



Bush Forever sites to benefit from funding

By Mark Garkaklis

THE RECENTLY announced *Saving Our Species Biodiversity Conservation Initiative 2006-07* has provided funds to create a *Bush Forever* crew to carry out conservation works at a number of *Bush Forever* sites around Perth.

The project will deliver much-needed on-ground outcomes and provide opportunities for the demonstration of collaborative conservation works in the metropolitan area. The *Bush Forever* crew funding will aid in delivering the *Bush Forever* program in-line with community expectations.

A project officer and works crew have been employed and are based at the Department of Environment and Conservation's (DEC's) Swan Coastal District. With advice provided by Urban Nature, the *Bush Forever* crew has already begun works at a number of sites such as Leda Nature Reserve (Town of Kwinana), Watkins Road Bushland (Shire of Serpentine-Jarrahdale) and Brixton Street Wetlands (City of Gosnells). Works to date include weed mapping and control, fence installation and repair, track maintenance, access control and rubbish removal.

The *Bush Forever* crew and Urban Nature team have been negotiating with community and stakeholder groups (including liaising with Friends groups through the Urban Bushland Council) to identify other *Bush Forever* sites in need of urgent on-ground works. DEC officers are currently working with other departments involved in the *Bush Forever* program to identify specific works, and to allow access to sites not vested in the Conservation Commission of Western Australia. This includes local government managed and privately owned *Bush Forever* sites. Important *Bush Forever* sites that will soon receive the benefit of funding include Burns Beach Bushland (City of Joondalup) and Lambert Lane



Pulling Geraldton carnation weed from Burns Beach as part of the Saving Our Species project. Photos – Brian Inglis

Bushland in Wungong (City of Armadale).

The Saving Our Species program will provide funding over the next two years to address critical biodiversity conservation issues in WA. A series of project themes and a number of specific priority projects have been identified, reflecting government and departmental priorities, including pest animal and weed control, *Phytophthora* dieback management, biological survey, research and taxonomy,

conservation of threatened species and ecological communities, and continuing the State's cane toad initiative.



With successful outcomes for 2006-07, it is hoped that the *Bush Forever* crew will receive additional funding for the 2007-08 financial year.

For more information on the project contact Mark Garkaklis on 9423 2909 or by email mark.garkaklis@dec.wa.gov.au.

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Summer 2007

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Ecoplan News is a quarterly newsletter of Urban Nature, a Department of Environment and Conservation program to support community involvement in bushland conservation.

The Department of Conservation and Land Management merged with the Department of Environment, forming the new Department of Environment and Conservation (DEC) on 1 July 2006.

Urban Nature UPDATE

DEC's Swan Region, including Urban Nature, has moved! Please note our new details in the 'contacts' box below. Despite the move, spring activities continued. We monitored the regeneration of native plant communities at a series of restoration sites including Meelon Nature Reserve, Brixton Street Wetlands, along the Serpentine River at 'Lowlands', and at Paganoni Swamp. A series of weed management trials also continued, including work on black flag, Geraldton carnation weed, and *Watsonia*.

We have had some changes to Urban Nature staff. Karen Sanders has transferred to another role in the department, leaving the Urban Nature Coordinator position vacant (the Coordinator position will be advertised soon).

Karen Bettink is now working on a Swan Catchment Council (SCC) funded weed project, and Joanne Gomersall joins Urban Nature after being transferred from the previous Department of Environment (Swan Catchment Centre) as part of the formation of the DEC. Joanne will continue the role she held with the Swan Catchment Centre in the delivering the Skills for Nature Conservation program, and assisting to deliver the Urban Nature program. The Skills for Nature Conservation (SFNC) program will continue to provide an interesting and diverse range of training and awareness workshops. Greening Australia (WA), Urban Nature and SCC have begun planning the 2007 SFNC program (look out for the SFNC calendar in March 2007). The Urban Nature team will also offer a program of courses and training days, with ongoing field trials and research in 2007.

Knowing and managing native and introduced grasses

There is increasing recognition that native grasses are important components of many Australian ecosystems. However, unless you are an expert, native grasses are easily confused with the weedy grasses or grass look-alikes. The SFNC workshop on grasses, held at the Shire of Mundaring's civic area in November, introduced participants to the amazing and complicated world of grasses.

Diana Corbyn (Challenger TAFE) used her *Hitchhiker's Guide to the Grasses* to introduce participants to the basic characteristics and terminology used to describe grasses. Practical identification sessions for both native and introduced grasses used interactive computer and written taxonomic keys, field guides and herbarium specimens. In the afternoon, participants joined Una Bell (WA Herbarium volunteer) for a guided walk to identify native grasses in the field. See *Econotes on native grasses* (page 4).



Identifying local native grasses with Una Bell at the SFNC workshop. Photo – Kate Brown

Managing weeds in bushland



Plant identification session at the 'Managing Weeds in Bushland' course. Photo – Kate Brown

In October 2006 Urban Nature and DEC's training centre ran the 'Managing Weeds in Bushland' course. The week-long course has national accreditation and covers recognition and identification of serious environmental weeds, and up-to-date management techniques. A major component involves visiting and learning about weed management at a number of demonstration sites including Talbot Road Bushland, Shenton Bushland and Gingin Brook. In the past, participation in this course has been restricted to DEC staff, but this year we were able to provide six places for local government officers.

Autumn Ecoplan News

Autumn *Ecoplan News* contributions should be sent to Urban Nature by Thursday **1 March 2007**.

Compiled and edited by Jo Tregonning.

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Previous issues of *Ecoplan News* available at <http://www.naturebase.net/content/view/445/1075/>

WEEDWATCH:

Wavy gladiolus (*Gladiolus undulatus*)

By Kate Brown, Bushland Management Advisor, Urban Nature

WAVY gladiolus was introduced as a garden plant to south-west Australia from the Cape Province of South Africa. First recorded as naturalised in WA during the 1940s and 1950s, it is now a serious weed of bushland and wetlands on winter wet soils from Perth to Albany.

Wavy gladiolus is a geophyte (plants that arise from bulbs, corms, tubers or rhizomes). It is often confused with long-tubed painted lady (*G. angustus*), which flowers in spring and has red markings on the petals. Conversely, wavy gladiolus flowers in summer and has white petals with wavy margins. Although the two species can be difficult to tell apart when they are not flowering, it is worth noting that wavy gladiolus produces a large number of cormels (tiny corms) annually as the old corm exhausts. Long-tubed painted lady rarely does this.

Implications for control

The recommended time for herbicide control for most of our cormous invasive species in the south-west is just on flowering, as this coincides with exhaustion of the parent corm. Wavy gladiolus is an interesting exception. It flowers four months after the parent corm has broken down so herbicide control is likely to be most effective in late winter, long before flowering. At this time the cormels are only just starting to develop and are also vulnerable to herbicide treatment.



Flowering wavy gladiolus growing among sedges at Bennet Brook. Photo – Kate Brown

Lifecycle

The lifecycle of wavy gladiolus, outlined below, is slightly different to other introduced cormous species.

Autumn – With the first autumn rains the parent corm and some of the hundreds of tiny cormels that have remained dormant over summer begin actively growing.

Winter – As the plant grows a new corm begins to develop at the base of the new stem and above the old corm. As the old corm shrivels it starts to produce a new generation of tiny cormels.

Spring – The new corm completes development. As the old corm breaks down the cormels reach maturity.

Summer – Flowers are produced in early summer but in south-west WA do not go on to produce viable seed.*



Annual life-cycle of wavy gladiolus (*Gladiolus undulatus*) in (a) autumn, (b) winter, (c) spring, and (d) summer. Photos – Kate Brown

* Similarly some other members of the Iridaceae that produce prolific amounts of cormels are also not known to produce viable seed. One-leaf cape tulip is an example.

Fire – a window of opportunity?

A wildfire that occurred along Bennett Brook in January 2005 during a study to control wavy gladiolus, provided an unexpected opportunity to gather information on how the species responds to fire. In untreated areas, fire killed around half the adult plants and resulted in a five-fold increase in the number of juveniles (from sprouting of cormels).

With fire killing a significant number of adult plants and releasing large numbers of juveniles from dormancy, conditions were ideal for implementing a control program. In addition, the fire destroyed native vegetation cover, making targeted herbicide application feasible.

Unfortunately high rainfall in the autumn and winter of 2005 meant it was not possible to access the study site and take advantage of the post-fire conditions. In dryer years post-fire control in the growing season immediately following fire would be an option for very effective control of this wetland invader.

Acknowledgements

Work on wavy gladiolus along Bennett Brook was funded from a DEC Wetland Conservation Grant. Joe Wallace from Whiteman Park Authority assisted with field work.

ECONOTES:

Bringing back our native grasses

By Una Bell

NATIVE grasses form part of many different ecosystems and provide food and habitat for fauna. Learning to recognise local native grasses and implement effective weed control programs will assist with natural regeneration and spread of native grasses in your bushland, or allow for their reintroduction.

Approximately 140 species of native grasses, which are those that were here before European settlement, occur in south-west WA. They can be found growing in upland bushland, wetlands, along creeks and estuaries, degraded areas, as well as some species being salt-tolerant. Wallaby grass (*Austrodanthonia* spp.), stipa or speargrass (*Austrostipa* spp.) and kangaroo grass (*Themeda triandra*) are probably the best-known native grasses. Foxtail mulga grass (*Neurachne alopecuroidea*) is another common native grass. Some, such as weeping grass (*Microlaena stipoides*), have a rice-like grain and will even form a lawn in the right conditions. Clustered lovegrass (*Eragrostis elongata*) grows in the fringing wetland, while swamp wallaby grass (*Amphibromus nervosus*) grows in swamps.

What is a grass?

Grasses are members of the Poaceae family. Most native grasses are perennial but some are annual, and may be winter or summer active. They have several distinguishing features which usually include a:

- seed head (or inflorescence) containing spikelets which have a pair of outer bracts (glumes), and a pair of inner bracts (lemma and palea) which protect the developing grain;
- rounded stem with nodes;
- leaf that consists of a blade with parallel veins;
- ligule at the junction of the leaf-sheath and leaf-blade;

- split leaf-sheath; and
- fibrous root system (may also have rhizomes and stolons).

Encouraging native grasses in bushland

Unfortunately native grasses don't come with a 'Made in Australia' tag and identification can be difficult. Attend a native grass workshop, go on a 'grass walk' and use the many resources available. Do not weed or remove a grass if you cannot recognise it.

Many native grasses are easy to grow from seed or other methods, but provenance is important. Do not import grasses or seed from outside of your local area for bush-care or horticultural use. Local native grasses are best-suited to local conditions, and they can have features unique to their growing locality. Native grasses are part of our incredible biodiversity, so learn to recognise and appreciate them.



Native grasses (wallaby grass and stipa) at St Andrew's Church, Greenhills, in the Avon Valley. Illustration and Photo – Una Bell



Native grasses (left to right): kangaroo grass (*Themeda triandra*), soft stipa (*Austrostipa mollis*) and common wallaby grass (*Austrodanthonia caespitosa*).

Resources

Bell, U. (2004) *Guide to Native Grasses in the Perth Hills*. Second edition. Available from Wildflower Society of WA (Inc).

Bell, U. (2004) *Native Grasses in the Perth Region*. Available from Wildflower Society of WA (Inc).

Common Native Grasses of Southwest WA and Wetland Native Grasses of Southwest WA. (2006) Shire of Mundaring. Posters available from reception desk at the WA Herbarium (pick-up only).

Flora of Australia. Vols 43 and 44B: Poaceae.

Hussey, B.M.J. et al. (1997) *Western Weeds*. Plant Protection Society of W.A.

FloraBase at www.naturebase.net/florabase.

Ausgrass: Grasses of Australia. CD Rom.

Ecological linkages – the future of our urban fauna

By Dr Robert Davis, The University of Western Australia (UWA)

With Australia's population projected to hit 28 million in 50 years, there will be increasing pressure on urban wildlife populations as settlement encroaches on remaining fauna habitats.

The *Ecological Linkages* project is a new research initiative through an NHT funded Swan Catchment Council program that is being undertaken by the UWA. It aims to investigate the impact of habitat loss and fragmentation on fauna in the urban environment. One of the primary objectives is to determine which species are most at risk from urbanisation in the Swan Catchment region, and to develop strategies for restoring connectivity. These measures will assist in maintaining the long-term viability of populations.

This research will review existing studies, undertake a survey of expert opinion and complete detailed analyses of several large datasets on birds, to determine species most at risk from habitat isolation and fragmentation. The splendid fairy wren, for example, is thought to need a bushland area of 2000 hectares or greater, to survive for 100 years. This has major implications for the survival of this species near Perth, given that there are virtually no remnants of this size left in the highly developed sections of the Swan Coastal Plain.

For project information contact Robert on 6488 1361, email rob@graduate.uwa.edu.au, or visit www.animals.uwa.edu.au/home/staff.

Woodland Decline Symposium

The chronic decline in tuart woodlands between Mandurah and Preston Beach, and in wandoo woodlands from the Darling Scarp through to the Wheatbelt, was discussed at a symposium in Mandurah on 9 November 2006.

The symposium saw more than 300 researchers, community members and representatives from industry, State and local government meet to discuss the management implications of research findings. The then Environment Minister Mark McGowan said the underlying reasons for this decline are not clear but may be caused by fungal diseases, lack of water or nutrients, a change in fire management or changes in the ecological balance of native insects and their predators. He also said the symposium represented an important milestone in understanding woodland decline and how it could be addressed.

For more information, contact Liz Manning 0427 441 482 or Paul Barber 9360 2605.

New Carnaby's black-cockatoo South Coast project

Birds Australia WA has a new project on WA's south-coast.

The *Carnaby's Black-Cockatoo*

Recovery Project was successful in acquiring funding from the South Coast Regional Initiative Planning Team to employ a project officer based in Albany.

The project aims to identify the Carnaby's black-cockatoo's habitat, feeding and nesting areas, and to work with the community on protecting and increasing the habitat available for these endangered birds.

Contact Raana Scott at r.scott@birdsaustralia.com.au or call the Birds Australia WA office on 9383 7749 for more information.



Birds Australia
CONSERVATION THROUGH KNOWLEDGE



2007 Conservation Council of WA – Conservation Awards

Created to recognise the community conservation sector and all the amazing work that they do the Conservation Council's Conservation Awards reward people in the environment movement whose passion and dedication have contributed to the protection of our precious environment—they are our conservation heroes. Nominations in three categories for the 2007 awards open in January. Visit www.conservationwa.asn.au or call 9420 7266 for further details.



CONSERVATION COUNCIL
OF WESTERN AUSTRALIA INC.

2007 Banksia Environmental Awards program 'Solutions Through Convergence'

For 19 years the Banksia Foundation has been bringing people together from the environmental arena, and motivating and inspiring award recipients and others to continue their work, to generate new possibilities and create even greater momentum. Through convergence we can find synergy to accomplish together what could not be done separately—solutions to the issues that face us today and in the future. The three categories for the 2007 awards are now open. Visit www.banksiafdn.com for further details.



Draft Biodiversity Strategy released for public comment

The draft *A 100-year Biodiversity Conservation Strategy for Western Australia: Blueprint to the Bicentenary in 2029* is for public comment until 2 March 2007. Copies of the strategy are available at www.naturebase.net.

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

January


-  **14 Sunday 9am–11.30am**
The wonder of waders guided walk along the Swan River. Contact **N2N**.
-  **18 Thursday 8am**
Bird watching excursion with Birds Australia at Pelican Point, Crawley. Meet at west entrance of the reserve, end of Australia II Dr, off Hackett Dr, Crawley. Leader: Max. Contact **BA**.
-  **20 Saturday 8am**
Guided nature walk at Lake Gwelup. Call **FLG**.
-  **20 Saturday 9am–12 noon**
Activity day at Brixton Street Wetlands. Call **FBSW**.
-  **21 Sunday 7.30am**
Bird watching excursion with Birds Australia at Lake Joondalup. Meet at Neil Hawkins Park car park at the end of Boas Ave. Leader: Tom. Contact **BA**.
-  **21 Sunday 10.30am–4.30pm**
Canoeing the Colonial Canning and talk about the river's use during the timber tramway days. Contact **N2N**.
-  **27 Saturday 7.15–9.30pm**
Twilight walk at Karakamia Sanctuary guided by Australian Wildlife Conservancy. Contact **N2N**.
-  **28 Sunday 11.30am–12.30pm and 1.30–2.30pm**
Legends in Limestone at Boomerang Gorge, Yanchep National Park. Discover amazing facts about limestone formations and ageing. Contact **N2N**.


February

-  **11 Sunday 7.30am**
Bird watching excursion with Birds Australia at Alfred Cove, Melville. Meet at Troy Park carpark, off Burke Dr, Attadale (by the radio mast). Leader: Sue. Contact **BA**.

 **13 Tuesday 8pm**
Root Adaptations – A New Look at an Ancient Flora by Prof. Hans Lambers with Wildflower Society of WA (Perth Branch), Subiaco Community Centre, 203 Bagot Rd. Call Karen 9342 8482.

 **14 Wednesday 8am**
Bird watching excursion with Birds Australia at Garvey Park, Ascot. Meet at rowing club carpark, western end of Fauntleroy Ave, off Great Eastern Highway. Leader: Hank. Contact **BA**.


 **17 Saturday 9am–12 noon**
Activity day at Brixton Street Wetlands. Call **FBSW**.

 **17 Saturday 8am**
Guided nature walk at Lake Gwelup. Call **FLG**.

 **20 Tuesday 7–9pm**
Safety Risk Management workshop covering occupational health and safety aspects of working in the bush. Exhibition Room, Kalamunda Library, Williams St, Kalamunda. Contact **BSFH**.

 **24 Saturday 2–5pm**
Guest speakers and AGM of Environmental Weeds Action Network (EWAN). Venue TBA. Contact Diane 9457 2896 or gdmatthews@ozemail.com.au.

 **25 Sunday 2pm**
Decline of tuart trees presented by Vanda at the Friends of Trigg Bushland's AGM. Henderson Resource Centre, Groat St, North Beach. Call Phylis 9349 9105.

 **25 Sunday 8.30–10.30am**
Seed collection of melaleucas, allocasuarinas and banksias. Contact **FKP**.


 **27 Tuesday**
Guided walk at Paganoni Bushland. Call Leonie 9537 1831.

March

 **6 Tuesday 7.30pm**
Guest speaker Dr Neale Bougher

presents 2006 fungi survey report. Urban Bushland Council AGM. Meet at Lotteries House, 2 Delhi St, West Perth. Call Renata 9420 7207.

 **11 Sunday 8.30–10.30am**
Woody weed removal. Saw Ave, Kings Park. Contact **FKP**.

 **13 Tuesday 8pm**
Water-wise gardening in Perth – experiences of Branch members. Wildflower Society of WA (Perth Branch). Subiaco Community Centre, 203 Bagot Rd. Call Karen 9342 8482.


 **17 Saturday 9am–12 noon**
Activity day at Brixton Street Wetlands. Call **FBSW**.

 **17 Saturday 8am**
Guided nature walk at Lake Gwelup. Call **FLG**.


 **18 Sunday 8.30am–12noon**
Friends of Kings Park native plant sale. Lawn near Kings Park glasshouse. Prices \$3–\$6, profits to Kings Park research and projects. Plant species listed week prior at www.bgpa.wa.gov.au.

 **22 Thursday 9.30am**
Bird watching excursion with Birds Australia at Heirisson Island. Meet at Heirisson Island car park that can only be entered when travelling from the city on the left-hand side of the causeway. Leader: Robina. Contact **BA**.

 **24 Saturday 9am–12 noon**
Action planning workshop for bushland management strategies. Scout Hall, Ledger Road Reserve, Ledger Rd, Kalamunda. Contact **BSFH**.

 **25 Sunday 7.30am**
Bird watching excursion with Birds Australia at Bibra Lake, Cockburn. Meet at first carpark, northern end of the lake off Progress Dr. Leader: Wynton. Contact **BA**.

 **25 Sunday 8.30–10.30am**
Weeding rehabilitation site, Kings Park Swan and Balga carpark. Contact **FKP**.

 **27 Tuesday**
Guided walk at Paganoni Bushland. Call Leonie 9537 1831.

Highlights

2 February Friday
Wetland Management Conference 'Wetlands and Fisheries'. Cockburn Wetlands Education Centre, Bibra Lake. Program details and registration contact Denise 9417 8460 or wetlands@iinet.net.au.

2 February Friday
World Wetlands Day marks the signing of the Convention on Wetlands in the Iranian city of Ramsar on 2 February 1971.

17 March 12 noon–6pm Saturday
ENVIROFEST 2007 welcomes LITTLE HANDS. Piney Lakes Environmental Education Centre, Winthrop. Promoting sustainability and the environment. Stalls, displays, wildlife exhibits, presentations, entertainment, activities and food. Contact Matt Marrison 9364 0790 or email mmarrison@melville.wa.gov.au.

17–18 March
Conservation Council of WA State Conference. Visit www.conservationwa.asn.au or phone 9420 7266 for more details.

17–25 March
Conservation Week. Contact Jessie at the Conservation Council of WA 9420 7266 or clo@conservationwa.asn.au.

24–25 March 10am–4pm
9th Western Australian Environment Festival 'Our Place Our Planet' Naragebup Rockingham Regional Environment Centre, Safety Bay. Call 9591 3077.

30 March Friday 9.30am–2.30pm
Earth Day Expo 2007 Edith Cowan University, Mount Lawley. Activities for primary school children promoting sustainable living. Sausage sizzle provided. To register your 40-minute activity, bookings or to sponsor the event contact Jennifer j.pearson@ecu.edu.au.

2–5 September 2007
11th International Mediterranean Ecosystems Conference – MEDECOS XI. Perth, Western Australia. Visit www.medecosxi2007.com.au or email the organising committee on medecosxi2007@bgpa.wa.gov.au.

9–13 September 2007
Seed Ecology II: Second International Society for Seed Science Meeting. Visit www.seedecology2007.com.au.

Please send us your April, May and June events by 1 March 2007.

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.

REGISTRATION/CONTACT DETAILS – Organisations providing a series of activities:

- | | | |
|---|---|---|
| <p>BA Birds Australia WA
167 Perry Lakes Dr, Floreat. Contact 9383 7749 or mail@birdswa.com.au.</p> <p>BSFH Bush Skills for the Hills
offers free hills-focused workshops. Contact Robbie 9424 2216 or roberta.circosta@emrc.org.au.</p> | <p>N2N Nearer to Nature DEC.
Affordable prices for all activities. Bookings 9295 2244 or visit www.naturebase.net/nearer-tonature.</p> <p>FLG Friends of Lake Gwelup.
Meet at Scout Hall carpark Huntriss Rd, Gwelup. Call Betty 9444 5640.</p> | <p>FBSW Friends of Brixton Street Wetlands. Meet at Alton St, Kenwick. Call Regina 9459 2964.</p> <p>FKP Friends of Kings Park Weekend Bushland Carers Program. Meet at Kings Park Administration. Morning tea provided. To become a member and volunteer contact Jo 9480 3643 or via email jwalker@bgpa.wa.gov.au.</p> |
|---|---|---|

Funding opportunities



Ground-Works invites tenders for on-ground NRM activities in south-west

Private landholders, groups and local governments with experience in environmental management programs are encouraged to work together to bid for large projects that will produce multiple benefits across the landscape, such as improvements in water quality, biodiversity and soil health. Possible activities could include fencing native vegetation/waterways; revegetation; feral plant, animal and disease control; salinity containment; dune stabilization; and NRM improvements to agricultural lands.

Round 1 closes 15 February. Round 2 opens July 2007.

Information and application forms are available from:

- Swan Coastal Plain and Western Jarrah Forests area contact Carol Bryant on 9525 5786 or email carol@landcaresj.com.au;
- Lower south-west, Warren or Wheatbelt-Woolbelt area contact Nerilee Boshammer on 9765 1555 or email nerileeb@westnet.com.au.

Education for Sustainable Development Grants round open

Grant guidelines and application form available at www.deh.gov.au/education/programs/index.html.

NRM Education Small Grants Scheme for south-west region

NHT2 grants up to \$10,000 to support existing activities or develop new natural resource management education programs. Available until mid-2008. Administered by the South West Catchments Council. Contact Caroline Hatherly on 9780 6179 or email chatherly@agric.wa.gov.au.

Australian Government NHT Envirofund Round 9 opens February 2007.



Community groups and individuals can apply for grants of up to \$50,000 (GST inclusive) to undertake local projects aimed at conserving biodiversity and promoting sustainable resource use. To register, visit www.nht.gov.au/envirofund/index.html.

Healthy Wetland Habitats

Management assistance for landholders managing wetlands on the Swan Coastal Plain

Healthy Wetland Habitats is a program that provides technical and financial support to landholders who care for wetlands on the Swan Coastal Plain. It also assists landholders develop management action plans, which identify on-ground activities such as fencing and weed control, that helps to protect and conserve wetlands in the long-term. Once the plan is endorsed by the technical advisory committee, landholders can access funding of up to \$10,000 to carry-out activities identified in the plan. Pre-existing management plans may also be endorsed by this committee. Contact DEC's Anthea Jones on 9334 0570.

Learning opportunities

Catchments, Corridors and Coasts Program 17-19 January 2007

The *Catchments, Corridors and Coasts Program* provides resources and details of groups working on environmental and sustainability issues, and a take-home toolkit which can be linked to the WA School Curriculum. It is presented by the Australian Association for Environmental Education (AAEE). Registration: \$187 concession; AAEE member \$220; non-member \$275; State Government employee \$330. For program details go to www.mggraphics.com.au/aaeewa/cc.html. To register contact Catherine Baudains on 9360 6393 or email c.baudains@murdoch.edu.au.

regional reports

Grant to celebrate Perth's bushland

By Renata Zelinova

The Urban Bushland Council (UBC) successfully applied for a \$3300 Australia Post-Landcare Community Development Grant. Funds enabled the printing of a poster, two postcards, and a free bus trip showcasing some of the special bushland areas in Perth. The poster and postcards aim to raise awareness about the values of bushland and trees in the city, and are

available from the UBC office.

On 2 December, more than 40 people joined the UBC to celebrate the beauty of Perth's bushland at Mt Henry Peninsula. Jan King from the Friends of Mt Henry Peninsula led the walk through the heritage-listed privately-owned bushland. The Friends group is supported in its bush regeneration efforts by Aquinas College and the City of South Perth.

The walk, featuring a young osprey in its nest, was followed by a launch by Giz Watson (MLC) of the two new postcards.

Contact Renata (Monday and Thursday) on 9420 7207.





Launch of field herbarium for Paganoni Swamp

By Leonie Stubbs

It was a deeply satisfying moment for both parties when the field herbarium produced by the Wildflower Society of WA was handed to the Friends of Paganoni Swamp. The bush survey held in October 2005 (as part of the society's 2005 *Bushland Plant Survey* program) resulted in the production of an eight-volume set containing specimens from 345 taxa (271 native taxa and 74 weeds) representing 68 families.

Specimens were collected from 12 plots at Paganoni established in five different vegetation sites. Specimens were meticulously sorted, identified and mounted by volunteers from the society at weekly sessions at the WA Herbarium. Some specimens were vouchered with the WA Herbarium.



Anne Bellman and Norm Hodgkinson examine the completed field herbarium of Paganoni Swamp. Photo – Kate Brown

As well as the production of an eight-volume set to be housed at Naragebup Rockingham Regional Environment Centre, the mounted specimens were scanned and CDs and photocopied booklets produced.

This project has increased our group's on-ground knowledge of Paganoni, and enabled us to take part in activities to minimise threats to the area. The comprehensive species list and plots provide the group with the capacity to monitor changes over time, as well as the opportunity to respond to those changes through adaptive management practices. It is a valuable resource not only for present use but for succeeding generations.

For more information call Leonie on 9537 1831.

Friends of Piesse Brook expand weed control efforts

By Linda Stanley

The Friends of Piesse Brook Inc. has been very successful in controlling *Watsonia*, *Arundo*, blackberry and pampas grass in Kalamunda National Park during the past six years. As a result, 11 private landholdings upstream will be added to their area of focus in 2007. This shift upstream will aim to control weed-seed being washed downstream into the park.

The group obtained more than \$48,000 in funding from the Swan Alcoa Landcare Program for the 2007 project. The Eastern Metropolitan Regional Council assisted with the application and will oversee project management. Maintenance of previous areas will remain an important focus for the group.

Anyone interested in taking part in this exciting project, should email linda@johnstanley.cc. Work will begin on the third Sunday of each month from April–November 2007 at 10.30am–12.30pm.

Groups collaborate to create bush to beach walktrail

By Lesley Shaw

What started as a low-key event arranged by the Friends of Shenton Bushland has 'morphed' into a very exciting project. Friends groups in the western suburbs have collaborated to develop a series of walks encouraging enthusiasts to visit the 'green lungs' of our city, and to discover the corridors that exist for our fauna and flora. Plans are under way to develop the idea further, and funding has been provided to support the proposal.

Eighty-six people registered for the annual 12-kilometre 'Bush to Beach Walk' from Reabold Hill (Bold Park) to Grant Marine Park (Cottesloe) on 17 September. Robert Powell spoke about the coexistence of coastal plants and pollinators such as yellow admiral butterflies. Participants enjoyed a barbecue lunch at Lake Claremont organised by Rotary (Western Endeavour), with drinks by the Water Corporation. We saw a number of birds, including a swan sitting on a nest. It was good to note revegetation works, a reduction in typha, and the depth of the water.



Participants enjoying the views at Lake Claremont on the annual Bush to Beach Walk. Photo – Dani Boase-Jelinek

From the lake we walked through the old Swanbourne High School site. Walkers took in the views to the scarp, imagined the future housing subdivision, and admired bushland remnants that will be incorporated into public open space (community input resulted in a huge win). Walkers then headed west to Allen Park, finishing at Cottesloe, where a welcoming committee from Cottesloe Coastcare group had fruit and drinks ready.

Email Lesley from the Friends of Allen Park Bushland group (jlshaw@bigpond.net.au) for more information.

'Green thumbs' needed for wildflower gardens at Yanchep National Park

By Christie Mahony

Established in 1969, the wildflower gardens form part of the history and charm of Yanchep National Park. Through the years, the gardens have been developed and modified in conjunction with the Wildflower Society to display a large array of interesting and attractive plants found on the Swan Coastal Plain and in WA's south-west region. At present, members of the Yanchep National Park Volunteer Group care for the colourful gardens to help promote native gardens to the general public and encourage waterwise gardening. The group is looking to recruit other enthusiastic gardeners to help on Wednesdays from 9am to 12 noon.

Contact Christie on 9561 1004 or email christie.mahony@dec.wa.gov.au.

Friends of Yellagonga win award

By Jennifer Hawkes

Friends of Yellagonga won a City of Wanneroo 'Award for Environmental Excellence (Community section)' at a ceremony on 1 November.

The Friends started officially in 1993 and despite some extremely difficult times, have managed to maintain their presence in the community, their nursery, and what is now eight sites within the park. Chair, Will Carstairs, received a beautiful engraved trophy and framed award along with a cheque for \$500 to be spent on whatever will benefit the environment – no shortage of choices for that one!

We had a hugely successful planting day and Christmas party at Frog Hollow, with 23 people signing on to help, feast and celebrate what has been a very busy and successful year.

For further information contact Jennifer on 9448 0053.

Please send us your regional report (150–200 words) and a photo by 1 March 2007. Text may be edited in response to volume of submitted reports.

Calls for end to tuart bushland destruction

Conservation Council of Western Australia (CCWA)

Community groups from Busselton to Moore River met in November to discuss the plight of tuart trees and tuart bushland. *The Future for the Tuarts* public forum heard from a range of experts and government officials on issues relating to tuart decline. Community groups resolved that tuart ecosystems must receive legislated protection.

"Tuart trees and tuart bushland need to be declared as environmentally sensitive areas, [so] ... they can be protected under the Environmental Protection Act," CCWA Director Chris Tallentire said.

Tuart woodland only occurs on the Swan Coastal Plain and only 6 per cent of the

original area of tuart woodland remains. In addition to clearing, tuart woodlands in Yalgorup National Park, south of Mandurah, have been experiencing a severe decline since the early 1990s. This deterioration continues to spread throughout the entire Plain with no clearly identified cause.

One of the outcomes of the forum was to create a network of people interested in conserving tuart, to educate and raise public awareness of tuart decline, and generate immediate action to save one of WA's most iconic species before it is too late.

To join the Tuart Woodland Community Network or to find out more about tuart, contact CCWA on 9420 7266.

Lasting legacy at Brixton Street Wetlands

By Regina Drummond



Look out for the new Brixton Street Wetlands banner displayed during activity mornings. Photo – Trevor Drummond

In February 2007 it will be a year since Lois MacKenzie passed away. The Friends of Brixton Street would like to acknowledge the work Lois did in the wetlands over many years. Lois, together with Brian Crute, was always there to help with weeding days. We miss you dear lady – a beautiful flower in another place.

Friends of Brixton Street Wetlands meet on the third Saturday of every month. Look out for their new banner, which was made possible with support from the Maddington–Kenwick Sustainable Community Leaders Network. Call Regina 9459 2964.

Using satellite photography for bushland management

By Dani Boase-Jelinek

The Friends of Shenton Bushland Inc. is experimenting with *Google Maps* to gather geographical data for its website. Having this information easily available enables members, the City of Nedlands and the public to stay informed about our activities and state of the bushland.

We find *Google Maps* satellite photos are fairly recent and high resolution (as good as the aerial photos we used to buy from DOLA). And they're free!

At present we are uploading data for 2006 from our global position system (GPS), which we take with us when we are in the bushland. This allows us to keep records of what we have done during the year, and to compare with previous years. Shenton Bushland maps can be viewed at <http://home.it.net.au/~bojel/shenton/home/activities.html> or visit *Google Maps* at <http://maps.google.com/maps>.

If you are interested in the methods FSSB are using to manage their GPS data for display on their website contact Dani on 9381 3470 or email bojel@it.net.au.

Wedge-tailed eagles – the diet of a skilful hunter

By Simon Cherriman

WEDGE-TAILED eagles (*Aquila audax*) are captivating when observed soaring hundreds of metres above the earth on majestic, upswept wings. They are the largest bird of prey (raptor) in Australia, and were once persecuted for being supposed sheep-killers. Today these eagles are respected and seen as valuable assets to our unique country.

Mature adult eagles are almost entirely black, with a golden wing-band, chestnut nape (neck) feathers, and a wingspan of up to two-and-a-half metres. Younger birds are generally golden in colour.

Breeding habits

Wedge-tailed eagle pairs occupy a large home range, which can include cleared areas as well as natural bush. They require at least 10 square km of undisturbed bushland in which to breed, and with the rapidly growing development of the Swan Coastal Plain there are very few of these areas remaining.

Breeding pairs build a massive nest of branches, often more than two metres deep, in a large tree with a commanding view of the surrounding landscape. The female usually lays two eggs, which are incubated mostly by her for about 45 days.

Young chicks are vulnerable in their first few weeks of development, and during this time it is common for one to kill its weaker sibling. Although it may seem cruel, this is nature's way of ensuring the strongest bird survives.

As the eaglet develops, it becomes more active on the nest, and after several weeks can pick at food by itself. It remains on the nest for about 90 days and, after its transformation from a tiny, white eaglet, the powerful, immature wedge-tail is ready to make its first flight.

Studying raptor diet

The most common and effective method to determine what raptors eat is to collect the remains of prey animals from their nest. Young eagles develop rapidly and



*A wedge-tailed eaglet (*Aquila audax*) aged about three weeks, with two predated emu chick carcasses on the nest.*

must be fed every day, and a large number of animals are brought to the nest for food throughout the nesting season. The remains of these prey animals, such as bones, fur and feathers, accumulate under the nest and can be collected and identified to determine the type of prey eaten.

The predator

Across much of Australia, the introduced rabbit has replaced native mammals in the wedge-tailed eagles' diet, and in some areas it is the only prey animal taken. In the Perth area, 'wedgies' feed mainly on rabbits, young kangaroos and birds such as ducks, ravens and galahs. On occasions they

also take reptiles such as the bobtail skink and Gould's monitor.

One eagle pair has a nest at Karakamia Wildlife Sanctuary, a bush block in the Perth Hills managed by the Australian Wildlife Conservancy – a private, not-for-profit organisation. At Karakamia, many

native marsupials that have become locally extinct were reintroduced and now thrive in a 280-hectare area enclosed by a fox-and-cat-proof fence. 'Wedgies' here enjoy a more natural diet of brush-tailed bettongs (woylies), bandicoots and tamar wallabies. This predation has not stopped the endangered marsupials from maintaining stable populations, and represents a predator-prey relationship that would have been natural and sustainable before European settlement and introduction of the rabbit.

During the 1900s thousands of 'wedgies' were shot and bounties paid for their scalps. After many years of research, it is thought that in most cases, eagles accused of killing sheep in the past were eating sheep that had died of other causes.

Further information

Johnstone, R.E. and Storr, G.M. (1998) *Handbook of Western Australian Birds*, Vol. 1, Western Australian Museum, Perth.

Olsen, P. (1995) *Australian Birds of Prey: the Biology and Ecology of Raptors*, University of New South Wales Press, Sydney.

Olsen, P. (2005) *Wedge-tailed Eagle*, CSIRO Publishing, Australia.



A juvenile still on the nest, aged about 11 weeks. Photos – Simon Cherriman

Simon Cherriman has been studying wedge-tailed eagles in the Perth region for six years. He is completing an honours project on their diet at Curtin University. Simon can be contacted by email on simon@australianwildlife.org.

GROUPPROFILE:

Friends of the Railway Reserve

By Karen Britza

FRIENDS of the Railway Reserve (FRR) first began meeting in 2001, and have met almost every month since. The group began in response to a call for community members willing to aid the Shire of Kalamunda in the care and maintenance of remnant vegetation along the Railway Reserve.

The FRR is made up of five groups working locally in the areas of Gooseberry Hill, Kalamunda, South Kalamunda, Gladstone Road, and Walliston. Each group has its own coordinator to manage bushcare work at a local level. The volunteers then come together to achieve a coordinated approach for larger management issues.

Jarrah forest remnants

The Railway Reserve is made up of a number of small land parcels across three suburbs, and follows the old locomotive rail alignment which was in use until 1949. These reserves are now important to the community for passive recreation. Each section of the reserve (excluding the library and history village) is surrounded by remnant jarrah forest, which allows a link to the natural environment from the heart of Kalamunda.

The northern reserves suffer heavily from edge-effects due to their long narrow shape. Despite being heavily affected by introduced species there is a surprising amount of diversity, including a number of native grass species which thrive in disturbed areas. The condition of the vegetation improves the further south you go, with some beautiful examples of jarrah regrowth behind the Shire buildings. The southern sections (South Kalamunda, Gladstone Road and



Friends of Railway Reserve at the north entry to the Railway Heritage Trail.

Walliston) adjoin Water Corporation land, which has allowed larger areas of remnant bush to be retained.

Bushcare

As with all bushland management, weed control is an essential high-priority task. In the northern sections FRR has targeted introduced wattles and eucalypts, tagasaste, *Watsonia*, lavender and freesias. In southern sections, introduced grasses, *Polygala*, bridle creeper, and Paterson's curse have also been targeted. Other bushcare tasks carried out over the years include planting species grown from local seed, dieback treatment (Phosphite® application), vehicle access control and rubbish collection. The groups tend to have more success by encouraging natural regeneration rather than planting due to the shallow soils at the top of the scarp.

Upgrade of Railway Heritage Trail

FRR members have a diverse range of interests which include bushcare, history, horse-riding, cycling, walking and photography as well as a strong interest in their local area. They recently designed a plan to upgrade the Railway Heritage Trail, and their mix of interests and expertise ensured that the plan reflected the needs



Donkey orchid (Diuris corymbosa), one of the many glorious native flora species found along the trail. Photo – Barry Goldspink

of the wider community. In collaboration with the Shire of Kalamunda, the group was successful in receiving more than \$53,000 over three years from Trailswest. Matching contributions have been made by the Shire in the form of management plan funding, track maintenance, officer time and volunteer contributions.

Strengths of the FRR are:

- meeting on a monthly basis, with a strict one-hour time limit to avoid volunteer 'burn-out';
- keeping a local focus for bushcare tasks with volunteers working close to home;
- using a coordinated focus for the management issues which affect every section;
- defining goals within a design plan to manage their project over time with changing resources (including people); and
- maintaining regular communication with the shire about their activities.

For further information about activities or to become involved contact Karen on 9257 9806 (Tuesday to Thursday) or by email karen.britza@kalamunda.wa.gov.au.

Best wishes for 2007

from the Urban Nature team

Resources

New publications

Ernest Hodgkin's Swanland: Estuaries and Coastal Lagoons of South-western Australia (2005) by Anne Brearley. UWA Press RRP:\$75. It is a comprehensive and fully-illustrated guide to individual estuaries, their formation, geography, geology, water-flows, plants and animals, changes since European settlement and the pressures of current land use.

Field manual for surveying and mapping nationally significant weeds (Bureau of Rural Sciences). This manual was developed as a national standard to help guide land managers, agencies and research organisations in the collection of mapping information for weeds of national significance across Australia. This is a valuable tool for weed eradication and containment programs, and for monitoring weed control efficacy. Download a free PDF from www.daff.gov.au/brsweeds, or phone 1800 020 157 to order free hardcopy or CD.

Ecology: An Australian Perspective (2006) by Peter Attiwill and Barbara Wilson. Second Edition, Oxford University Press. RRP: \$120. This book covers ecological principles and practice (both descriptive and theoretical ecology) in an Australian context, and our pressing environmental problems including greenhouse, salinity, loss of biodiversity, and pests. Excellent reference book.



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Website watch

The **Geomorphic Wetlands of the Swan Coastal Plain** dataset managed by the Department of Environment and Conservation is now available to view with cadastre information at <http://apostle/idelve/doesdataext/index.jsp> or through the links in the Department of Environment section of www.dec.wa.gov.au to 'Tools', 'Systems and data', 'Geographic data atlas'.

A new **shorebird website** includes resource and toolkit, wide-ranging and current information, links to other websites. Visit www.shorebirds.org.au.

Websites for school students:

- visit www.floraforfauna.com.au/schools/;
- **'bat facts'** at the Australian Museum www.amonline.net.au/bats/;
- National **'Weed Warrior'** program enabling students to learn, plan, act and evaluate local priority weed problems. A four-to-six week program for Years 3 to 6 (Primary) and 7 to 9 (Secondary). Visit www.weedwarriors.net.au.
- **Identify weeds relevant to each NRM region in WA.** Visit www.weeds.org.au/wamap-nrm.htm#map. This tool builds on the 233 WEEDeck identification cards.

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