

Wildlife and Native Plants

Study Group Newsletter

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Dear Members,

Many apologies for the lateness of the newsletter. My work seems to be lost in cyberspace somewhere, for each time I write up the newsletter and save it, I can never find it again. I hear many of you saying to back up my work, but that too seems pointless as I can never find the disc again! I think I spend more hours looking for files than creating them!! So here's trying yet again.

Many thanks to those of you, who have sent me their subscriptions without being reminded. Subs Of \$5.00 per year fell due on July 1st. If you haven't forwarded your renewal then please do so today.

WELCOME

Welcome to new members- Ian Rainbow (Vic), Keilor Plains APS group Maree McCarthy, Ian Charlton, Jane Lemann, Agustin Franco (all from NSW), Veronica Thorp (TAS), Harry Franz and Tim Powe (QLD) who have also joined us since the last newsletter. Welcome back to renewing members - Leigh Murray (NSW), Rosemary Blemings (ACT), APS (SA Region), APS Vic., SGAP Qld., ASGAP, Australian National Botanic Gardens (ACT), Kris Schaeffer (TAS), WSWA, ANPS (ACT) and APS Maroondah (VIC).

REMINDERSUBS DUE NOW!



Please feel free to send in articles or your experiences with our native flora and fauna. You may email stories etc to me at jonesc@lm.net.au, or by post to PO Box 131, Strathalbyn, SA 5255.

While winter is still with us, many gardeners may like to check out the salt sensitivity database, which contains information on the sensitivity and tolerance of over 1200 Australian species to salt. The database, methodology report and references can be downloaded from Land and Water Australia's River Landscapes site at:

<http://www.rivers.gov.au/research/contaminants/saltsen.htm>

IN THIS EDITION

- Bitter sweet by Judy Redeker, *Eucryphia*, Vol.15, No.6 July 2003
- Conservation by Val Williams, courtesy *Native Plants*. Vol.38, No.2 April 2003
- Flora for Fauna - an initiative of the Nursery & Garden Industry of Australia, *Aust.Farm Journal Bush*, April 2003
- Snakes Alive Part 2 by Brian Bush, *Malleeowl Matter*. No.30. March 2003.
- Bill Payne's contribution to Australian Plants by Cindy Royston, *ASGAP Newsletter* No.30 April 2003.
- Australian Plants at Parliament House, Canberra - by Dick Burns, a tour during ASGAP Conference 2001. *ASGAP Newsletter* No.30 April 2003
- Beware the Bumblebee. by Andrew Hingston, *Aust. Farm Journal Bush*, October 2000.
- Wombats and drought by Glen Taylor. *Natural History Journal*. Jan-Feb 2003.
- And much ,much more.....

SNAKES ALIVE Part 2 by Brian Bush, *Malleefowl Matter MPG WA. March 2003.*

Apart from the dugite, the other dangerous species of snake found in Western Australia, is the smaller tiger snake - common around gullies, dams and waterways.

In spring tiger snakes are active too, although they cover less territory than the dugite. The tiger snake, like all wild animals, will protect itself if cornered with its defensive attitude of raised forebody and flattened hood, but it will not deliberately confront an animal larger than itself.

A female tiger snake can produce up to 70% of her body weight in off-spring. Towards the end of summer a mother-to-be snake can be so heavy that she has no choice but to stand her ground and use her defensive posture to intimidate you into leaving her alone.

She is unable to resorb her eggs, instead sacrificing body tissue to sustain the embryos full term and dying shortly after giving birth.

An increased chance for snakebite occurs during September to January. The cool nights and warm days, cause snakes to lie around while building up their body temperature. All snakes move at night.

If you see a snake in your garden, try not to worry - it will move on eventually. Advise children who play in the area to be careful. If the snake persists or gets into the house, dispose of it carefully. The second highest incidence of snakebite deaths in Australia occurs while killing snakes. Although you may kill venomous snakes under a WA gazetted open season, it is only if you consider it a threat to you or your livestock. (Ed.Note: other States may have different rules to this- so please check with authorities)

Be aware of snakes, wear stout footwear day or night, particularly in grassy areas and bush, keep the lawn mown, avoid storing iron, timber etc, adjacent to the house, have good outside lighting, and keep pets restrained near the house.

To discourage snakes spray a pungent smelling disinfectant around the yard boundary in October and February. Check the house for gaps that may allow snakes to enter. Intensify rodent control.

Many Australian snakes, although venomous are too small to be dangerous to

humans. The larger species usually have venoms more toxic to humans. No one has died from snakebite after correct pressure bandage/immobilisation first-aid has been applied immediately.

Thirty seven snakebite deaths have occurred in Australia between 1980 and 2002, but there are twenty one deaths each year from horse riding accidents!

©

(Ed.Note: This may be cold comfort to the avid gardener, but being aware of snakes and preventing entry to living space seems more appropriate to me! Bushwalkers take note, and carry a snakebite kit in with your first aid kit.)

BITTER SWEET by Judy Redeker from *Eucryphia, July 2003 p.7*

How annoying! You've found the perfect plant for your garden. It grows quickly, has clusters of creamy white flowers, bell shaped and perfumed, and showy, round orange berries. It fits where you want it, growing between four to fourteen metres. Its name, Sweet Pittosporum, slips gently off the tongue and even its botanical name - *Pittosporum undulatum* - is pronounceable! It's even an Australian native.

You are not happy to discover it's a rampant weed!

Dedicated gardeners who care about the environment as much as their own gardens, will act responsibly when they discover they have been nurturing a viper - or its plant equivalent! Sweet Pittosporum is a member of a growing club - Australian natives that have become weeds in Tasmania. Its real home is along the east coast of the mainland, and once established here it quickly reproduces, displacing native groundcovers, shrubs and the seedlings of large trees. The leaves even appear to contain a chemical compound that prevents other seeds from germinating.

One of only a few native weeds so far studied for their effects, clear evidence indicates its detrimental influence on lizard and native bird populations. It is associated with increasing blackbird numbers-aggressive pests that further change the natural ecosystem by driving out native birds, steal your raspberries and grapes, and make a mess in the garden. ©

FLORA FOR FAUNA

Information is extracted from a brochure available at garden centres, or can be downloaded from the website, along with fact sheets full of information on attracting wildlife, plus a garden planner to help you design your own fauna-friendly garden. Acknowledgement Australian Farm Journal Bush, April 2003 pp.12-13.

Flora for Fauna is an initiative of the Nursery and Garden Industry, Australia, aimed at bringing new life to the gardens in our cities, towns and rural areas.

Our native animals do not reside exclusively in the Australian bush - we share our cities and towns with many birds, butterflies, frogs and other fauna. These creatures are part of the web of life that makes Australia unique. But many of the species that make their home in our urban area are in trouble. They are struggling to survive as they see their sources of food, water and shelter dwindle and, in some cases, disappear all together.

It need not be this way. We can help the fauna living on our doorstep by turning our gardens and backyards into natural havens. It is easy and fun and nature will thank you by providing a passing parade of delights, from birds in full song and lizards basking in the sunshine, to butterflies of exquisite beauty and frog calls at dusk.

Every little bit helps - you can transform your whole garden into a wildlife oasis or simply plant a few native shrubs that will provide food and shelter for birds.

You will be playing your part in supporting Australia's unique native fauna. The nurseries and garden centres of Australia want to spread the message that Flora for Fauna gardens can be a joy to the people who create them as well as a lifesaver to the fauna that find sanctuary there. They can provide you with simple and easy-to-implement ideas, supplemented by lots of practical local help and advice.

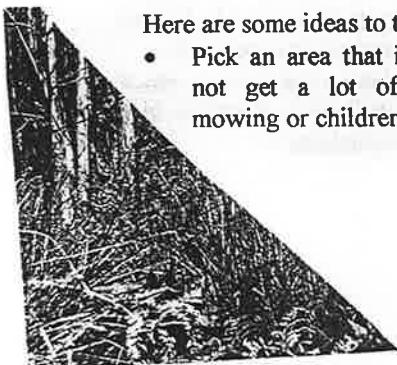
Flora for Fauna is supported by the Commonwealth Government, via its Natural heritage Trust. The government believes this program is a strong step towards securing the biodiversity of the Australian habitat.

Flora for Fauna website:
www.floraforsauna.com.au

Here are some ideas to try:

- Pick an area that is mostly quiet and does not get a lot of disturbance like lawn mowing or children playing

- Plant appropriate native trees, shrubs and grasses to attract and feed native birds. When planting try to recreate the different layers of vegetation found in the bush from the ground up. Your local garden centre can help you with the right plants for your area.
- Attract birds, butterflies and native bees by planting bottlebrush, grevillea, banksias, correa and other plants that produce nectar. To ensure a year round food supply several different species that flower at different times.
- To have butterflies, food plants for their caterpillar stage are essential.
- Install a bird bath close to shrubs or trees to provide cover for the birds as they come and go. Make sure it is regularly filled so that it is a reliable and clean source of water.
- The seeds of eucalypts and wattles provide a tasty meal for many native birds such as rosellas and other parrots and cockatoos.
- Create shelter and nesting sites for small native birds by planting clumps of dense prickly shrubs to make thickets.
- Ensure there's a nesting site for birds either in a hollow of a medium or large tree or by providing a nest box especially designed for native birds.
- Make hiding spots for lizards by using half buried stones, logs and mulch. Put them close to food sources (such as your compost bin.)
- Create a frog friendly pond in your garden. Your local garden centre is able to provide everything you need to establish a water feature. Put it away from your bedrooms and your neighbour's house as frogs can be noisy. Plant native plants that attract insects for frogs to eat and provide shelter in the form of damp mossy crevices of stones or bits of bark and reedy plants. If a pond isn't practical, keep one area of your garden moist - this will attract all manner of wildlife.
- Create sunning spots for lizards with flat exposed rocks or clusters of stones, protected from the wind. Don't disturb the natural environment by taking rocks from bushland.
- Replace some of your open lawn with garden beds and cover with natural mulch (leaf litter and twigs). This saves water and provides homes for beetles and worms that in turn provide food for birds, lizards and other animals.



- Many bushland weeds are plants that have escaped from gardens. They overrun native plants and destroy fauna habitats. So remove them from your garden. Garden centres can recommend beautiful Australian native plants as replacements. They will look just as good and help the environment too.
- Favour natural pest control, as insecticides can harm beneficial insects as well as the pests they target.
- Be careful with your cat or dog, as they will naturally prey on native fauna. Make sure your cat has bells on its collar and train your dog not to harass wildlife. If possible keep both of them indoors at night, and try to maintain at least one part of your garden as a pet free zone where lizards can sun themselves safely.
- Put a bench or hammock under a shady tree, a seat in a sunny spot or build paved areas for outdoor furniture and you've got a setting for relaxation and fun. Your fauna friendly garden can be an escape from the hectic pace of modern living where you can surround yourself with the soothing sights and sounds of nature. At the same time it will be a wonderland of excitement and activity for inquisitive children. Enjoy!

A garden becomes fauna-friendly when it offers food, water, shelter, nesting material and protection from predators. Once you start thinking about how to incorporate these elements, you'll be surprised how easy it is to turn your garden, or even just a corner of it, into an urban haven.

GRASSLANDS FLOWER SOON

By DPI from Shepparton News 18/8/2003 p.29

More than 99% of native grasslands in Victoria have been destroyed. Those remaining are generally small, isolated and often invaded by weeds. Consequently, retaining and protecting the fragmented remnants is vital. Native grasslands are generally treeless, but they can occur as a grassy understorey in open woodlands.

Native grasses contain more than grasses. Grasses may be the dominant species (hence the name), however healthy grasslands will contain a wide range of herbaceous annuals and perennials. A range of daisies, lilies, orchids, bush peas and small saltbushes, can be found among the tussocks of grass. Spring is generally the most rewarding time to view a native grassland, when the wildflowers are in full

bloom. It is the best time to assess if you have a grassland on your property. For much of the year a native grassland can look like an untidy patch of grass, however when the spring wildflower display begins, the area can be transformed.

Some examples of fauna that utilise native grasslands include butterflies, legless lizards and plains wanderers. Areas on properties that have been lightly grazed, had little or no herbicide or fertiliser application and do not have a history of intensive cultivation or irrigation, may still contain remnants of Northern Plains grassland. The next couple of months is the time to look for grassland wildflowers. If you think you have a native grassland patch on your property please contact DPI Tatura for further advice.

WILDLIFE CORRIDOR ZONES

By Geoff Park & Rob Price, from Australian Farm Journal Bush April 2003

What are they?

- ⌘ These zones have been identified as areas where substantial linkages are needed between large vegetation blocks (eg. forests)
- ⌘ The purpose of these corridors is to allow the movement of small mammals, birds and reptiles that will not cross open ground. This will help ensure a healthy genetic mix is maintained.
- ⌘ Corridors also allow the dispersal of young animals when they leave the parental domain.
- ⌘ Corridors allow the movement and escape of fauna and the re-population of areas following fire, disease or other catastrophic events.
- ⌘ To enable the movement of some of the smaller birds and reptiles it is important that corridors have a high habitat quality.
- ⌘ Corridors also act as shelter belts and should be sensitively grazed to control weediness.
- ⌘ Corridors are more effective when they use existing patches of trees and shrubs or natural features such as creeklines.
- ⌘ Such zones may also help in the restoration of creeklines and riparian areas, and protect endangered grassy woodlands.
- ⌘ The fauna it benefits include many species of birds, mammals and reptiles, such as :
Birds: treecreepers, thornbills, robins, babblers, and other small birds which need to use corridors to move into other areas.
Mammals: antechinus, possums, sugar gliders, echidnas, wallabies. Reptiles: blue tongue lizards and shinglebacks.



MEMBERS PAGE

NOTES ON EUCRYPHIA MOOREI by Jeanette Closs
With acknowledgement to: *Eucryphia* (Newsletter of the APS Tas.), July 2003, p.20

'The Encyclopaedia' notes that it will grow to a height of 8-15m in its natural habitat which is rainforest gullies in south-eastern NSW to far eastern Victoria. However in the home garden 3-5m would be the expected height.

At this time of year the trees are covered with hundreds of open cup-shaped white flowers. Winter flowering plants are always great value. The flowers are 2-3cm across and are formed singly or in groups in the axils of the leaves. The leaves are decorative and pinnate. There are 5-11 opposite, narrow-lanceolate leaflets, which are dark green above and whitish beneath. Flowering time is given as February to March, but mine seem to flower right through winter. The timber is tough, close-grained and pale, pinkish-brown, which accounts for one of the common names - 'Plumwood'. The other name given is 'Stinkwood', a name also given to *Ziera arborescens* in Tasmania. I usually refer to it as the 'Mainland Leatherwood' as it is a close cousin of our Tasmanian Leatherwood.

The specific name is after Charles Moore, a former director of the Sydney Botanic Gardens. I find it very difficult to strike from cuttings and would be pleased to hear of anyone who is successful. The small plants need shade and plenty of moisture, but it also needs to be well drained.

©

Reference: Elliot, W.R. & Jones, D.L.
Encyclopaedia of Australian Plants. Vol.4.

WEBSITES Potoroos, native truffles, flying foxes....information sourced by Cheryl Dooley.

Cheryl writes that she came across some excellent websites on native animals recently. A great story about potoroos and Australia's native truffles came from the Bulletin. To get to the Bulletin website access ninemsn and then choose "features" then "stories" and then "Keystone of the copse" - it's a great article about the absolute necessity to retain our wildlife if our native flora is to survive. Also a couple of good sites for flying fox information including a very good article by Peggy Ebby:

A succinct summary of roles of flying foxes:
<http://www.newcrops.uq.edu.au/acotanc/papers/ebby.htm>

A list of food sources for flying foxes, which are in turn served by them in cross-pollination and seed dispersal:

[http://www.sydneybats.org.au/BatFacts/
DietSpecies.html](http://www.sydneybats.org.au/BatFacts/DietSpecies.html)

Ed.NOTE: Thanks Cheryl for this. Much appreciated!

BILL PAYNE and his contribution to Australian Plants by Cindy Royston, ASGAP Newsletter No.30 April 2003

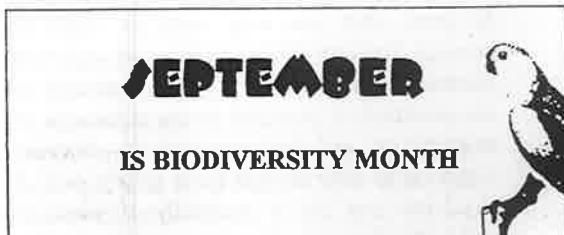
I would like to take this opportunity to acknowledge Bill Payne's outstanding contribution to the Society as the former editor of *Australian Plants*.

For 43 years from the first issue of *Australian Plants* in 1959 until 2002, Bill produced the journal on behalf of the NSW Society with the aim of promoting knowledge and interest in our native plants. In that time, the journal became a nationally and world recognised publication, playing a vital role in raising awareness, knowledge and understanding of our wonderful flora.

If the journal is not testament enough of Bill's vision, passion and commitment for the Society and Australian plants, he was winner of the Association of Societies for Growing Australian Plants' highest honour, the Australian Plants Award in the amateur category in 1993, and is a foundation and life member of the NSW Society.

Bill has been instrumental in many important initiatives such as the formation of the ASGAP study groups. To find out more about the inspiring and untiring efforts of this dedicated and determined supporter of our Society and flora read the article on Bill by the NSW Regional Council in *Australian Plants*, December 2002 issue. Perhaps the last two sentences in that article describes Bill best:

'In all, Bill Payne has been a tireless worker, donating many hours of his own and family's life to the cause and promotion of the Australian flora. He is an extraordinary member in every sense.' ©



CONSERVATION by Val Williams. *Native Plants April 2003 pp.25-26.*

Watch those young Myrtaceae!

Eucalypt forests and woodlands are at risk from an exotic disease - a rust fungus capable of attacking a broad range of Australian plants. Scientists at CSIRO have mounted a three year program to reduce the risk of the rust *Puccinia psidii* (guava rust) from South and Central America reaching our shores. 'This rust attacks shoots of juvenile plants and can kill up to 90 per cent of seedlings' says fungal authority Dr. Inez Tommerup of CSIRO Forestry and Forest Products. Says team leader Dr. Ken Old 'It's spores are so fine they can be carried on clothing, shoes, equipment, even on spectacles and camera bags. They remain viable for months, so a perfectly innocent traveller could easily bring it back with them without knowing it.' If the fungus got loose in a major forest, or National Park, the chances are it would pass unnoticed for months or even years, by which time it would be firmly established and spreading. Still unknown is how many of Australia's native tree species are susceptible but Melaleuca appears to be especially vulnerable. Because mature eucalypts leaves are immune to infection, the rust would do little damage to big trees in existing forests. It has, however, the potential to destroy a large proportion of seedlings of susceptible species during the critical phase of seedling establishment after planting or germination after fire.

Using pesticides

This is a vast subject and several organisations are involved but the NSW Environment Protection Authority administers the Pesticides Act 1999. Their description of a pesticide reads *Plants, insects, bacteria, fungi and other organisms are a natural part of the environment. Some can benefit people in many ways. Some can be pests that you may need or want to control. You can choose from many different methods to control a pest. One method is to sue pesticide. A pesticide is any substance or mixture of substances used to destroy, suppress or alter the life cycle of any pest. A pesticide can be a naturally derived or synthetically produced substance. A pesticide can also be an organism. There*

are currently about 3800 pesticide products registered for use in NSW by the National Registration Authority for Agricultural and Veterinary Chemicals. These products are used extensively in both urban and rural environments. They include bactericides, baits, fungicides, herbicides, insecticides, lures, rodenticides and repellents. (EPA Leaflet 21). The EPA evaluates the impacts of chemicals, including pesticides, on organisms and the environment through the Centre for Ecotoxicology, which is part of a co-operative research venture with the University of Technology Sydney.

Also in EPA Leaflet 21 In any situation the ultimate responsibility for pesticide use rests with the user. If you choose to use a pesticide then you must use it correctly. A fundamental part of proper use is to read and follow all the instructions on the label.

EPA gives more good advice in leaflet 22 *It is important that pesticides are used only where they are absolutely justified. It is essential that you carefully identify the pest you wish to control and then fully consider all the control options.* The following organochlorine pesticides are banned from use in NSW : Aldrin, Chlordane, Dieldrin, DDT, Endrin, Heptachlor, Hexachlorophene, Isodrin, Lindane, 2,4,5-T and Hexachlorobenzene and if you should still have any, EPA leaflet 26 *Handling pesticide wastes - a household guide* advises you to deliver pesticide wastes to a chemical collection centre (contact your local council for information on centres) or arrange for collection by a commercial licensed waste contractor (see the Yellow Pages). EPA leaflets on pesticides have more information and it is worth ordering Environment Matters leaflets 21-23, 26, 28, 29 and 32 from EPA, PO Box A290, Sydney South, 1232, www.epa.nsw.gov.au. Those who use pesticides in their work, eg. farmers, local government officers, have even more to think about. The Total Environment Centre web-site also has good information about pesticides, www.tec.nccnsw.org.au.

(Ed. Note: I'm sure all capital cities have a Dept. for Environment or an EPA. So please check in your own state for rules and regulations regarding pesticides. I know SA has introduced new legislation regarding the handling, access and availability of pesticides)



Garden Frog ponds

'Garden frog ponds help winners not losers' says Tim Low in Chap.21, *The New Nature* illustrating this with the dominance of the Striped Marsh Frog in frog ponds in Brisbane. Even so, filling in the pond is not a good option according to Marion Anstis, author of *Tadpoles of SE Australia*, New Holland 2002, who wonders how long even common frogs will survive in regions where they are uncommon and points out that many frog species have already been displaced by urban development. (Definitely do not move tadpoles or frogs around because, apart from being illegal, it could spread disease and lead to feral frogs! Build the pond and the frogs will find it.) Marion Anstis says regard a frog pond as the best you can do and obtain instructions on building a good one from the web-site www.fats.org.au

©

Conservation - It's In Our Hands

SEPTEMBER in South Australia is the month for the Annual Frog Census. This is a long term community survey of frogs throughout South Australia. It involves many individuals, schools and community groups taking frog recordings from waterways over a one week period. It occurs in September because this is the time when most species in the southern part of the state are expected to be calling.

The survey provides an annual 'snapshot' of the distribution and abundance of frogs in the State. As frogs are well known for their sensitivity to pollution and habitat loss, the census increases our understanding of the health of the environment. Frogs are ideal indicators because the males of each species have a specific mating call that can be used for identification. Visit the website at:

www.epa.sa.gov.au/frogcensus/

WHAT IS LEGIONELLA?

Legionella is a type of bacteria that may cause serious pneumonia. It can be found in potting mixes, mulches, composts and soils. The organism is spread by breathing in the bacteria, and from hands contaminated with these materials.

Symptoms of infection - 2-10 days after exposure symptoms may include fever,

chills a cough, aching muscles, headache, tiredness, loss of appetite and/or diarrhoea.

SAFE HANDLING OF POTTING MIXES

Safe handling of potting mixes (bagged or unbagged), mulches, garden soils and composts can protect you from Legionella infection.

6 Easy steps

1. Read the warning on bagged composted /potting mixes.
2. Wear gloves.
3. Wear a dust mask.
4. Carefully dampen contents before fully opening.
5. Avoid breathing potting mix or compost dust.
6. Wash hands immediately after using potting mixes.

PLAN TO PLANT THE PLAIN PLANTAIN

By Phil Watson

Many would link the name Plantain to a large cooking banana, but more significantly it also refers a series of fascinating herbaceous species found in the genus *Plantago*. Within most open grassy and grassy woodland communities, both indigenous and introduced *Plantago* species can be discovered happily thriving amongst the inter-tussock spaces formed by both native and exotic grass species or sedge species.

From the little known *Plantaginaceae* Family the Plantain, commonly known as a troublesome lawn weed, is one of the commonest or plainest plants. In fact Ribwort *Plantago lanceolata* is known worldwide by kids as Soldiers Herb, since the flowering head shoots out as the lopped stem is pull rapidly over the head. It is also known as White Man's Footprints by the American Indians as the wagon trains of the American pioneers inadvertently carried the seed of the plant across western USA Buckhorn Plantain *Plantago coronopus* is common in all poorly drained and compacted sites world wide. However, the genus has so many values that it deserves recognition beyond its plain status.

In our grassy woodlands and beggin to be planted in your backyard bush tucker patch are a few rare endemic species namely *Plantago paradoxa*, *Plantago tasmanica* and *Plantago glabrata* along with the more common variable Plantain *Plantago varia*. Specially adapted Plantains enjoy the colder alpine areas, worthy of trying in your patch purely for their superb foliage displays. These include Montane Plantain *Plantago antarctica* and Tasmanian Alpine Plantain *Plantago daltonii*.

©

Acacia quiz

Match the scientific name to the common name. All species are commonly found in South Australia.

Acacia acinacea	Blackwood
Acacia argyrophylla	Dwarf nealie
Acacia brachybotrya	Flinders Range wattle
Acacia calamifolia	Gold dust wattle
Acacia gunnii	Golden wattle
Acacia iteaphylla	Grey mulga
Acacia ligulata	Kangaroo thorn
Acacia lineata	Manna wattle
Acacia melanoxylon	Myrtle wattle
Acacia microcarpa	Needle/Needle bush wattle
Acacia myrtifolia	Ploughshare wattle
Acacia paradoxa	Prickly Moses
Acacia pycnantha	Rock wattle
Acacia oswaldii	Silver mulga
Acacia retinodes	Spiny wattle
Acacia rigens	Streaked wattle
Acacia rupicola	Swamp wattle
Acacia spinescens	Umbrella bush/Small cooba
Acacia verticillata	Umbrella wattle
Acacia wilhelmiana	Wallowa

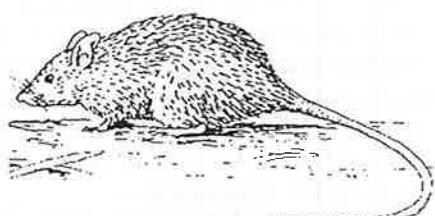
(Reference: Acacias of South Australia, by D JE Whibley and DE Symon. 2nd ed. SA Government Printer (RIP), 1992.)

Small mammal quiz

1. Match the sketch to the name

- A) Antechinus B) Bush rat C) Black rat

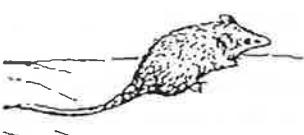
i)



ii)



iii)



2. One of these animals is not native to Australia. Which is it?

(Drawings by Belinda Brooker, from Have you seen a Southern Brown Bandicoot, a fact sheet produced by NPWSA. See enclosure New Facts Sheets Available for details.)

Answers to the quiz on p 8 (no peeking)

Acacia quiz	
Acacia acinacea	Cold dust wattle
Acacia argyrophylla	Silver mulga
Acacia brachybotrya	Grey mulga
Acacia calamifolia	Wallowa
Acacia gunnii	Ploughshare wattle
Acacia iteaphylla	Flinders Range wattle
Acacia ligulata	Umbrella bush
Acacia lineata	/Small cooba
Acacia melanoxylon	Streaked wattle
Acacia microcarpa	Blackwood
Acacia myrtifolia	Manna wattle
Acacia paradoxa	Myrtle wattle
Acacia pycnantha	Kangaroo thorn
Acacia oswaldii	Golden wattle
Acacia retinodes	Umbrella wattle
Acacia rigens	Swamp wattle
Acacia rupicola	Needle wattle
Acacia spinescens	Needle bush wattle
Acacia verticillata	Rock wattle
Acacia wilhelmiana	Spiny wattle
	Prickly Moses
	Dwarf nealie
Small mammal quiz	
1.	A) = iii), B) = ii), C) = i)
2.	i)

WHAT'S NEW/WHAT'S NEWS

Regent Parrots – sightings of a nationally threatened species
There has been a number of Regent Parrot sightings this year in the Murray Mallee. In early January approximately 30 were observed feeding in roadside vegetation near Wynarka, and between February and early March large flocks were seen by landholders south-west of Lameroo.

The Regent Parrot (*Polytelis anthopeplus monachoides*) is a nationally threatened species that divides its time between the Murray River floodplain and the Murray Mallee. From July to November they breed in the hollows of large River Red Gums on the floodplain between Boundary Bend in NSW and Morgan in SA, and possibly as far downstream as Swan Reach. In SA 90% of known nests now occur in dead trees. Breeding sites are usually located within 60m of a river, creek or lagoon and within 5km of a large block of Mallee. The birds are colonial nesters and return to the same sites each year.



For the rest of the year the Regent Parrot is nomadic and relies on far larger areas of habitat, often covering great distances to reach feeding grounds far from the river.

They feed on insects and the seeds, buds and fruit of a wide variety of both native and introduced plants. Mallees and many native understoreys are their most important perennial food sources.

Habitat clearance is the major reason for the Regent Parrot's decline, as the species can only breed in areas close to large blocks of mallee. The loss of existing nest trees is also a large threat, with surveys in SA showing that between 1990 and 2000, 25% of nest trees fell over or suffered major limb loss. Other threats include the lack of Red Gum regeneration and competition for hollows with feral bees.

There are a number of ways that community members can help secure the Regent Parrot's future. These include; protecting and restoring breeding sites; protecting and re-establishing areas of Mallee, particularly close to the river and known breeding sites; assisting with surveying, mapping and monitoring of breeding sites; and experimenting with nest boxes.

(Reprinted from: Mallee Update Autumn 2003, published by the Murray Mallee Local Action Planning Association Inc. Picture from The Birds of Victoria, by W. Roy Wheeler and Jeremy Boot, published by Nelson 1979. ISBN 0 17 005322 9)

Publication of interest

How to plan wildlife landscapes – a guide for community organisations, by the Victorian Department of Natural Resources and Environment, 2002. Describes, in plain English, the principles used in planning for conservation of our native wildlife at a landscape scale such as a neighbourhood or part of a catchment. It will be useful for community organisations and individuals who want to understand how to act more strategically to protect and restore wildlife landscapes.

Available online at the Department of NRE website www.nre.vic.gov.au (select the Conservation and Environment theme, then Living Systems, Publications).

For a hard copy, contact NRE's Information Centre, telephone (03) 9637 8325, or by mail to Dept of Natural Resources and Environment, 4th floor, 250 Victoria Parade, East Melbourne, Vic 3002. Cost is \$16 plus postage and handling.



THREATENED SPECIES DAY

Threatened Species Day is celebrated each year on September 7th. What better time to look at Australia's record in the extinction stakes.

Extinction as Tim Flannery records in *A Gap in Nature* 'must be regarded over the vastness of evolutionary time as the fate of all species...there are periods in history when the rate of extinction is so rapid that whole ecosystems are destabilised and swept away. Then the earth becomes a less productive, less stable and more impoverished place. Our present age is one such time, and it is our species that has brought things to their present, sorry state; for this is, as Richard Leakey so ably put it, the sixth age of extinction. The last time the planet experienced a comparable carnage was 65 million years ago during the demise of the dinosaurs, and just four times previously over half a billion years of evolutionary time have extinctions on this scale occurred. The sixth age of extinction.... first dawned at least 50,000 years earlier, when our species first left its African cradle and began to spread across the face of the Earth, precipitating other living forms into oblivion by the dozen. We cannot be certain, of course, about anything that happened so long ago, but evidence is growing that a common thread runs through the extinction of the last fifty millenia, and that *Homo sapiens*, either directly or indirectly, is that thread.'

Today we have a much clearer picture of the catastrophe that impoverished the planet. Australia, we know now, was the first continent to be stripped of its giants. It lost over sixty species of marsupials, reptiles and flightless birds, including rhino-sized marsupial diprotodonts, massive kangaroos, six-metre-long goannas and horned tortoises

Many were swept away at around the time the ancestors of the Aborigines arrived on the continent, some 46,000 years ago. Europe's extinctions were more modest and appear to have occurred later- around 30,000 years ago by which time the ancestors of the modern Europeans had wrested most of the continent from the Neanderthals. By around 14,000 years ago humans had pushed far into Eurasia's boreal north, invading the tundra and mammoth steppe that covered untold square kilometres of the world's largest continent. These invaders rapidly drove mammoth, woolly rhino and giant elk, among others, into oblivion.

Then just 13,200 years ago, before the world's sea level rose as the ice age waned, bands of hunters crossed the Bering land bridge into a new world, inheriting a sweep nearly 30 per cent of the globe's habitable land surface....

Thus, in its first forty millennia, the sixth extinction ran a wild and deadly course, exterminating the world's giants. Australia lost 95 per cent of its land-animal genera weighing more than forty-five kilograms, and the Americas 75 per cent. Losses in Europe and Asia were more modest, at around 30 per cent. Paradoxically, Africa alone- the nursery of our destructive species- was the only continent to escape without a significant loss.... This paradox may be explained by the fact that Africa was humanity's training ground. It was there that we first learned to kill the large mammals, and that slow process gave Africa's bigger creatures the chance to adjust to the habits of ever more efficient human hunters.

A second phase of extinction began when humans left the continents and began to colonise the world's islands. Some, such as New Guinea, were probably settled at around the same time as their nearest continent (in this case Australia), but this extended form of colonisation began to accelerate around 10,000 years ago, when people started to spread through the islands of the Mediterranean....'

And the destruction continued wherever humans settled and pillaged, so that by the end of the nineteenth century almost all of the world's virgin islands had been despoiled. Old lands were colonised by Europeans, precipitating the second tidal wave of extinction.

' As technology, and particularly firearms, improved, even the continents proved insufficient refuges for some species.

Australia was also to experience a renewed cascade of extinction - the first in 46,000 years to blight the land- and it would literally decimate the island continent, carrying off one in every ten of Australia's unique mammal species. This time it was mostly the smaller species that were affected as sheep, cattle and changed burning practices modified the flora, and foxes and cats stalked the land. Curiously Australia's native rodents - descendants of rats and mice which arrived from Asia around four million years earlier - fared worse than its marsupials, with nine species in all disappearing. Among the marsupials it was the abundant wallabies and bandicoots that suffered most, and today entire tracts of the continent lack these formerly ubiquitous creatures.



A few of Australia's larger marsupials were actively hunted into extinction. The magnificent thylacine, the largest flesh-eating marsupial to survive into the modern age, became extinct in Tasmania in 1936. A bounty was paid on its scalp until the year of its demise. Likewise the toolache wallaby - the swiftest of them all - was hunted into oblivion for pelts and sport by 1939.

The last half-century has been marked by an intensifying effort to save the planet's biodiversity, but species by the hundred continue to slip quietly into oblivion. Indeed, many scientists would argue that, as the human population builds, the wave of extinctions is gathering momentum.

The world's frogs are now under severe threat, and hundreds if not thousands of species of freshwater fish are extinct or in severe decline. As the planet's rainforests are felled it seems likely that many species as yet undocumented will become extinct, for even large mammals are occasionally discovered in such places. Nor are the oceans immune. Factory ships and trawlers vacuum them for fish, and in 1999 news was first published that a marine fish, the barn-door skate, had been driven to the brink of extinction by such activities.'

The loss of any species (whether it be flora or fauna) contributes to such a gap in nature, and impacts significantly on the whole web of life. This is why it is so important that we each do our very best to protect, conserve and restore threatened species, ecosystems and habitats, and be more environmentally and biodiversity conscious.

REFERENCES: Flannery,T & Schouten,P.(2001) *A Gap in Nature*. Text Publishing:Melbourne.

CCSA NEWS

Blue Gum Threat To Swamps

Critically endangered swamps on the Fleurieu Peninsula (SA) are under possible threat by the expansion of thirsty Tasmanian Blue Gum (TBG) plantations. With only 500 hectares (ha) of the swamp communities left on the Fleurieu, the Australian Govt. listed the swamps as a critically endangered ecological community under the terms of the Environment Protection and Biodiversity Conservation Act 1999. In total, there are plans for 10,000ha of TBG plantations. There is genuine concern that planting Tasmanian Blue Gums in the swamp catchments may have a negative

impact upon their hydrology because of the thirsty nature of the tree. With no base-line data available to show there will be no impacts upon the swamps, there must be a thorough independent hydrological study. For example, a recent CSIRO report has found if the governments incentives and subsidies for plantations remain and that, as planned, the area under plantation in the River Murray catchment is trebled by 2020 the net effect on the River Murray will be minus 600 GL of waters.

What then are the implications for the swamps should more TBG plantations be given the green light? Every TBG plantation near critically endangered water dependent ecosystems should be referred to Environment Australia for assessment under the terms of the EPBC Act. To date, this has not occurred.

Yellabinna Campaign Hots Up

The campaign to protect Australia's largest mallee wilderness is hotting up. On August 18, in an action coordinated by The Wilderness Society, wilderness supporters phoned, emailed and faxed SA Environment Minister John Hill and Premier Mike Rann asking that at least 1 million hectares of the Yellabinna Wilderness be protected under the Wilderness Protection Act.

Yellabinna is a 4 million hectare mallee covered dune system north of Ceduna. It lies at a crucial biological transition zone and is one of the best preserved dune systems in the world. However, current nature reserves in the area are inadequate as not a single hectare of this vast wilderness is fully protected.

For more news and updates, check out the Conservation Council of SA website at www.ccsa.asn.au <<http://www.ccsa.asn.au>>



Australian Plants at Parliament House, Canberra

Dick Burns

During the 2001 conference, many of us visited Parliament House. The buses set us down in the underground carpark with the stairs leading straight up into the entrance hall. Our group went straight to the enquiry desk and asked, "where are the Australian plants?" The lady was unsure but directed us to the southeast side of the building. The dominant feature there was the formal garden full of clipped hedges and flowering prunus. So we wandered, and it was a delightful self-discovery when we finally found ourselves in the 'bushland' on the opposite side of the House.

More distressing than the exotics of the formal garden was the forecourt and the main approach. There was a round bed of *Grevillea 'Royal Mantle'* in various stages of dying. Leading away towards old Parliament House is a line of eucalypts, but they are underplanted with exotic juniper and honeysuckle. Comment was made that the only selection of Australian plants many people see are the carvings in the entrance hall.

We believed that for our Parliament House to be fully representative of Australia, the main approaches should be planted with Australian plants. As President Cindy Royston reported in the last newsletter, most groups returned from the tour with the same opinion, so at the next ASGAP Council meeting it was decided that letters should be sent expressing our concerns to the Prime Minister and leaders of the other political parties.

These letters were passed on to the Landscape Manager for Parliament House, John Lloyd. As a result Cindy, as ASGAP President, Hilary Merritt, ANPS Canberra Region, and I, who didn't make a special trip, had an informative and extensive tour of the gardens and courtyards on September 2 2002. I won't dwell too much on the drive to the gardeners' workshop. Canberra people will be thinking "country hick - he's from Penguin after all!". But Australia's capital city is not tourist-friendly; what appears on a map has insignificant resemblance to what is actually on the ground.

As John took us around we realised that he is sympathetic to our concerns. However he has a number of controls over what he can do with any replantings.

- Foremost are the architectural specifications set down in the original plan, and the controlling management plan. These specify details such as plant shape, leaf colour and often species to be used.
- Parliament House needs to be integrated with the rest of Canberra. As well it is the Australian representative or symbol of the Westminster System. The plantings are just one component of the link to the city and Westminster.
- Within his budget (yes he does have one), John has to obtain plants that have architectural merit, will succeed and are available in adequate size and numbers. To make a change from the strict specifications, the architects have to be approached.
- There is occasional divergence because of political needs. And even ASIO has caused some changes.

- The site hosts its own set of horrors. During construction, the top of Capital Hill was cut off, and a deep well cut into the clay subsoil for the concrete building. There was some backfilling with lots of sand, and a bit of top-soil. Many of the inner courtyards are just sand spread over concrete.
- The curves and concrete of the building funnel wind into some sections and enhance the heating effect of the sun. Once pests reach an enclosed spot, their effect is much greater than in an open situation.

Where he can, John has introduced Australian plants into the formal exotic plantings. Plants he has used successfully include *Correa* sp., *Philotheca* sp., *Homoranthus* sp., *Scaevola* sp. and *Dianella* sp. He proudly showed us a *Nothofagus cunninghamii* growing strongly in one courtyard.

Our particular concerns

a) the forecourt

The forecourt is designed to recognise the first Australians, with Aboriginal motifs, etc. As a symbolic plant, the Aboriginal people chose a form of *Grevillea 'Royal Mantle'* that had leaf shape and colour that resemble eucalypt leaves.

When the forecourt was being paved masses of concrete dust was created and it settled onto the soil already laid in the central bed. To help the grevillea cope with the high pH, masses of iron chelate were added through the years, so that it also was having an adverse effect. Since 2001, the soil has been replaced and the whole bed restarted.

b) the approaches

Leading away from the new building to Old Parliament House is a carpet of low-growing juniper. This was a purposeful choice: the older House has beds of juniper as well, so the junipers we saw make a symbolic link. The honeysuckle is growing in land beyond John's responsibility, and was the choice of the local Urban Services Department.

c) the lawn

The lawn over the building obviously takes up much valuable time and water. John would like to try less expensive Australian species, but even if an effective replacement were found, he would need a lot of propagated material.

d) the formal garden

This area is designed as a formal reception area. On the day, we had difficulty thinking of suitable replacement plants, particularly for tall hedge plants.

e) the President of the House's courtyard

This inner courtyard is also a reception area, but Australian plants are specified in the plan. This cannot be changed on political whim.

f) the carvings in the entrance hall

I suggested that there should be plantings of the real thing established for visitors to see. John said he would investigate this.

g) *indoor plants*

Inside the building is a number of potted plants. These have to be replaced regularly. John would be interested in trying Australian plants but has not been able to find a supplier.

Concluding remarks

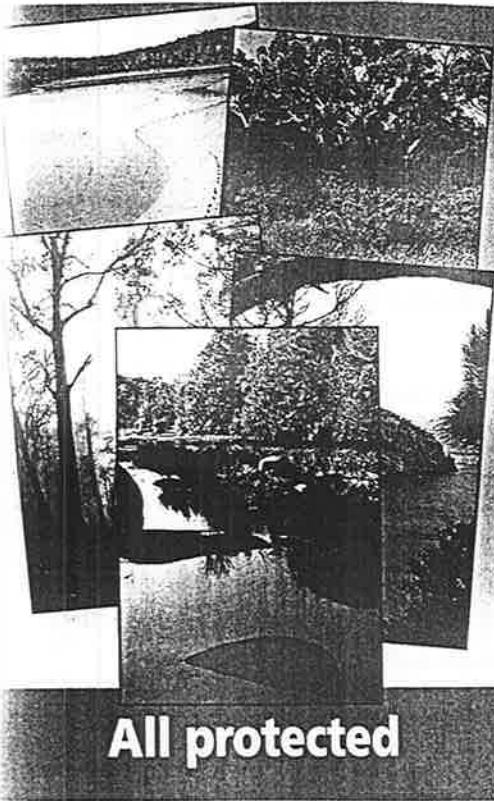
We came away with a clearer understanding of what is at Parliament House. And each of us volunteered to follow up on a few suggestions we made. John was left with the knowledge that he had the resources of ASGAP and all the regions to call on. Hopefully we, particularly the Canberra region, can keep up the communication with John. If any

group feels more can be done, could you contact either the ASGAP executive or the Canberra region. And of course there is that honeysuckle, which is regarded as an invasive weed in all States, including the ACT. Perhaps Canberra could discuss it with the Department of Urban Services. Let's not forget the people at the information desk. It's dobbing Canberra group in again, but would it be possible to have an outing to the House grounds and organise to take the receptionists around at the same time for a familiarisation tour?

Protected at Tarcutta Hills

Protected Carnarvon Station Reserve

Still Threatened!



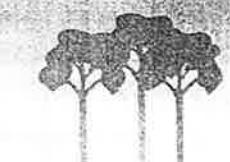
All protected

The Australian Bush Heritage Fund is a national, independent non-profit organisation which enables concerned Australians to protect private land of outstanding ecological value. This land is maintained forever as conservation reserves for the benefit of all Australians.

Donations from the community are a vital part of this conservation effort and help create these reserves and protect the habitats of many threatened plants and animals.

Bush Heritage currently owns and manages 13 conservation reserves: - four in Queensland, four in Tasmania, two in Western Australia (with a third one underway) and three in New South Wales. In February 2001 Bush Heritage bought Carnarvon Station, a magnificent 59,000 hectare property in central Queensland. This is an outstanding example of what can be achieved with community support.

Bush Heritage does not sell, rent or exchange personal information with any other organisation.



AUSTRALIAN BUSH
HERITAGE FUND

Australian Bush Heritage Fund

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CURRENT ISSUES

Beware the Bumblebee

In 1992 a feral population of the European bumblebee species *Bombus terrestris* became established in Tasmania following its illegal introduction. Some horticulturalists from the Australian mainland now want to import *B. terrestris* to pollinate horticultural crops in mainland greenhouses, particularly tomatoes. It has also been proposed that more genetic material be imported to Tasmania to increase the viability of that population.

But serious harm has already resulted in Australia from introduction of animals thought to be harmless or even beneficial, such as rabbits, foxes and cane toads. This highlights how important it is to know what impacts any animal will have, before we import it.

Bumblebees have an enormous potential to damage Australian native ecosystems. This species is thriving in Tasmanian native vegetation where it feeds on a wide variety of native plants. Its range already extends from sea level to an altitude of 1250 metres and across the entire range of annual rainfall levels in Tasmania, and includes five National Parks.

This has led to concerns that bumblebees will have serious impacts on other animals which feed on flowers, including birds, mammals, native insects and commercial honeybees.

Bumblebees displace two species of native bees by reducing the amount of food available in flowers and this displacement of native pollinators could result in reduced seed production in native plants, which are not effectively pollinated by bumblebees. An example of this is the bird-pollinated common heath *Epacris impressa*. Bumblebees take nectar by biting holes in these tubular flowers so do not pollinate them.

Of course, some northern hemisphere plants are adapted to bumblebee pollination, and if such plants then produce more seeds, seed production in some weed species will increase and cause other previously unpollinated plants to become weeds. For example, the bumblebee-pollinated fox-glove is a serious weed in New Zealand, where bumblebees have occurred since 1885, while it is regarded as a useful ornamental plant rather than a weed in the absence of bumblebees in Victoria.

If *B. terrestris* can increase seed production in tomatoes, it is likely that it will do the same for related plants with similar flowers. Many of these plants are weeds of agricultural land and disturbed forests, whose fleshy fruits are dispersed widely by birds.

As well as this indirect destruction of flora and fauna, bumblebees sting people so badly that grown men can lose consciousness. So the introduction of *B. terrestris* to the Australian mainland and the importation of new genetic material to Tasmania involves risks to native ecosystems, agriculture, the honey industry and the general public. And it is unnecessary in

the quest for greater horticultural productivity as Australian native bees already increase pollination and yield in greenhouse tomato crops.

Andrew Hingston, University of Tasmania

(Extracted from Australian Farm Journal BUSH, October 2000)

More about Bumblebees

Bumblebees are large, hairy, social bees belonging to the family Apidae. They are native throughout temperate regions of the northern hemisphere and in parts of South America. There are no native Australian species. However, one species, the large earth bumblebee *Bombus terrestris* has established in Tasmania, and a single individual has been found in Queensland. Four species, including *B. terrestris*, have become established in New Zealand.

Bumblebee colonies have queens, workers and males. The underground nests have wax cells which are stocked with nectar and pollen. Colonies are generally small (25 to 500 workers) but those of *B. terrestris* in New Zealand have had up to 3000 adults.

The large earth bumblebee is hairier and more heavily built than the European honeybee or the European wasp. Although many species of native bees occur in Australia, none resemble bumblebees. The large earth bumblebee is black with one yellow/ochre band across the front of the thorax, and another yellow/ochre band across the abdomen. The tip of the abdomen is buff or white, an important identifying feature.

Large earth bumblebee queens are 30-35mm in length, and make a loud buzzing sound during flight. Workers are highly variable in size, ranging from 8 to 22mm long. Males are similar in size and appearance to large workers. In comparison, the European honeybee *Apis mellifera* workers are approximately 15mm long and are dark yellow-orange and black. European wasps *Vespula germanica* are bright yellow and black, with workers around 15mm long, and queens up to 20mm long.

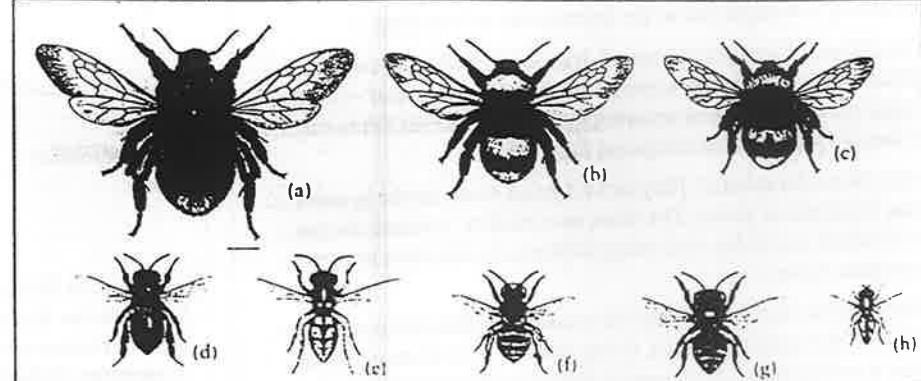
The large earth bumblebee is used commercially overseas to pollinate certain glasshouse and field crops. However, in Australia bumblebees could pose a potential threat to the environment and primary production. They could:

- ◆ compete with native fauna for nectar
- ◆ cause a decline in seed production of native plant species
- ◆ increase the seed production of introduced plants that currently lack an efficient pollinator.

(Extracted from Under Control : Pest Plant and Animal Management News, no 20, Jun 2002, published by Keith Turnbull Research Institute, NRE Frankston, Vic. Additional material from Keep Victoria Bumblebee Free – Agricultural Note, by Greg Lefoe and Jim Backholer, Vic NRE, Sep 2002.)

This note about Bumblebees is now available as a fact sheet. See enclosure *New Fact Sheets* for details.

- a) Large earth bumblebee – queen
 - b) Large earth bumblebee – male drone
 - c) Large earth bumblebee – worker
 - d) European honeybee
 - e) European wasp
 - f) Blue-banded bee (*Amegilla pulchra*)
 - g) Leaf-cutting bee (*Megachilidae*)
 - h) Hover fly (*Syrphidae*)
- (Illustration from Keep Victoria Bumblebee free – Agricultural Note AG1039)



A MEMBER'S EXPERIENCE**Wombats and Drought**

The Hairy-nosed Wombat (*Lasiorhinus latifrons*) has lived in the semi-arid regions of South Australia and beyond for thousands of generations and survived countless droughts.

Wombats cope with the extremes of temperature and dry conditions, where surface water is rare and ephemeral, by behaviour patterns that have evolved over many generations.

By living in burrows and emerging at night to feed, they avoid the high temperatures and low humidity that

would cause rapid loss of moisture. Though Hairy-nosed Wombats live in small groups within the warren, they lead essentially a solitary existence for most of the year, avoiding confrontations that waste energy.

They spend much of their time sitting on the mound outside their burrow entrance, contemplating their surroundings before proceeding at a leisurely pace to the nearest grazing source. Nevertheless, wombats are capable of galloping at speeds of up to 40 km/hr over short distances if hard pressed.

R.T. Wells found that physiologically, the Hairy-nosed Wombat is frugal, the rate of metabolism when resting is only two-thirds that of most marsupials. When resting in their burrows during the day, body temperature falls, thereby conserving both water and energy. The rate of water turnover and dietary nitrogen requirements are both low.

So, they have adapted well to the semi-arid climate, but what about the severe droughts that seem to occur every decade or so? Wombats react to a reduction in food and moisture in several ways. Though they need to extend their grazing range as the drought continues, they conserve energy by extended resting periods, even staying in their burrows for several days between feeding forays.

There is a reduction in breeding activity. Baking in the sun, almost unknown in good seasons, becomes prevalent, gaining body warmth that would otherwise be provided by food. In recent years, wombats have been resorting to digging up Nut-grass bulbs when other grasses are in short supply.

A wombat can lose half its body weight and still survive, so it takes a very severe drought to cause widespread death of wombats, though a decline in population is usually evident following a drought due to the interruption of breeding.

The effects of drought worsened dramatically when Europeans settled the land bringing sheep. The effect was two-fold – sheep competed for grass, and watering facilities increased the number of kangaroos who also competed for pasture.

Then came the rabbits! They can eat grass closer to the ground than wombats or sheep. The areas occupied by wombats began to diminish and today their range is much smaller than in pre-European times.

When the Society established Moorunde Wildlife Reserve in the 1967-68 drought, distressed, dying and dead wombats could be seen at every visit. The Society's first priority was to fence the



A Hairy-nosed Wombat at Moorunde

reserve and exclude sheep. Good seasons returned, the reserve's flora began to regenerate and the wombats flourished.

Another severe drought occurred in 1982 after two consecutive years of poor rainfall. There was little food and freezing temperatures added to their distress causing a number of deaths.

Amid mounting concern of members, some of whom donated funds, the Society decided, contrary to its general policy of minimum human intervention, to try supplementary feeding. The full range of available hay and feeds used successfully for captive wombats was distributed at several warrens. Water in bowls in shade was also provided. Surprisingly, the wombats totally ignored the offerings, walking straight through them to search the surrounding areas for the grasses to which they were accustomed. Subsequently, kangaroos ate the lot and it was concluded that the wombats were not going to benefit from our good intentions.

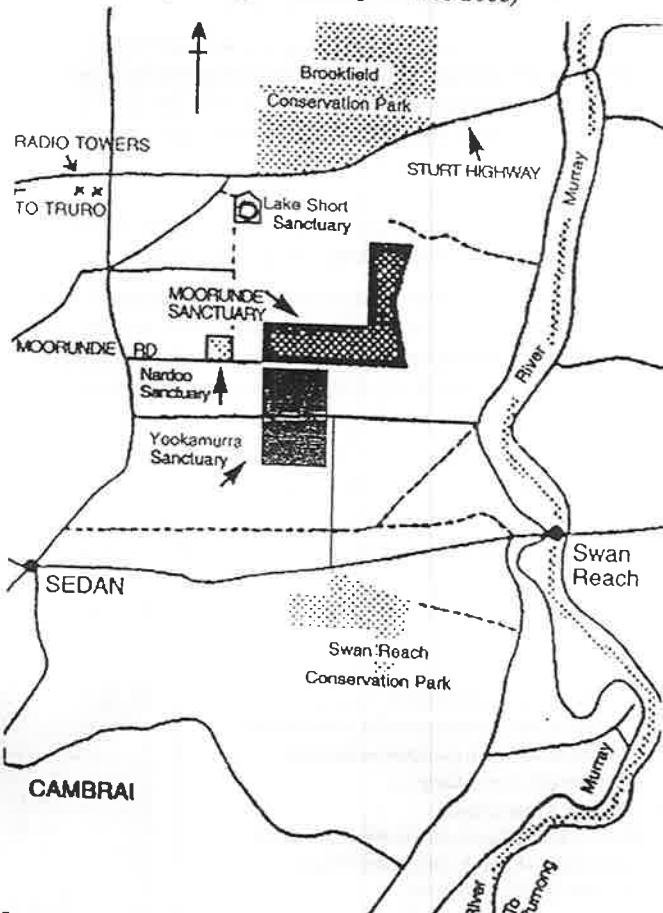
As it happened, there was a substantial loss in population, only the fittest surviving; but after some years of average seasons these survivors rebuilt the population to the highest recorded since the reserve was established.

Since 1994, rabbit control programmes have been carried out and if we can successfully keep the rabbit population low, the native wildlife will fare better, not only in drought, but in all seasons.

Glen Taylor

Fellow of the Natural History Society (a member of our Group), and the Volunteer Ranger Co-ordinator for Moorunde Wildlife Reserve.

(First published in Natural History : the official journal of the Natural History Society of SA Inc, Jan-Feb 2003)

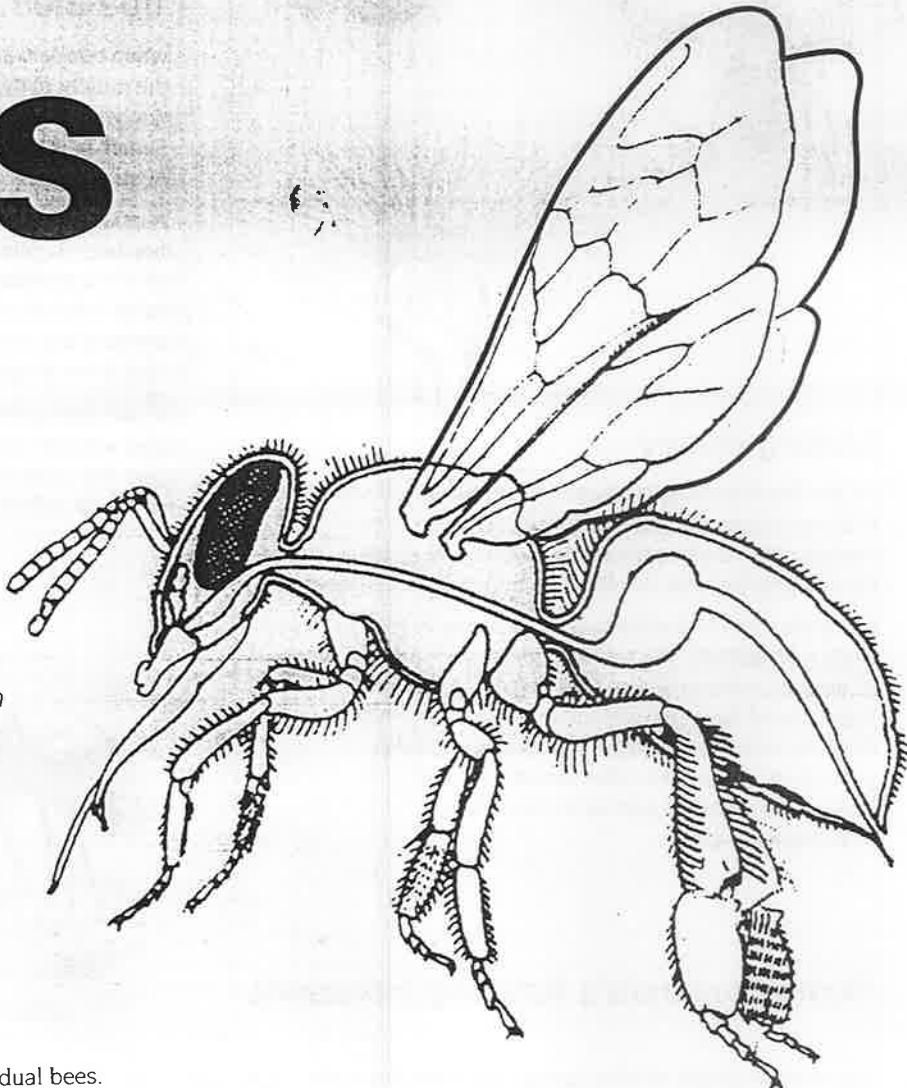


Location of Natural History Society's three reserves in the Sedan/Swan Reach area – Moorunde, Nardoo and Lake Short. Yookamurra Sanctuary is now owned by the Australian Wildlife Conservancy (see page 9).

Bees

What feral animal is very hairy, has four wings, five eyes, six legs, a tongue like a straw and a sweet tooth? It's *Apis mellifera* the European honey bee.

Honey bees first appeared in Australia in 1810. They came from England but did not survive long. Today's bees are the descendants of Italian bees imported in the 1880s.



Inside a Hive

A hive of honey bees may contain 50,000 individual bees.

The queen is the largest but she doesn't actually rule the hive. All the decisions are made by the workers. She has a fairly dull life. Her only job is to lay eggs.

Most of the bees in the hive are workers: sterile females who collect all the tucker, feed the queen, look after the kids, do all the housework, tend to any building or maintenance work that's required, and act as security guards. It is not surprising that most workers only live about nine weeks. Their muscles get worn out from all the hard work and their wings are torn and frayed.

The drones are male bees. They have a short life, of only five or six weeks. For much of the time there aren't any drones in the hive. The workers will raise a crop of them at swarming time, when some young queens are also being reared. Apart from acting as sperm donors, they're a pretty useless lot. They don't do any work and can't act as security guards because they have no sting. They don't even feed themselves. (They just poke out their tongues when they're hungry and the workers give them food.)

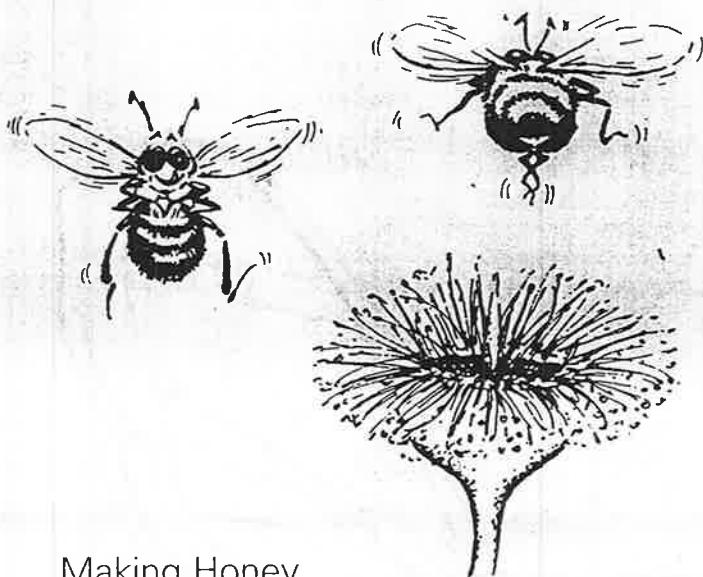
Swarming

If the hive becomes overcrowded, the queen will leave and start a new hive somewhere else. She'll take half the workers with her. This is called swarming.

Before the queen leaves, the workers raise a crop of young princesses, one of which will take the place of the departing queen. The first one to emerge as an adult becomes the new queen and kills all her little sisters to ensure she has no rivals.

About two weeks later, she embarks on her marriage flight. She flies out of the hive followed by the drones. She mates with several of them and stores their sperm in her body, before returning to the hive. She'll use this sperm for the rest of her life because she never mates again.

by Stuart Traynor
and the Gould League



Making Honey

As she flies from flower to flower, a honey bee collects nectar and stores it temporarily in a special sac in her tummy. She regurgitates this when she returns to the hive, feeding some directly to other bees and depositing the rest in a storage cell.

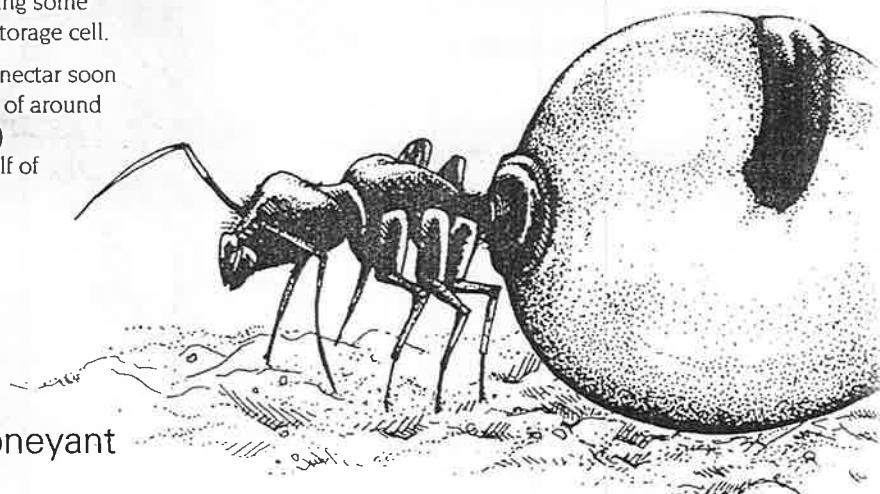
It is quite warm in the hive and so the water in the nectar soon starts to evaporate. (Nectar has a moisture content of around 80 percent, compared to only 20 percent for honey.) Reduction of the water content, however, is only half of the story of honey making. A chemical change also takes place. An enzyme called invertase in the bees' saliva splits the sucrose in the nectar into simpler sugars.

True Blue Aussie Bees

When the Darwin Stringybark (*Eucalyptus tetradonta*) flowers in the middle of the year, Aboriginal people in the north know that it's time to go searching in the tree trunks for sugarbag. Sugarbag is the honeycomb and runny honey made by native Australian bees.

Australian bees belong to the same family as the European honey bees (family Apidae) but are small, black and stingless. They are sometimes called sweat bees because of their peculiar habit of collecting human sweat (presumably to get the minerals it contains.) However, insect experts prefer that we call them stingless bees.

They are more common in northern Australia than in the cooler, southern half of the country. Their honey is more watery and acidic than the honey of European bees. Also their nest is built differently.



Central Australia's Amazing Honeyant

The Arrernte people of Alice Springs dig under the roots of Mulga trees for honeyants. These amazing creatures store the most delicious honey in their abdomen.

The following puzzle will reveal the Arrernte name for these special ants. First find the 29 insect words and colour the boxes as you go. You should have 8 letters left over. If you string them together, you'll get the answer.

ANTLION	GRUB	PUPA
APHID	HELIOTHUS	QUEEN
BEETLE	HONEYANT	TERMITE
BUTTERFLY	LARVA	THRIP
CICADA	LERP	WASP
COCCID	LICE	WAX
COCKROACH	MEALYBUG	WEB
EARWIG	MOTH	WEEVIL
GALL	NEST	WING
GNAT	PSYLLID	

M	P	A	Y	T	N	A	Y	E	N	O	H
E	S	P	R	E	L	T	E	E	B	E	T
A	Y	H	P	R	I	W	I	N	G	H	O
L	L	I	U	M	V	Y	L	I	C	E	M
Y	L	D	P	I	E	L	R	A	O	L	A
B	I	A	A	T	E	F	O	R	C	I	N
U	D	D	R	E	W	R	L	X	C	O	T
G	N	A	T	V	K	E	L	A	I	T	L
R	E	C	A	C	A	T	A	W	D	H	I
U	S	I	O	M	P	T	G	E	A	U	O
B	T	C	N	E	E	U	Q	B	E	S	N
G	I	W	R	A	E	B	T	H	R	I	P