlife.org.au/media/future-looks-black-for-carnabys-cockatoos/>.

The 2014 GCC will be funded by Perth Region NRM and will take place on Sunday 6 April 2014. BirdLife Australia will appoint a new coordinator in January. New roost sites and roost count reports can be emailed to greatcockycount@birdlife.org.au. For other black-cockatoo related queries please contact Matt at matt.fossey@birdlife.org.au or 9287 2251.

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

Perth's vanishing ants

By Brian Heterick

When I tell people the bulk of my income comes from working with ants as bio-indicators of ecosystem health they sometimes say "there are only two sorts of ants in Perth – red and black." They are usually amazed when I tell them possibly more than 200 ant species make the Perth metropolitan area their home. Sadly, such uninformed comments may prove to be prophetic – and the tiny handful of ants that remain will be non-native introductions.

A 2011 project involving Curtin University staff and third year students catalogued the continuing demise of Perth's native ant fauna (Heterick, et al., 2013). A total of 26 ant species were found in gardens and lawns at 20 Perth properties. Of these, seven species were introduced exotics (mostly from overseas). Of a total of 19,918 specimens recorded during the project 71.7 per cent were exotics. The non-native big-headed ant (*Pheidole megacephala*) contributed a massive 59 per cent to the total number of specimens. All properties recorded at least one introduced ant species, and one property recorded no native ants at all. The maximum number of species collected on any one property was 11 (three of these exotics). When the results of the project were compared with similar surveys conducted in metropolitan Perth in the late 1990's (May and Heterick, 2000; Heterick et al., 2000), native ants of at least five genera collected in the two earlier studies were found to be absent from the 2011 survey. In an even earlier Curtin-based research project (Majer and Brown, 1986), the big-headed ant was not even mentioned.

Concurrent with the garden ant project, ant fauna of rehabilitated native revegetation areas along the Kwinana Freeway were surveyed. A much healthier tally of 56 species, with only two exotics, was recorded from the freeway study. Moreover, the abundance of non-native ants was only 129 out of 6558 specimens (two per cent of the total). The studies indicate that large areas of native vegetation with shelter (e.g. logs and stones) for nests are essential to maintaining viable populations of native ants.



*One major and many minor caste workers of the big-headed/coastal brown ant (*Pheidole megacephala). This species is found in the lawns and brick paving of Perth's urban areas. Photo – Pia Scanlon (WA Department of Agriculture and Food)*



Nests of the big-headed ant. Photo – Marc Widmer (WA Department of Agriculture and Food)

Conversely, a small, largely in-filled area dominated by a monoculture of non-native vegetation (e.g. exotic grasses) that is subject to reticulation encourages humidity-loving exotic ants.

What can we do?

The lifestyle we are encouraging is one of smaller properties with a trend towards high-rise. This will continue to result in the decimation of native ants and other fauna that has somehow survived in Perth suburbia up to the present. However, we can still push for green space along urban corridors, and for bushland to be retained in parks in developing suburbs. On our own properties we can plant natives on what frontage we have in order to give at least a few of our largely harmless native ants a home and keep exotic ant pests out.



The embankment to the right of the Berrigan Road exit off the Kwinana Freeway was one of the areas used for the ant study. Photo – Brian Heterick

More information

Heterick BE, Casella J and Majer JD (2000) Influence of Argentine and Coastal Brown Ant (Hymenoptera: Formicidae) invasions on ant communities in Perth gardens, Western Australia. *Urban Ecosystems* 4: 277-292.

Heterick BE, Lythe M, and Smithyman C (2013) Urbanisation factors impacting on ant (Hymenoptera: Formicidae) biodiversity in the Perth metropolitan area, Western Australia: two case studies *Urban Ecosystems* 16: 145-173.

Majer JD and Brown KR (1986) The effects of Urbanisation on the ant fauna of the Swan Coastal Plain near Perth, Western Australia. *Journal of the Royal Society of Western Australia* 69 (1): 13-17.

May JE and Heterick BE (2000) Effects of the coastal brown ant, *Pheidole megacephala* (Fabricius), on the ant fauna of the Perth metropolitan region, Western Australia. *Pacific Conservation Biology* 6: 81-85.

Friends of Mary Carroll Wetland By Unice Robinson and 'Friends'



View of Mary Carroll Lake Wetlands from the causeway near the car park in Eudoria Street, Gosnells. Three islands create flora and fauna refuges. Photo – Unice Robinson



Ket (left) and Shae with dead Japanese pepper which they had cut and stacked ready for removal from this year's SALP rehabilitation site. Photo – Unice Robinson

The Friends of Mary Carroll Wetland (formerly Mary Carroll Lake) began as a small weeding group in the late 1970s to address the deteriorating condition of the bushland. With support from the City of Gosnells the Friends started to learn how to rehabilitate and maintain the natural environment.

The area now known as Mary Carroll Park Wetlands was historically cleared and used for vegetable growing, a nursery and as a dump. In 1971 the City of Gosnells (City) named the area Mary Carroll Park. In 1983 the Environmental Protection Authority recommended it as a Conservation Reserve in its System 6 report. The City fenced the mud flats and Melaleuca Swamp as a bird sanctuary and in 1992 produced a management plan for the area. Today, the bushland and lake is protected (Bush Forever Site 124) and rehabilitation is occurring in and around the lake. The area supports a wide range of waterbirds and is a refuge for reptiles, frogs, invertebrates and oblong/long-necked turtles.

Our activities focus on weed control (hand-weeding and woody weed removal e.g. Japanese pepper and fig), planting and seed collection. Five of us grow native seedlings (e.g. sedges) in our backyards. Weekly 'Adopt a Spot' rubbish clean ups are supplemented by regular walkers that carry a couple of plastic bags to fill with rubbish. The City now removes large dumpings within 24 hours and responds quickly to reported vandalism and graffiti. We also focus on community education through displays, stalls, quarterly 'Eco Walks and Talks', 'Yellow Fish' drain stencilling and planting days.

Working with others

No group can stand alone and we feel we can achieve more when we work together with others – and it's a great feeling to be involved in more than just your little area. We collect information on oblong turtles (*Chelodina oblonga*) for Turtle Watch. We used to regularly see and assist turtles across Eudoria Street and residents would tell us of nesting turtles, however we rarely see a turtle these days. One of our highlights was a fund-raising morning tea for Turtle Oblonga Rescue and Rehabilitation Network Inc. Wow – what a great group! They assisted in revising our turtle information sheet and we are all amazed at what they are achieving.

We also collect seed (e.g. marri) for local schools to germinate and grow, and then students bring the seedlings back to plant. This year we planted more than 5000 seedlings in and around the Lake assisted by schools, guides, scouts, Eco Jobs, Conservation Volunteers, the City, Armadale Gosnells Landcare Group and South East Regional Centre for Urban Landcare. We were approached by groups to plant this year, so next year we will organise one community planting and leave groups to plant the rest. Seedlings and site preparation was funded by NRM and SALP grant funding, the City and also by the Friends growing seedlings.



Monitoring

Monitoring is an important part of not only enjoying the beauty of the lake, but also assessing whether our on-site work is improving and maintaining biodiversity. We report sightings of black cockatoos as part of Birdlife Australia's snapshots. Regular bird watching tells us bird species, migratory movements (dependent upon water depth) and what plants are required in the rehabilitation areas. During the past five years we have observed 39 species of waterbirds and 47 species of bush/song birds. Macro-invertebrate testing gives us a snapshot on water quality in the lake and any changes in and near rehabilitated areas.

Take time to enjoy

The Friends all enjoy creating a great place for our wildlife to live in and it is important for the wellbeing of any group to take the time to discuss achievements, laugh and relax with a cuppa. We currently have 35 registered members and 10 associated groups. Usually one to five volunteers attends our regular Monday work morning (8.30am–10am) but our numbers swell to 20 on special work days. We work a little, chat a lot and observe nature. We keep in contact with members by email, mail, newsletters and Facebook. For more information contact Unice 0434 831 230 or unicerobinson@gmail.com.

Resources

New publications

Australian ant-plants: amazing relationships with insects 2012 Kapitany, Attila and Derrick Rowe. Kapitany Concepts. 20pp. RRP: \$15.

This booklet covers the Australian (epiphytic) ant-plants which have developed close mutually beneficial relationships with ants (e.g. providing readymade homes within hollow stems or leaves).



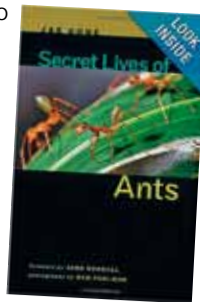
Secret lives of ants 2012

Choe, J and Perlman, D.

John Hopkins University Press

Baltimore. RRP: \$35 One of the most important

animals on earth, ants seem to mirror the actions, emotions, and industries of the human population. Choe combines scientific knowledge with illustrations and photographs to introduce readers to the economics, culture, and intrigue of the ant world.



Carnaby's Black-Cockatoo

and your farm 2013 Birdlife Australia.

Launched in November and distributed to farmers across the range of the species, this 16-page booklet promotes actions that will help the cockatoos to survive across farming landscapes (habitat, bushland protection, increasing nesting hollows). Funded by South Coast NRM via the Federal Caring for our Country program.

Email matt.fossey@birdlife.org.au.

Recent research

Valentine LE, Anderson H, Hardy G and Fleming PA 2013 Foraging activity by the southern brown bandicoot (*Isodon obesulus*) as a mechanism for soil turnover. *Australian Journal of Zoology*, 60(6): 419-423.

Renton M, Childs S, Standish R and Shackelford N 2012 Plant migration and persistence under climate change in fragmented landscapes: Does it depend on the key point of vulnerability within the lifecycle? *Ecological Modelling* 249: 50-58.

Website watch

Ecological Management and Restoration

website contains short summaries on ecosystem rehabilitation or restoration projects in Australia that are showing good or promising results. Visit <http://site.emrprojectsummaries.org/>.

Whadjuk Trail Network website contains

walking trails that lay on Noongar land, connecting remnant bushland areas in the western suburbs of Perth. Includes maps, links to apps, information and Noongar stories. Visit <http://www.whadjukwalkingtrails.org.au/>.

Apps

EveryTrail App contains travel information and user experiences from more than 80 countries. DPaw has uploaded 41 WA park guides which include photos, map, descriptions and points of interest. Once at the park, users can track and share their journey and add photos in real-time for future visitors. Users don't need mobile reception to access stored guides. Visit www.everytrail.com/partner/dec.



Are your details correct?

Please check your mailing details and let us know if we need to change anything by phoning us on 9442 0322. If you'd prefer to receive this newsletter electronically, send an email entitled 'email me' to urban.nature@dpaw.wa.gov.au

