bushlandnews urban nature

Issue 65
Autumn 2008
Time of Djeran in the Nyoongar calendar.

ACT NOW FOR THE FUTURE
GOVERNMENT OF WESTERN AUSTRALIA
Department of Environment and Conservation
Our environment, our future

Bushland News *is a quarterly newsletter of Urban Nature, a Department of Environment and Conservation (DEC) program to support community involvement in bushland conservation.*

Year of the frog highlights amphibian extinction crisis

Compiled by Jo Tregonning

amphibian ark 2008 YEAR OF THE FROG

CONSERVATION groups, including the World Association of Zoos and Aquariums and the World Conservation Union, have declared 2008 the international year of the frog. This global campaign aims to raise awareness of our amphibian extinction crisis, focus research on captive breeding programs, control the threatening Chytrid fungus and conserve amphibians in the wild.

After thriving for more than 360 million years, one third to one half of the world's approximately 6000 known amphibian species is now in danger of becoming extinct in our lifetime. In Australia, at least 27 per cent of the 219 frog species are threatened with extinction. In Western Australia, three of our 78 frog species are classified as threatened, although a lack of survey data limits accurate assessment of frog status.

'Amphibian Ark'

'Amphibian Ark' is supported by a worldwide network of zoos and aquariums and has been established to rescue priority endangered amphibian species and place them in biosecure facilities for safekeeping and breeding. Scientists estimate 500 amphibian species worldwide need to be taken into captivity to prevent them from extinction. Despite 70 per cent of Australian frog species having been held in captivity, less than 20 per cent of these have been bred and extensively studied.

Perth Zoo, supported by the Water Corporation, is taking part in this breeding and research program which is being developed in conjunction with the Department of Environment and Conservation (DEC), the WA Museum, The University of Western Australia and Murdoch University. The primary focus will be on the three species of frogs – orange or yellow-bellied frog (*Geocrinia vitellina*), white-bellied frog (*Geocrinia alba*) and the sunset frog (*Spicospina flammocaerulea*) – from the State's south-west that are at risk from degradation or fragmentation of habitat and the Chytrid fungus; as well as frogs of the Kimberley region that may be adversely affected by the invasion of the cane toad. Captive populations may provide an essential reservoir population for later reintroduction into the wild when major threats have been controlled.

Moaning frog (Heleioporus eyrei)*. Photo – Johnny Prefumo*

Why is this happening?

Amphibians are regarded a good 'indicator species' as they are particularly sensitive to changes in environmental conditions and have been likened to canaries in a coal mine. Common themes in the worldwide amphibian extinction crisis include habitat loss through land-use change, commercial over-exploitation, pollution of habitats, and increasingly, the rise of the infectious disease chytridiomycosis, commonly named Chytrid fungus (see page 5).

On-ground community initiatives

The retention, protection, good management and, and in some cases, restoration of frog habitat in remnant wetland and bushland areas are the most effective actions to protect urban frogs. Projects undertaken by many Friends groups and councils in these areas are an important contribution to the survival of our amphibians.

The creation of wetlands in urban waterways ('living streams') and building frog-friendly gardens in urban environments also contributes to the conservation of our frog species. Instructions are available from the Perth Zoo and WA Museum. Remember not to take tadpoles, frogs, water, plants, soil or logs from wetlands as you may spread Chytrid fungus. (*See 'Frog resources' on page 12*).

Urban Nature **UPDATE**

Some readers may now be aware that Karen Clarke (Urban Nature Coordinator) has been ill for some weeks. Staff in DEC's Swan Region wish Karen a full recovery and are looking forward to her return. Rebecca Hayes has joined the Urban Nature team as a Conservation Officer for six months. Rebecca will be assisting with the Urban Nature programs and is looking forward to meeting and working with bushland managers.

A large part of Urban Nature's work involves providing technical support to land managers at Bush Forever sites including Paganoni Swamp, Point Becher, Brixton Street Wetlands and Lowlands. This work often involves adaptive management projects addressing weed management techniques and monitoring the regeneration of native plant communities. Most of the data is collected during winter and spring and the data is collated in the office during summer. Plant collections are identified and incorporated into existing field herbaria and into the WA Herbarium.

*Plant specimens such as compacted featherflower (*Verticordia densiflora*) collected from Brixton Street Wetlands are currently being collated by Urban Nature staff. Photo – Kate Brown*

SFNC – the end of a 10-year program, or just a break?

The Skills for Nature Conservation (SFNC) training and development program began in 1998 as a partnership between the Swan Catchment Centre, Greening Australia WA and Ecoplan, as a program of the then Department of Environmental Protection. The program has received funding and in-kind support from the program partners and from Natural Heritage Trust funds delivered through the Swan Catchment Council (SCC).

The high-quality training was provided free to community members involved and interested in bushland and wetland management and covered a range of topics including people skills, ecology and practical management. The program has been very popular and highly valued by the community and professionals. It won the Outstanding On-going Program Award in the WA 2001 Adult Learners Week Awards and was a finalist in the 2001 State Landcare Awards.

Unfortunately, future funding of the SFNC program has not been included in planning for the next SCC Investment Plan. In addition, how SFNC will fit into the new Commonwealth program, *Caring for our Country* (see page 7), has yet to be determined.

As the existing resources of the project partners allow, there will be a small number of training courses held under the SFNC banner during 2008. The SFNC project partners will be investigating if, and in what form, community training such as SFNC can continue in the future. For more information on future courses contact Rebecca on 9423 2924.

In 2007 some projects, including some funded by the State Government's *Saving our Species* Biodiversity Conservation Initiative, looked at managing Cape tulip (*Moraea* spp.) in native bushland. A half-day workshop in February looked at the results of these projects and planned for 2008. Participants came from local government, DEC, Botanic Gardens and Parks Authority, Greening Australia WA and Edith Cowan University. The projects are all in the early stages, but hope to gain a better understanding of how to control *Moraea* spp. in bushland and the role of fire in that process in the future.

*Jessica Allan from DEC scoring herbicide trials on a species of the Cape tulips (*Moraea fugax*). Photo – Kate Brown*

Winter *Bushland News*

Winter *Bushland News* contributions should be sent to Urban Nature by **Thursday 29 May 2008.**

Compiled and edited by Jo Tregonning.

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Previous newsletter issues available at www.naturebase.net/urbannature

BUSHLAND **WEED**WATCH:

Tambookie grass (*Hyparrhenia hirta*)

By Karen Bettink

TAMBOOKIE grass (*Hyparrhenia hirta*), or Coolatai grass as it is known in eastern Australia, is among a suite of invasive perennial grasses which have major ecological impacts and pose significant threats to the biodiversity of natural ecosystems.

Tambookie grass leaves (left) and inflorescence.

Native to Africa and the Mediterranean, tambookie grass was introduced for soil stabilisation and pasture in the Coolatai area of New South Wales (after which it was named) in the 1890s. It spread rapidly to now infest large areas of northern NSW, southern Queensland, Victoria and South Australia. In Western Australia it is found from Geraldton across the south-west corner to Esperance, with a large proportion of the populations around Perth and south to Augusta.

Rapidly becoming more widespread in these areas, it can be seen infesting road verges and disturbed sites as well as intact shrubland and woodlands. In the Swan Natural Resource Management Region it is classed a high priority environmental weed because it is capable of impacting on remnant bushland, including Threatened Ecological Communities on the eastern side of the Swan Coastal Plain.

*Tambookie grass (*Hyparrhenia hirta*) can replace diverse native vegetation. Photo – Kate Brown*

Biology

Tambookie grass is a summer-active, tussock-forming perennial growing up to 1.5 metres tall. It has five to 13 awned spikelets each with whitish hairs and is capable of flowering all year round. Seedlings and juvenile plants have bluish-green leaves. Deep-rooted and drought resistant, it reproduces by seed and is commonly spread by soil movement, mowing and water.

It rapidly regrows after being burnt, grazed or slashed, with the highest regrowth rates in warm to hot conditions. Australian studies have shown that it has rapid growth rates, wide temperature ranges for germination and growth, and the ability to grow and become invasive on a range of soil types.

Similar species

There are several other species of *Hyparrhenia* which are closely related to or may be confused with tambookie grass. However, these are not recorded in WA.

Impacts

Tambookie grass forms densely tufted tussocks that can dominate and reduce native plant diversity and impact on native fauna. In a study conducted in NSW on endangered Eucalypt woodland, tambookie grass greatly reduced the cover and species richness of native flora (in some cases by more than 50 per cent). Similar to veldt grass (*Ehrharta* spp.) and African lovegrass (*Eragrostis curvula*), tambookie grass can cause a change in fire intensity and frequency, which ultimately alters vegetation structure and favours reinfestation.

It has also been suggested that *Hyparrhenia* species may produce allelochemicals that affect the growth of surrounding species. However, this is not well understood. The greater production of plant litter and less inter-tussock spacing of tambookie grass appears to favour the formation of monocultures compared with some native grasses which form more open clumps.

Control

Small infestations can be grubbed out, however once it is established, tambookie grass is difficult to control. Single herbicide treatment may not kill mature tussocks but a combination of slashing and chemical treatments may be required and will be most effective applied in the warmer months when the grass is actively growing.

With tambookie grass in the early stages of invasion in south-west WA, it is important to control outlying populations and prevent spread into uninfected areas. In areas where it is already widespread, the priority is to target infestations in or near sites of high biodiversity value.

More information

A new weed management guide for tambookie grass has recently been published by the National Weeds Cooperative Research Centre (CRC). *Coolatai grass* (Hyparrhenia hirta) (2007) Weed Management Guide: Managing weeds for biodiversity. National Weeds Cooperative Research Centre (CRC). Copy available at www.weeds.crc.org.au/documents/wmg_coolatai.pdf

Chejara, V.J, Naldony, C., Whalley, R.B.D and Sindel, B.M. (2006) Impacts of Hyparrhenia hirta (L.) Stapf (Coolatai grass) on native vegetation in a traveling stock route in northern New South Wales, In *Proceedings of the 15th Australian Weeds Conference*, eds C. Preston, J.H. Watts and N.D. Crossman, Weed Management Society of South Australia, Adelaide.

Harden, G. (Ed) (1993) *Flora of NSW*, Vol. 4, pages 497-500, NSW University Press.

WA Herbarium (2008) http://florabase.dec.wa.gov.au/ Accessed February 2008.

ECONOTES:

Understanding landscapes of the Perth region

By Bob Gozzard

FROM the stability of the Darling Plateau to the dynamic coastal environments, the Perth region has had a long and varied geological history. Learning about the geology of the Perth region and its surface expression is essential to understanding and appreciating the landscape and ecosystems we see today. Rocks determine the types of soils that are found and hence heavily influence the type and variety of plant and animal communities that depend on them.

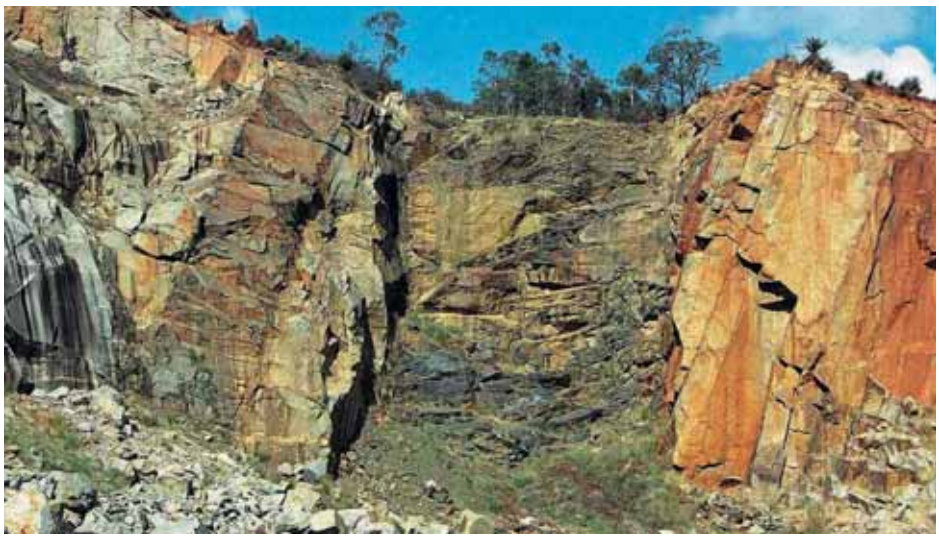
In geological terms, the Perth region can be broadly divided into two features – the Darling Scarp and Plateau and the Swan Coastal Plain. The Darling Scarp and Plateau form a landscape of hills and steeply incised valleys to the east of Perth and comprise a mix of ancient igneous and metamorphic rocks dating as far back as 3340 million years. The Swan Coastal Plain contains a thick succession of much younger and softer sedimentary rocks that form a landscape of dunes and low hills with chains of lakes in linear depressions.

Geomorphologically, the Perth region is subdivided into several regional-scale units, each of which lies parallel to the coast: Darling Plateau – igneous and metamorphic rocks with a mantle of lateritic duricrusts, sands and gravels; Darling Scarp – colluvial quartz sands; Ridge Hill Shelf – sand and lateritized sand; Pinjarra Plain – unconsolidated clays and loams; Bassendean Dunes – heavily leached yellow and white quartz sand; Spearwood Dunes – limestone and deep yellow quartz sand; and Quindalup Dunes – calcareous coastal sand dunes.

Each of these geomorphological units has a distinctive series of landform-soil units (or soil associations). These units are used by soil and plant scientists to identify vegetation associations in relationship to aspects of the landscape. Each soil association has a characteristic series of plant communities associated with them (Bush Forever, 2000). For example, Banksia woodlands are found on the sandy soils of the Bassendean and Spearwood Dunes. Although much is known at regional scales regarding the association of vegetation habitats and environmental conditions, sufficient detail at finer scales is generally lacking for purposes of landscape ecological studies – although this is being remedied.

In these times of greater environmental awareness there is a growing public appreciation of the need to understand landscapes and the importance of geology. An understanding of geology and geomorphology benefits on-ground conservation work and our appreciation of the important link between geology and biodiversity. For example, banded ironstone formations at Windarling Range and other localities in the mid-west of WA have been isolated over geological time and are considered to be biodiversity 'islands'. These areas have distinct and often unique plant communities and species such as the declared rare flora *Tetratheca paynterae*.

Understanding how past geological processes have shaped the landscape will help us understand how similar processes may change our future. For example, understanding the effects of past sea-level changes will help us to understand the possible effects of sea-level changes predicted for the coming century as a result of climate change.



Above: Three levels of elevated shoreline platforms at Cape Peron. Below: Dolerite dykes intruding well-jointed granites in Mountain Quarry. Photos – Bob Gozzard

More information

Gozzard, J.R. (2007) *Geology and Landforms of the Perth Region*. Geological Survey of Western Australia. Available from Mineral House, 100 Plain Street, East Perth. Phone 9222 3459. RRP $22.00.

Department of Environmental Protection (2000) *Bush Forever* Volume 2 Directory of Bush Forever Sites. Government of Western Australia.

Funding opportunities

The 2008 Grants Directory available from the Department of Local Government and Regional Development provides details of more than 100 grants available from the State and Commonwealth governments and private sector organisations. Visit www.dlgrd.wa.gov.au.

Threatened Species Network Community Grants are available for incorporated community-based organisations to conduct on-ground work for the ongoing health of our natural environment, specifically targeting the needs of nationally threatened species and ecological communities. Funded project examples include habitat restoration, weeding, feral animal control, monitoring and surveying species populations, fencing and fire management. Funding limit is $50,000 (inclusive of GST). Applications close 30 May 2008. Applicants must contact their regional Threatened Species Network Coordinator on 1800 032 551 or email TSNGrants@wwf.org.au. Visit http://wwf.org.au/ourwork/species/tsngrants/.

Coastwest funding is available for on-ground coastal and marine management; identification and monitoring; project support (purchasing materials, contracting works, and equipment hire); and capacity building (training courses and group establishment costs). Up to $60,000 per project is available when coastal managers and community groups jointly submit an application. Up to $8000 is available to regional coastal management groups and $3000 to community groups. Phone 9264 7777, email Coastwest@wapc.wa.gov.au or visit www.wapc.wa.gov.au/coastwest.

Swan Alcoa Landcare Program
The Swan Alcoa Landcare Program provides funding to community groups and or local government bodies working with community groups for on-ground revegetation, rehabilitation and other environmentally based projects. Guidelines and forms available at www.swancatchmentcouncil.org/default.aspx?MenuID=44 or by contacting the Swan Catchment Council on 9374 3333. Applications for the current round of funding close on 1 May 2008.

Resources for environmental educators

Western swamp tortoise – Australia's most endangered reptile. The Friends of the Western Swamp Tortoise, through a generous Lotterywest grant, has prepared a variety of teaching resources. These include a catchment model (fits onto a trailer), posters and photos, board games (threatened species, wetland, tortoise), tic-tac-toe floor game and classroom worksheets. The Friends group is pleased to lend any of the resources, free of charge, to teachers for use in their classroom. The group can also provide a guest speaker and/or a display, and can adapt our material to add to the motivation and interest of students. Contact Jan Bant on 9334 2872 or email webrite@crystal.com.au or Jan.Bant@det.wa.edu.au.

Ribbons of Blue: In and Out of the Classroom is a school curriculum manual for teachers with lesson materials on catchments, history, land use, climate, landforms and soil, habitats, fauna and macroinvertebrates, water quality, stormwater, groundwater and salinity. It provides opportunities for students to take part actively in community projects and to help develop sustainable lifestyles. Free to teachers via regional coordinators. Phone Richard Olive on 6467 5127. Visit www.ribbonsofblue.wa.gov.au.

Chytrid fungus causes amphibian decline

The infectious disease chytridiomycosis, commonly called amphibian Chytrid fungus (*Batrachochytrium dendrobatidis*), has been identified in association with amphibian population declines on every amphibian-inhabited continent. Two Australian frog species have been lost to the deadly and highly contagious fungus in recent years, with more than 50 per cent of Australia's threatened frog species infected with the fungus.

The Chytrid fungus is thought to have originated in sub-Saharan Africa where it has been documented on African clawed frogs (*Xenopus laevis*) as far back as the 1930s. At that time, these frogs started being exported around the world for human pregnancy tests, and presumably, the disease went with them. Over the years, the frogs also became popular as research subjects and pets. It is estimated that they have been exported and distributed by the tens of thousands per year since the 1930s.

Chytrid fungus spreads through water courses and amphibian-to-amphibian contact, and possibly by other mechanisms not yet fully understood. In Central America, its rate of progression has been calculated at 28 to 100 kilometers per year. Currently it cannot be stopped in the wild and a minority of species seem resistant, though are likely vectors for future outbreaks.

The following traits can be observed with Chytrid fungus in south-west WA:

- motorbike (*Litoria moorei*), banjo (*Limnodynastes dorsalis*) and to a lesser extent moaning (*Heleioporus eyrei*) frogs are the species most susceptible to the fungus;
- increased fungus appears in wet years;
- fungus is active between 6°C and 28°C (most active at 11°C and 17°C);
- the fungus is unlikely to cause 100 per cent mortality as there is some evidence that frogs are developing some immunity; and
- 15 per cent of quacking frogs (*Crinia georgiana*) are carriers of the disease.

*Western green tree frog or motorbike frog (*Litoria moorei*). Photo – Kate Brown*

what's on

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

Sundays 8am–10am
Bushcare activities every Sunday with the Friends of Shenton Park Bushland. Contact Dani 9381 3470 or bojel@it.net.au.

Sundays 8.30am
Bushcare activities with the Friends of Wireless Hill. Held second and fourth Sunday of each month. Meet at main car park. Contact Margaret 9315 9075 or s3mmatthews@hotmail.com.

Tuesdays 8am–9am
Bushcare activities every Tuesday with Byford Enviro-Link. Call Kristy 9526 0199.

April

Monday 31 March–Friday 4 April
Restoring western swamp tortoise habitat with DEC at Ellen Brook by weeding, planting and minor construction. Contact **CVA**.

Monday 31 March–Friday 4 April
Riverbank restoration and planting on the Swan and Canning Rivers with the City of South Perth. Contact **CVA**.

1 Tuesday 6.15pm
Night walk with the Friends of Paganoni Swamp. Call Leonie 0439 921 298.

4 Friday
Earth Day Expo. Hands-on environmental activities for primary-aged children. Volunteers needed to run activities. Lunch provided. Edith Cowan University, Mount Lawley. Email Jennifer Pearson j.pearson@ecu.edu.au.

4 Friday 7.30pm
Rise and fall of the woylie – guest speaker Adrian Wayne. Contact **WA Nats**.

5 Saturday 8.30am–10.30am
Bushland birds guided walk with Birds Australia at Kings Park. Cost: $35 includes light refreshments. Contact **KPBG**.

8 Tuesday 8pm
Linnaeus and the naming of life – guest speaker Kevin Thiele. Contact **WSWA**.

9 Wednesday 7.30pm
Rock art in the south west – guest speakers David Guilfoyle and Wayne Webb. Contact **BNC**.

12 Saturday 1pm–4pm
Seed collection and germination workshop on collection techniques, site selection, permit requirements, seed cleaning, preparation and storage. Octagonal Hall, McGlew Rd, Glen Forrest. Contact **BSFH**.

12 Saturday 10am–12 noon
Bizarre Botanicals talk by Dr Neville Marchant. Australia's flora – structure, morphology and how they have evolved. Cost: $25. Biodiversity Conservation Centre. Contact **KPBG**.

18 Friday 9am–12 noon
Native tree decline workshop, Kwinana. Recognising tree decline, treatment, protecting healthy trees. Contact Green Skills 9360 6667 or myeomans@greenskills.org.au.

19 Saturday 8am
Guided nature walk with the Friends of Lake Gwelup. Contact **FLG**.

19 Saturday 9am
Activity morning with the Friends of Brixton Street Wetlands. Call Regina 9459 2964.

20 Sunday 10.30am–12.30pm
Activity morning with the Friends of Piesse Brook. Contact **FPB**.

20 Sunday
Cape Freycinet walk from Boranup Forest to the coast, 13 kilometres return. Carry your own lunch. Bus $10. Contact **BNC**.

20 Sunday 9am–12 noon
Bush regeneration and monitoring at Warwick Bushland. Contact **FWB**.

26 Saturday 8am
Guided bush walk in Star Swamp Bushland. Contact **FSSB**.

Monday 28 April–Friday 9 May
Biological surveys and walk trail maintenance with DEC rangers at Lake Mason/Black Range (650 kilometres north-east of Perth). Residential project, nominal fee of $30 per night includes transport, accommodation and food. Contact **CVA**.

30 Wednesday 8.30am–11am
Brunch with the birds at Kings Park. Guided walk with Birds Australia. Cost: $45 includes cooked brunch at Zamia Cafe. Contact **KPBG**.

May

2 Friday 7.30pm
Fungi – guest speaker TBA. Contact **WA Nats**.

3 Saturday 9am–12 noon
Native tree decline workshop, Serpentine Jarrahdale. Recognising tree decline, treatment, protecting healthy trees. Contact Green Skills 9360 6667 or myeomans@greenskills.org.au.

4 Sunday 10am–3pm
Bush survival skills. Kings Park. Cost: $75. Contact **KPBG**.

13 Tuesday 8pm
Talks by Perth Wildflower Society members in honour of the Society's 50th Anniversary. Contact **WSWA**.

14 Wednesday 7.30pm
Electricity from nuclear power – its promises and dangers. Guest speaker Bernie Masters. Contact **BNC**.

14 Wednesday 7pm–9pm
Secret sex life of plants talk by Dr Neville Marchant. Cost: $25. Biodiversity Conservation Centre. Contact **KPBG**.

16 Friday 7.30pm
Guided night stalk with the Friends of Lake Gwelup. Contact **FLG**.

17 Saturday 1pm–4pm
The art of propagation workshop with Sabrina Hahn and Kings Park nursery specialists. Cost: $65. Biodiversity Conservation Centre. Contact **KPBG**.

17 Saturday 8am
Guided nature walk with the Friends of Lake Gwelup. Contact **FLG**.

17 Saturday 9am
Activity morning with Friends of Brixton Street Wetlands. Call Regina 9459 2964.

18 Sunday 8am
Plant sale of WA native flora propagated by the Friends of Kings Park. Exhibition grounds, Kings Park. Contact **KPBG**.

18 Sunday 9am–12 noon
Fungi survey and species identification at Warwick Bushland. Contact **FWB**.

18 Sunday 10.30am–12.30pm
Activity morning with the Friends of Piesse Brook. Contact FPB.

19 Monday 7.30pm
AGM Friends of Lake Gwelup. Colin Moore Resource Centre, Lagonda Dr (cnr North Beach Rd). Contact **FLG**.

20 Tuesday 9am
Mapping dune onion weed with the Friends of Paganoni Swamp. Call Leonie 0439 921 298.

23 Friday 7.30pm
Nocturnal walk in Star Swamp Bushland. Bring a torch. Contact **FSSB.**

Please send us your July, August and September events by Thursday 29 May 2008.

REGISTRATION/CONTACT DETAILS

BSFH **Bush Skills for the Hills** offers free hills-focused workshops. Contact Robbie 9424 2216 or roberta.circosta@emrc.org.au.

BNC **Busselton Naturalists Club**. Meet RSL Hall, Causeway Rd, Busselton. Contact Bernie Masters 9727 2474 or bmasters@iinet.net.au.

CVA **Conservation Volunteers Australia**. 2/343 Newcastle St, Northbridge. Contact Sandra or Steve 9227 5711 or perth@conservationvolunteers.com.au. Visit www.conservationvolunteers.com.au.

FLG **Friends of Lake Gwelup**. Contact Wayne 0407 383 425 or Betty 9444 5640 or email folgmail@iinet.net.au.

FPB **Friends of Piesse Brook**. Meet at the gate into Kalamunda National Park, end of Schipp Rd, Piesse Brook. Wear sturdy boots, gloves and hat. Bring drinking water and a smile. Contact Linda Stanley 92934533 (work) or linda@johnstanley.cc.

KPBG **Kings Park Botanic Gardens** Connect environmental workshops. Bookings call 9480 3600.

FSSB **Friends of Star Swamp Bushland**. Meet at Henderson Environment Centre, Groat St, North Beach. Contact Christine 9447 2983 or starswamp@hotmail.com.

FWB **Friends Warwick Bushland**. Meet at bowling/tennis club car park, Lloyd Dr, Warwick. Contact Janina Pezzarini 9447 9494 or neen@ext.uwa.edu.au.

WSWA **Wildflower Society of WA** (Perth Branch) Subiaco Community Centre, 203 Bagot Rd. Non-members welcome. $2 entry includes supper. Call Nina 0427 936 566.

WA Nats **WA Naturalists Club** Hew Roberts Lecture Theatre, Clifton St, Nedlands. Visit www.wanats.iinet.net.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.

24 Saturday 8am
Guided bush walk in Star Swamp Bushland. Contact **FSSB**.

24 Saturday 10am–12 noon
Walk on the wild side with Dr Neville Marchant at Kings Park to discover WA flora. Cost: $25. Contact **KPBG**.

June

2 Monday–6 Friday
Urban wetlands restoration in the City of Bayswater. Contact **CVA**.

2 Monday–13 Friday
Wetland planting at Tomato Lake and Garvey Park. Note: excludes 7–8 June. Contact **CVA**.

6 Friday 7.30pm
Underwater photography – guest speaker Ann Storrie. Contact **WA Nats**.

9 Monday–13 Friday
Rehabilitation and revegetation of Buckland Hill with the Town of Mosman Park. Contact **CVA**.

9 Monday–10 Tuesday
Chemical handling and weed control. Accredited training course. Call Serpentine Jarrahdale Landcare Centre 9526 0012.

10 Tuesday 8pm
Mt Manning region and other biodiversity hotspots. Guest speaker Mark Brundrett. Contact **WSWA**.

11 Wednesday 7.30pm
Larger fungi of the South West. Guest speaker Richard Robinson. Contact **BNC**.

15 Sunday
Planting in Ludlow National Park. Leader: Nicole Lincoln, DEC. Lunch provided. Tour of 2007 planting in mining area. Contact **BNC**.

15 Sunday 10.30am–12.30pm
Activity morning with the Friends of Piesse Brook. Contact **FPB**.

17 Tuesday 9am
Removing dune onion weed with the Friends of Paganoni Swamp. Call Leonie 0439 921 298.

21 Saturday 9am
Activity morning with Friends of Brixton Street Wetlands. Call Regina 9459 2964.

22 Sunday
Karri Gully loop 10-kilometre walk. Carry your own lunch. Bus $10. Contact **BNC**.

22 Sunday 9am–12 noon
Planting and fungi spotting at Warwick Bushland. Contact **FWB**.

28 Saturday–29 Sunday
AGM and state conference, **Wildflower Society of WA**. Ecology Centre, Bold Park, Floreat. Contact Julie 9383 7979 or wildflowers@ozemail.com.au.

July

1 Tuesday 9am
Fungi walk with the Friends of Paganoni Swamp. Call Leonie 0439 921 298.

4 Friday 7.30pm
Wetland invertebrates – guest speaker TBA. Contact **WA Nats**.

Highlights

29 March–6 April
Conservation Week 2008 WA's Water Future. WA's largest community-focused environmental event. Contact Jessie Cochrane 9420 7266 or clo@conservationwa.asn.au. Visit www.conservationwa.asn.au.

April–May 10am–4pm
Greenskills mega workshops on gardening, vegetables/orchards (Great Gardens workshops) and hobby farming. Bookings essential 1300 369 833 or visit www.greatgardens.info.

April
DEC *Nearer to Nature* Awesome Autumn nature programs such as caving, camping, spiders, raptors, marine encounter or nocturnal walk. Affordable prices for all activities. Bookings: Perth Hills National Parks Centre 9295 2244 or visit www.naturebase.net/nearertonature.

1–4 September
11th International River Symposium 2008: A Future of Extremes. Brisbane, Australia. Visit www.riversymposium.com/index.php?page=Program.

A new Natural Resource Management (NRM) program – *Caring for our Country*

On the 14 March 2008 the Federal Government announced that it would invest $2.25 billion over five years in a new program to restore the health of Australia's environment and build on improved land management practices. The *Caring for our Country* program will deliver funding to local communities through a simple, 'one-stop shop' approach that covers the Natural Heritage Trust and the National Landcare, Environmental Stewardship and Working on Country programs. Regional natural resource bodies will remain central in delivering *Caring for our Country*.

For more information, visit the NRM website www.nrm.gov.au or ring 1800 552 008.

Learning opportunities

Interested in fungi? Visit the website of the Perth Urban Bushland Fungi Project at www.fungiperth.org.au where community fungi walks and information sessions will be posted by May.

Green Skills environmental training and employment programs link to practical conservation projects such as wetlands restoration, recycling, energy efficiency, sustainable living, the arts, bush rehabilitation, landcare fencing, farm forestry, whole farm and catchment planning, river surveys and tree planting. For more information on courses and current projects contact:

- Environmental Technology Centre, Murdoch University, phone 9360 6667 or email murdoch@greenskills.org.au;
- Denmark office on 9848 1019 or email denmark@greenskills.org.au;
- Albany Training Centre on 9842 1334 or email albany@greenskills.org.au; or
- visit www.greenskills.green.net.au.

National Trust – a 'snapshot' of their work

The National Trust of Australia (WA) is a community-based heritage organisation, which advocates on behalf of the community on heritage issues. Through its natural heritage programs, which include the Conservation Covenant Program, the BushBank Revolving Fund, Bush Brokers and tax-deductible appeals, the National Trust is working with private landowners and other organisations to conserve valuable WA bushland for the benefit of the community.

The National Trust will be running a series of free events during Conservation Week (29 March–6 April 2008), including guided tours of project sites and presentations on our natural heritage programs. Phone 9321 6088 or visit www.naturalheritage.org.au.

Please send us your regional report (150–200 words) and a photo by **Thursday 29 May 2008.**
Text may be edited in response to volume of submitted reports.

Coastal rehabilitation in the south metro region *By Craig Wilson*

PERTH'S coastal vegetation is under threat from invasive weeds, dumped garden refuse, feral animals, erosion and from unmanaged vehicle and pedestrian traffic. Factor in the potential impact of sea-level rise and associated storm events and, in the future, the coastal fringe could be looking substantially different to how it is today.

Local governments manage coastal reserves in association with local community groups and the Swan Catchment Council's Coastcare Program. Coastcare mobilises community input through the implementation of activities such as woody weed removal, coastal planting days during the rainy season and specific events such as Clean Up Australia Day.

Coastcare also assists community groups to develop funding applications, implement training programs and develop promotional materials to support community involvement in natural area management.

Community planting days have been undertaken in a range of locations during the past two years including Warnbro Beach and Kwinana Beach where more than 3000 seedlings of coastal species have been planted. In association with woody weed removal the planting program has improved the biodiversity value of the coastal reserve, raised the involvement of the local community in conservation outcomes and provided a positive boost to the visual amenity of the area.

As the general community becomes increasingly aware about global environmental issues such as climate change, the Coastcare program provides an opportunity for people to take part in a local hands-on experience and make a contribution. The benefits of social networking and building bonds within the local community are some of the positive outcomes that flow from community involvement in projects such as Coastcare.

For more information contact Craig Wilson (Southern Metropolitan Coastcare Officer) on 9439 0433 or email craig.wilson@kwinana.wa.gov.au.

Coastcare volunteers planting in dunes at Coogee Beach. Photo – Craig Wilson

Negotiations save tuarts *By Leonie Stubbs*

There is no doubt that Paganoni Swamp Reserve is feeling the impacts of accelerated urbanisation with the railway to the east, a proposed highway on its western boundary and a planned upgrade to Paganoni Road along its northern boundary. Paganoni Road will become a feeder road to the Kwinana Freeway extension and the Perth–Bunbury Highway. To cope with the expected increase in traffic from approximately 700 to 12,000 vehicles per day, the upgrade has been designed to improve the quality of the single carriageway. The upgrade would result in the destruction of approximately 40 tuarts (*Eucalyptus gomphocephala*) as well as quality tuart bushland buffering the swamp. Total clearing would amount to approximately seven hectares.

The upgrade was assessed under Main Road's State-wide purpose clearing permit. Stakeholder consultation was required due to the type of vegetation found at Paganoni Swamp. Submissions against clearing were made by DEC's Native Vegetation Conservation Unit, the Conservation Council of WA and the Friends of Paganoni Swamp. Both the Conservation Council and the Friends group provided alternative options.

As a result of the submissions and after consultation with staff from DEC's Rockingham Lakes Regional Park (which manages Paganoni Swamp), a site meeting was organised. Five staff from Southern Gateway Alliance together with representatives from the Conservation Council and our Friends group spent the morning observing what trees and bushland would be lost and assessing how to minimise the impact. Considerable discussion took place between all parties recognising the importance of constructing safe roads but also acknowledging the considerable value of trees and bushland.

The outcome of all these negotiations and deliberations has resulted in a reduction in clearing from seven hectares to only 1.1 hectares plus the retention of 26 tuarts. This is a great outcome for Paganoni Swamp and emphasises the value of participating in a genuine consultation process when it is available and on offer.

For more information about the Friends of Paganoni Swamp contact Leonie on 0439 921 298 or email Friends_Paganoni_Swamp@westnet.com.au.

Focus on ferals

Reducing the rainbow lorikeet population in Perth

By Gary Porter (DEC)

The rainbow lorikeet (*Trichoglossus haematodus moluccans*) is not native to WA. In Australia, it is naturally distributed along a coastal strip from Cape York, Queensland to South Australia (including Kangaroo Island). Free-flying birds currently found in WA are a combination of escaped aviary birds or their descendants. The current distribution of the Perth population is roughly bounded by Wanneroo (north), Chidlow (east) and Mandurah (south), with occasional birds recorded outside this area. Birds are at their highest density in the western suburbs of Perth but could establish anywhere in the State.

This bird is an agricultural pest, damaging commercial crops of stonefruit, fig, loquat, olives, citrus and grapes and is an environmental pest, competing with native fauna for food and nesting resources and potentially carries and spreads disease. They are also social pests due to their noisy behaviour, fouling at roosting sites and raiding backyard fruit trees.

The Department of Agriculture and Food and DEC are coordinating and undertaking control actions throughout the Perth metropolitan area, with the aim of reducing numbers to manageable levels. The population estimate in mid-2007 was 15,000 birds and, since then, at least 6000 birds have been removed. This substantial result was made possible by the joint efforts of growers, DEC staff and contractors who shot birds in orchards, vineyards, night roosts and daytime resting sites.

To date, the culling of birds by DEC officers has been conducted at night roosts in Perth. Feed sites are now being established to enable daytime shooting as well. Population modelling suggests that if a cull of 5000 birds is conducted annually for the next five to seven years, followed by the removal of about 1000 per year from then on, the population could be kept as low as 1000 birds.

Birds observed outside of the Perth area, or damage caused by lorikeets, can be reported to the Department of Agriculture and Food on 1800 084 881.

*Rainbow lorikeet (*Trichoglossus haematodus*) feed site using lorikeet call playback, food items and live birds to attract lorikeets. Photo – Gary Porter*

Coastal metropolitan rabbit control *By Kate Sputore*

Rabbits (*Oryctolagus cuniculus*) are considered to be Australia's most serious vertebrate pest, as they severely affect native flora and fauna as well as primary industries.

Feral rabbits are a confirmed or perceived threat to a large number of endangered species, and can have serious implications for coastal vegetation and dune stability. They are able to access high quality feed, possess rapid rates of reproduction and have the ability to adapt to a wide variety of climatic conditions.

Each year, local governments and community groups invest time and money towards the revegetation and rehabilitation of our coastline, so it is vital that we protect these fragile areas from the degradation caused by feral rabbits.

The Swan Catchment Council (SCC) has funded two Coastcare officers – Kate Sputore (North Metropolitan) and Craig Wilson (Southern Metropolitan) – who will coordinate the implementation of a regional rabbit control program in 2008. The program is currently being implemented along the metropolitan coast with the support of relevant land managers. It will utilise a variety of methods to control the rabbit population through the use of baits, biological control and warren destruction.

This will be the largest regional rabbit control program ever undertaken in WA, spanning 11 local government authorities. A cooperative approach is vital to the success of any feral animal control program.

For more information phone Kate Sputore on 9285 5099.

Geraldton carnation weed strategic plan – call for submissions

The SCC and DEC are currently developing a strategic plan to manage the highly invasive Geraldton carnation weed (*Euphorbia terracina*) in the Swan NRM Region. This toxic, short-lived perennial herb threatens native plant communities, particularly on calcareous soils throughout south-west Australia.

Distribution of the weed is not clear, as WA Herbarium collection records represent only a fraction of its true occurrence across the Region. Information is being sought on current management and the locations of populations in the Swan NRM Region, particularly outlying infestations or those that threaten important bushland areas.

Please contact Karen Bettink on 9423 2904 or by email (karen.bettink@dec.wa.gov.au) or at PO BOX 1167, Bentley Delivery Centre, WA 6983.

*See Bushland WeedWatch (*Bushland News *Issue 61 Autumn 2007) for more information on Geraldton carnation weed.*

Acid sulfate soils in Western Australia

By Clare Nixon (DEC)

A SEVERE groundwater acidity problem in the City of Stirling just six years ago alerted scientists to re-evaluate the existence of acid sulfate soils in Western Australia. Subsequent research has shown that ASS are widespread on the Swan Coastal Plain. In an attempt to better identify potential ASS hotspots, DEC has contracted CSIRO to conduct aerial hyperspectral remote sensing, soil sampling and analysis of large areas of the WA coastline.

Acid sulfate soils (ASS) is the common name given to soils containing iron sulfides. In Australia during the last major sea level rise 10,000 years ago, coastal landscapes formed through rapid sedimentation. Bacteria in these organically rich, waterlogged sediments converted sulfate from tidal waters, and iron from the sediments, to iron sulfide minerals (pyrite).

ASS are found in waterlogged swampy environments, particularly near the coast, including dark organic rich soils and muds, peaty wetland soils, some pale grey sands (Bassendean sands and Spearwood sands) and coffee rock (cemented iron and/or organic rich sands) found below the watertable.

These soils are harmless while in an undisturbed, waterlogged state but once disturbed the sulfide minerals react with oxygen in the air to form sulfuric acid. The acid generated leads to the degradation of surface and groundwater quality and scalds the land. It can also cause fish kills, iron staining and corrosion to steel and concrete infrastructure. The acidic water often has high concentrations of arsenic and heavy metals that can cause severe environmental problems if discharged into waterways or leached into groundwater. Activities that might disturb ASS areas include earthworks for canal developments, housing estates and roads, digging drainage channels in agricultural areas and lowering of the groundwater table.

It is important ASS areas are recognised to avoid them being inadvertently disturbed during digging. Dominant vegetation in high ASS risk areas includes tea tree, paperbark, salt sheoak, flooded gums, samphire, mangroves, saltcouch, *Phragmites* sp. (a tall acid tolerant grass) and swamp tolerant reeds and rushes.

Signs and symptoms

Once an ASS is disturbed, the sulfuric acid generated can have a dramatic impact on soil and water quality. On-ground indications include:

- stunted or dead vegetation;
- acid scalds – bare patches appear where the top soil is salty or acid;
- iron monosulfides – gooey black sediments formed in low oxygen environments; and
- jarosite – yellow mineral indicating iron sulfides in ASS are oxidising and forming sulfuric acid. This is associated with a rotten egg gas smell.

Similarly, there are a range of indicators to look for in surface and groundwater:

- crystal clear water – high levels of aluminium can cause soil particles to drop to the bottom of waterways leaving the water clear;
- yellow-brown water – indicates iron;
- iron flocs – usually a red-brown or brown-yellow colour present throughout the water;
- blue-green water – indicates soluble aluminium and iron; and
- milky-white water – also an indication of aluminium particles.

Mapping ASS

DEC's hyperspectral imaging project is being funded by the Natural Heritage Trust. This innovative remote sensing technology, commonly used by the mining industry, will collect spatially comprehensive data from areas difficult to access using more traditional field site surveys.

This new data, along with soil sampling and laboratory analysis, will be used to enhance current ASS risk maps and better pinpoint vulnerable ASS areas in several coastal regions of the State.

DEC is publishing a series of fact sheets and guidelines to assist with the identification, investigation and management of ASS in WA. ASS risk maps are available at www.dec.wa.gov.au/ass.

Left: Dead vegetation and acid scald at Muchea as a result of ASS. Right: Water containing iron flocculants (bright orange) overlaying gooey black sediments (iron monosulphide) formed in low oxygen environments at Baigup. Photos – ASS Section/DEC

GROUPPROFILE:

Friends of Lake Gwelup

By Wayne Eddy

THE FRIENDS of Lake Gwelup is a volunteer community group that dedicates its time and experience to educating the general public, passing observations on to local government and other local groups, weeding and revegetating the reserve.

Lake Gwelup is a 73-hectare C-class reserve (Bush Forever site 212) located approximately 15 kilometres north of Perth in the City of Stirling. It includes 18 hectares of open water surrounded by mostly degraded bushland and is home to six native mammal species, 40 reptile and amphibian species and 125 native birds (mostly visiting migratory water birds). A total of 80 native plant species have been recorded on the reserve. One plant species (*Jacksonia sericea*) was recorded in the City of Stirling's *Lake Gwelup Reserve Environmental Management Plan* 1992 and is identified by DEC as a Priority 4 Taxa. Due to the area having been utilised as market garden, an exercise area for horses and at times a dumping ground for garden waste, some 51 weed species have been identified on-site.

David Pike called for the first meeting of the Friends of Lake Gwelup in 1994 following strong interest from the local community and groups such as the Gwelup Progress Association, the Wildflower Society of WA and the Karrinyup–Gwelup Reserve's Advisory Committee. Since the group's inception, David Pike and Phylis Roberston have dedicated one Saturday morning a month to leading educational walks at the reserve. Twice a year – one in winter and another in spring – night walks are held to record the activities of nocturnal fauna such as frogs, owls and reptiles. In spring, 'Bush Care Days' are held to target the control of specific weed species. In earlier years, a lot of time and energy was put into clearing lupins and now only sparsely scattered patches remain. Future weeding efforts may concentrate more closely on *Gladiolus* sp.

The group's key objectives are to return the lake and surrounding bushland, as closely as possible, to its natural condition by:

- removing introduced plants and revegetating with local indigenous species;
- encouraging the survival of indigenous flora and fauna;
- monitoring and helping with the implementation of the management plan;
- lobbying authorities over issues that affect the reserve; and
- increasing public enjoyment of the area through environmental awareness.

Members of the Friends group have contributed to the development of the management plan, held positions on the City of Stirling's Natural Environment Advisory Committee and have worked closely with the Friends of Trigg Bushland and the Friends of Star Swamp.

In 2008, the group anticipates the Urban Bushland Council and the Perth Urban Bushland Fungi Project will hold the first official fungi survey within the reserve following its own introductory survey in 2007. The reserve will also benefit from additional weed control and plantings by the City of Stirling as it implements the management plan. A catchments plan will be developed by the North Metro Catchment Group and ongoing water quality tests will be performed to ensure the wetland remains free from the inflow of toxins.

(From left) Betty Murphy, Phylis Robertson (walk leader), Robert and Jennifer Eddy inspecting Dianella *sp. in Lake Gwelup Reserve. Photo – Wayne Eddy*

*Left: Banksia bee (*Hylaeus alcyoneus*) collecting pollen from an acorn banksia (*Banksia prionotes*) inflorescence. Right: Rainbow bee-eater (*Merops ornatus*) holding dragonfly, Lake Gwelup Reserve. Photos – Wayne Eddy*

The group extends an invitation to all readers to attend the committee meetings or nature walks. Please contact Wayne Eddy (President Friends of Lake Gwelup) on 0407 383 425 or email folg@iinet.net.au. For more information visit http://home.vicnet.net.au/~folg/. The Friends of Lake Gwelup newsletter is available electronically or in paper format.

Resources

Publications

Bettongs, Potoroos and the Musky Rat-kangaroo (2007) A. Claridge, J. Seebeck and R. Rose. CSIRO Publishing. RRP $39.95. This book provides an extraordinary glimpse into the secretive lives of these unusual marsupials and their unique fungus-eating habits. It also reveals little-known facts about the critical functional role these creatures play in maintaining the forest and woodland habitats in which they live.

Are your details correct?

Please check your mailing details and let us know if we need to change anything by phoning us on 9423 2914. If you'd prefer to receive this newsletter electronically, send an email titled 'email me' to urban.nature@dec.wa.gov.au.

Website watch

Ribbons of Blue is an educational program and resource for those involved in water quality monitoring and waterway restoration. Visit www.ribbonsofblue.wa.gov.au.

Florabank has been relaunched and now has all its guidelines on the website, plus contacts in various businesses and a proposed seed training program. Visit www.florabank.org.au.

Stormwater Management Manual for Western Australia – Department of Water 2004–2007 contains policies and guidelines on how to manage stormwater from its source to ocean end. Management methods include at-source controls and infiltration, education and training, retention and restoration of natural water body systems, and structural methods. Phone 6364 7600 or visit http://stormwater.water.wa.gov.au.

Wetlands Australia – national wetlands update 2008 is updated annually for the community and summarises information and resources on Australian wetland conservation, management and education. Visit www.environment.gov.au/water/publications/environmental/wetlands/wa16.html.

Statewide Wetlands Database – WetlandBase has been updated. Fauna, Aboriginal heritage sites, waterfowl counts, threatened species and coastal datasets have been added or updated. Visit www.naturebase.net/content/view/981/987/ or http://spatial.agric.wa.gov.au/wetlands/.

Frog resources

Aplin, K., Paino, A. & Sleep, L. (2000) *Building Frog Friendly Gardens*. Western Australian Museum.

Bush, B., Maryan, B., Brown-Cooper, R. & Robinson, D. (1995) *A Guide to Reptiles and Frogs of the Perth Region*. UWA Press.

Winter rains – a tadpole bonanza by John Dell. *Ecoplan News* Issue 54 Winter 2005. CALM.

The Frog Doctor, Johnny Prefumo. Educational talks, tadpole exchange program. Phone 9795 7780 or email frogdoctor@westnet.com.au.

www.amphibianark.org/yearofthefrog.htm

www.frogsaustralia.net.au/

www.museum.wa.gov.au/frogwatch/pages/learn_frogs.asp

www.perthzoo.wa.gov.au/Conservation--Research/2008-Year-of-the-Frog/

www.westernwildlife.com.au/frogs/index.htm

www.yearofthefrog.org/

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