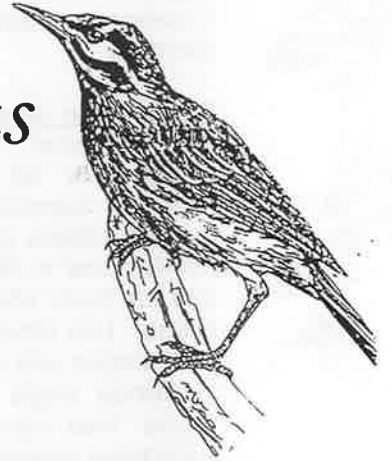


# *Wildlife and Native Plants Study Group Newsletter*



SPRING 2000

ISSUE 31

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**W**elcome all to the Spring 2000 edition of Wildlife & Native Plants.

As mentioned in the last issue September is Earth Alive! Biodiversity Month, and it is appropriate therefore that this edition focuses on biodiversity issues. In this edition we look at local seed sources for revegetation, weed species such as Lantana, frogs, kurrajongs, eucalypt woodlands and much more.

Continuing with the Census of species started last issue, we follow on with Extinctions - the destruction of diversity, as a timely warning.

**The destruction of diversity**  
(ack. *The Gaia Atlas of Planet Management, 1994*)

We are in the early phase of what looks likely to be an unprecedented era of extinctions. If large scale habitat disruption and destruction continue to accelerate, we run a real risk that the diminished stock of species will not represent an adequate resource base on which natural selection can work to rebuild the rich panoply of life. We should be worried about the loss of diversity for its own sake and because it threatens existing and potential future resources.

Everyone has heard of the extinct dodo, but did you realise that when the dodo disappeared, so too did at least one tree species, which relied on the dodo to help its seed germinate.

Current estimates suggest that we are losing between 50 and 100 species a day from the 5-30 million species thought to exist. By the time human populations reach some sort of equilibrium with this one-Earth habitat, at least a quarter of all species could have disappeared. The loss could even be higher, possibly one half. Habitat destruction is the most important cause of species loss. If present trends continue, particularly the loss of tropical rainforests, we can expect far higher annual rates of species extinctions.

*Chief Seattle said:*

*"There is no quiet place in the white man's cities. No place to hear the unfurling of leaves in the Spring, or the rustle of insects' wings....And what is there to life if a man cannot hear the lonely cry of the whippoorwill or the argument of the frogs around the pool at night?...Whatever befalls the earth befalls the sons of the earth. If men spit upon the ground, they spit on themselves. This we know- the earth does not belong to man, man belongs to the earth. All things are connected like the blood which unites one family. Whatever befalls the earth befalls the sons of the earth. Man did not weave the web of life; he is merely a strand in it. Whatever he does to the web, he does to himself."*

#### **In this issue:**

- **Kurrajongs** (carried over from last edition)
- **Eucalypt Woodlands**
- **New legislation EPBC**
- **Weed awareness - Lantana**
- **Frogs**
- **Earth Alive! Biodiversity Month Feature**
- **Local seed supply for revegetation**
- **Fire, seeds and parrots**
- **Book Reviews**

Happy Reading! Remember your views and comments are always welcome.  
Regards from your editor. Chris Jones

#### **REMINDER**


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**KURRAJONGS** - Tropical or Monsoonal Ornamental trees, previously known as Sterculia.

Brachychiton acerifolius is best known as the (Illawarra) Flame Tree. It is an exceptionally tall deciduous tree to 40m high. Its appealing features include the distinctive flame red flowers massed on the leafless tree in Spring and early Summer, and the trunk when tapped emits a hollow sound. Like other kurrajongs the fruits are boat shaped and leathery, opening in winter to display bright yellow oval seeds. The Flame Tree occurs naturally in lowland subtropical rainforests and scrubs on moist soils, however it does prefer sheltered sites in valleys along the eastern coast. It prefers areas free from frost. It has successfully been grown in SA where it has grown to about 10m in a pyramidal shape.

Brachychiton discolor is a medium to deciduous tree growing to 30m high, often referred to as the Queensland Lace Bark tree. It has a straight but stout trunk and distinctive large pink to red bell-shaped flowers in tight trusses in bunches in spring and summer. Fruits are boat shaped 7-12cms long with pointed tip. This kurrajong occurs naturally in dry rainforests and coastal areas of Qld. and NSW. It is rarely planted despite being a beautiful flowering, pyramidal, large plane or maple shaped tree with rusty undersurface appearance. It is ideal for landscaping and amenity parkland plantings, however does not tolerate limestone soils.

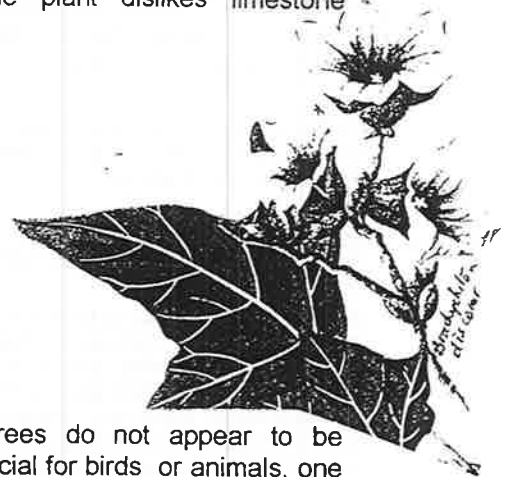
Brachychiton gregorii is the Desert Kurrajong found in WA, SA and NT. This tree bears foliage similar to the popular kurrajong, and flowers are creamish with small boat-shaped fruit. Adapted to the semi-arid inland the tree requires warm conditions and well drained soils to thrive.

Brachychiton populneus is the popular kurrajong, being a smaller tree to 20m in height. It too has a stout and strong trunk to 1m. in diameter and has a dense spreading crown of light green shiny leaves, Flowers are cream to greenish and bell shaped, with brown or reddish spots inside, and appear in spring and summer. Fruits are boat shaped beaked, and leathery brown, and these

open in winter and spring to reveal yellow, oval shaped seeds. The popular kurrajong occurs naturally on stony slopes, in open woodlands and dry rainforests below 1000m. in Qld, NSW and Victoria. It has been planted in the inland areas of eastern Australia and it is drought and frost resistant.

Brachychiton populneus-acerifolius hybrid  
First grafted in New South Wales in the 1890s. When B.acerifolius is budded onto B.populneus root stock a useful drought resistant form is created. It has pink flowers appearing in masses in the summer months. This kurrajong hybrid retains its foliage and is a useful species for planting in amenity parkland areas, as the tree is attractive, and drought resistant.

Brachychiton rupestris is best known as the Bottle tree. It is an unusual tree from the drier, inland sclerophyll and savannah areas of Queensland. It gains its name from the swollen trunk which looks like a large bottle. The tree has been successfully grown in southern areas, however it is frost tender in the early stages of growth. The foliage has also been used as fodder in drought conditions. The plant dislikes limestone areas.



While these trees do not appear to be particularly special for birds or animals, one could assume that their very height makes them an excellent nesting or perching tree for larger birds and raptors. Any ideas...any observations? .....let me know!

Information supplied from:

Cronin, L. (1988) Key Guide to Australian Trees. Reed Books: NSW.

Holliday & Lothian (1974) Growing Australian Plants Rigby: Adelaide, SA.

Rogers, F.J.C. (1973) Growing Australian Native Plants. Thomas Nelson: Melbourne, Vic.



The following articles are reproduced from 'Life Lines' Vol.6. No.2, 2000 the Bulletin of the Community Biodiversity Network

## **CONTINUING ENVIRONMENT CONCERNS**

Since March little has changed to resolve the large scale panic land-clearing underway in Qld. As the biggest current threat to Australia's biodiversity, it is ironic that Government's promoted 'Time to Act' for World Environment Day 2000. Land clearance undermines the current industry efforts to tackle climate change, as the rate of increase in greenhouse gas pollution from land clearing has worsened by 23% since 1997. The figure in 1997 was 13%, today it is 37%. The new report by Access Economics, 'Greenhouse Implications of Increased Rates of Land Clearing' -a Report to the ACF calculates that the net emissions in 1999 from land clearance in 1999 is estimated to have risen to 56.1million tonnes of carbon dioxide equivalent. Queensland faces the worst tree clearing problems with farmers accounting for 90% of the clearing in that state. Queensland graziers are now clearing at an estimated 2 football fields per minute.

## **ENVIRONMENT PROTECTION AND BIODIVERSITY CONSERVATION ACT 1999**

This Act, is a national policy and commences on July 16,2000. It sets out 6 matters of national environmental significance. These are:

- Listed threatened species and endangered ecological communities;
- World heritage properties
- Ramsar listed wetlands
- Listed migratory species
- Nuclear activities and
- The Marine environment

The Environment Protection and Biodiversity Conservation Act 1999 ("EPBC) also contains numerous provisions in relation to conservation and biodiversity. The Act provides for listing of nationally threatened species and ecological communities, internationally protected migratory species, cetaceans and marine species. Processes which pose a threat to these species may be listed as key threatening processes. The Act

also contains offence provisions for taking, killing, moving, trading or keeping a member of these listed species or communities in Commonwealth areas. Effectively all these provisions expand on the provisions of the old Endangered Species Protection Act 1992.

The Act provides for the establishment of many tools for biodiversity conservation, including:

- Recovery plans for threatened species and ecological communities; threat abatement plans for key threatening processes; wildlife conservation plans for migratory species and cetaceans;
- Establishment and management of the Australian Whale Sanctuary;
- Establishment of a register of critical habitat and offences for damaging critical habitat in Commonwealth areas
- Voluntary Conservation Agreements
- Provisions for establishment and management of protected areas, including World Heritage properties, Ramsar wetlands, Biosphere reserves and Commonwealth reserves
- Regulations for listing and control of invasive species.

## **NATIVE VEGETATION MANAGEMENT**

'Repairing the Country'-from a joint ACF-NFF Action Plan recently released.

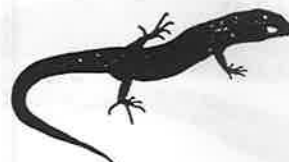
### **A Summary of the Key Findings**

Australia is facing a crisis. Problems like salinity, habitat loss, soil degradation, and river degradation and pollution are clear warnings that landscapes are not being used or managed sustainably.

These problems are already causing:

- Serious production losses that undermine farm viability; and
- The corrosion of rural and regional infrastructure such as roads, railways, pipes and buildings.

These problems also impact upon biodiversity and natural places, and upon industries such as tourism, that depend on these values.



### The problem

Trends in the degradation of rural landscapes are alarming. Land affected by salinity (already 2.5million hectares) is projected to increase to more than 15.5 hectares unless we act. On current trends 50% of woodland birds may be extinct within decades. In fact, most ecological and biophysical processes are under increasing pressure across much of Australia.

In many areas, communities are battling increasing costs and decreasing productivity as a result of accelerating effects of salinity, acid soils, soil erosion and associated problems. These stem from a long history of inappropriate land use, of past and present government policies, and of a failure of markets to adequately value soils, water and vegetation.

However, it is not just rural communities that are feeling the effects. The impact of land degradation is increasingly being felt in the wider natural environment and upon urban communities. Changing these trends for a more sustainable future is a responsibility for all of us that, if it becomes a national goal, will reap benefits for the whole country.

### SOME GOOD NEWS : PROTECTED AREAS

In June this year WA established a new 4,300 hectare forest park. The WA Government has put in place the foundation of its plan to form a continuous conservation reserve encompassing 10,000ha, around Wellington Dam and in the forest between Collie and Daranup, with the unveiling of the new 4,300ha Wellington National park. The Worsley land contains some magnificent stands of jarrah and blackbutt forest, including the biggest known blackbutt tree in the central forest region - a giant more than 41 metres high. Other parts of the proposed conservation reserve network include the Gervasse, Lennard and Davis forest blocks, which adjoin the new park along its western boundary.

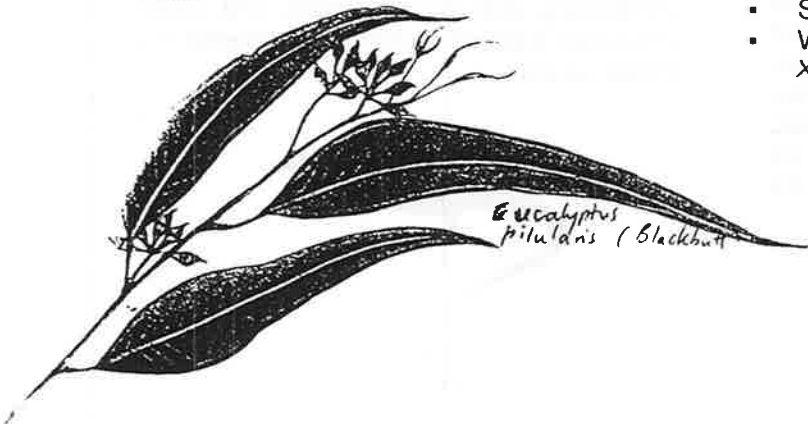
### WEED AWARENESS by Salvo Vitelli, of Qld. Dept Natural Resources

Alien species, which include weeds, are now being recognised on a global scale as the second biggest threat to the world's biodiversity behind habitat removal. These plants although green with some attractive features, pose a great threat to Australian primary industries, native plants and human and animal welfare. Of the 450 Australian weeds targeted by legislation, close to 50% have been deliberately introduced into the country.

Weeds are conservatively estimated to cost Australian primary industries alone in excess of \$3.3 billion per annum by increasing production costs and reducing productivity. There are now close to 3000 non-native plants that have been recorded as naturalised in Australian bushland. Many of these are becoming environmental weeds. The monetary cost of environmental weeds appears higher than agricultural weeds.

The National Weed Strategy produced in June 1999 listed 20 weeds of national significance. These are:

- Alligator weed - *Alternanthera philoxeroides*
- Athel pine - *Tamarix aphylla*
- Bitou bush / boneseed- *Chrysanthemoides monilifera*
- Blackberry - *Rubus fruticosus*
- Bridal creeper - *Myrsiphyllum asparagoides*
- Cabomba - *Cabomba caroliniana*
- Chilean needle grass - *Nassella neesiana*
- Gorse - *Ulex europaeus*
- Hymenachne - *Hymenachne amplexicaulis*
- Lantana - *Lantana camara*
- Mesquite - *Prosopis spp.*
- Mimosa - *Mimosa pigra*
- Parkinsonia - *Parkinsonia aculeata*
- Parthenium Weed - *Parthenium hysterophorus*
- Pond apple - *Annona glabra*
- Prickly acacia - *Acacia nilotica ssp. indica*
- Rubbervine - *Cryptostegia grandiflora*
- Salvinia - *Salvinia molesta*
- Serrated Tussock - *Nassella trichotoma*
- Willows - *Salix spp. Except S.babylonica, S.X calodendron and S.X reichardtii*





## LANTANA

(Ack. from an Article in North West Farmer, 17<sup>th</sup> July 2000)

Lantana was recorded this week as a major environmental and agricultural weed, as the plant has virus-like capabilities which could spread and impact on primary producers.

A weed of national significance Lantana currently infects four million hectares of agricultural land in Queensland, New South Wales and Victoria and has the potential to invade other states and territories.

John Thorp, National Weeds Strategy Project Manager said: "Just like human viruses different strains of Lantana have been able to cross breed with each other in the wild to create new strains of the weed."

Lantana is believed to cost the Queensland grazing industry more than \$7.5 million dollars annually through animal deaths, reduction in stock growth, loss of pasture and control. Apparently the chemical composition of Lantana has the ability to cause death and loss of vision in animals. It is an exotic plant from the Americas that was introduced as a garden plant like so many of Australia's weeds. The flowers entice birds which eat the fruit and deposit the seeds over large distances.

## LANTANA

Verbenaceae



A native of South America, it is adaptable to most soils and positions, and is drought and frost resistant.

## FUNGUS ALERT: HANDS OFF THE FROGS

From an article in the Sydney Morning Herald 20<sup>th</sup> July 2000  
Written by James Woodford

NSW children are being warned not to touch a frog unless they have disposable gloves on. The warning is issued by the NSW National Parks & Wildlife Service, in their latest report titled *Hygiene Protocol for the Control of Disease in Frogs*, aimed at protecting the frogs not the children from a fungal infection (chytrid) which is decimating the nation's frog populations.

NPWS is recommending that all frogs not be handled and that all tadpoles be returned to their exact place of origin.

The article suggests that 'Schools and TAFE colleges will be given a licence to remove a maximum of 20 tadpoles from one location in their local area for life cycle studies. Each school will require endorsement from an animal care ethics committee. And as soon as the tadpoles have transformed, they must be returned to their point of capture.'

The disease is known to have affected at least 30 species of Australia's 240 species from green tree frogs to can toads. The disease, is believed to have been introduced into Australia in the 1970s, and is considered one of the main reasons for the decline in frog numbers. The survival of species is further compounded by such other factors as climate change, the diminishing ozone layer, salinity and habitat disturbance.

There are about 2,000 species of frogs in the world. To protect Australia's 240 species it is suggested that the spread of disease can be reduced by not handling the frogs, and that species from different ponds not be mixed. This will not only protect the frogs but maintain habitats.

The article continues to say: 'The guidelines will also halt the practice of returning frogs where they came from interstate when they are found in produce, such as bunches of bananas.' These frogs will spend two months in quarantine and undergo disinfection before being transferred to a licensed frog keeper.'



Scientists and researchers will also need to abide by the new provisions such as disposable gloves, disinfection of footwear and vehicles.

The NSW Scientific Committee is soon to list 'Fleay's barred frog' as an endangered species



### FROG FACTS

Frogs prey on insects and other small invertebrates, and some species may eat reptiles, small mammals and other frogs. They hunt by sight and most take only moving, live animals.

The introduced Cane Toad however will take all manner of immobile prey including dog food and cigarette butts!

The first Australian frog seen in Europe was a Green tree-frog collected by Sir Joseph Banks during his voyage with Captain Cook in 1770.

There are at least 50 species of Tree frogs in Australia, abundant in the well watered northern and eastern coastal lands. Frogs are often brightly coloured but camouflage well in vegetation. There are three types of tree frogs: climbing tree frogs, rocket-frogs and water-holding frogs.

The water-holding frog was a traditional source of moisture for human desert travellers, who dug the frog from its burrow, squeezed out the water stored in the frog's body and swallowed it. The frog was also eaten.

Of the Southern Frogs, the Sandhill Frog was the first Australian frog to be protected by law.

The Turtle Frog of Western Australia is a burrowing frog which looks like a turtle. It relishes termites.

The Corroboree Frog lives in bogs of sphagnum moss in the Australian Alps. It is believed to feed on ants and mites.

Narrow mouthed frogs live in moist tropical rainforests and their continued survival depends on the preservation of this habitat. Narrow mouthed frogs lay their eggs in damp leaf litter.

Australia's only 'true frog' is the Australian Bullfrog found on Cape York Peninsula, Qld. and in Arnhem Land, NT. These frogs are usually seen at night, in grass near permanent water.

The introduced pest species, the Cane Toad is a danger to all. It can squirt poison up to a metre. Many Australian animals eat frogs, but one bite of a Cane Toad causes death. Crows turn a toad over and peck only its belly. Only the Keelback Snake appears immune to the toxin of the Cane Toad.

**Frogs are in a serious state of decline world wide**, was what the World Congress held in England in 1989 was informed. At present there are 34 Australian species of frogs considered endangered or vulnerable, with another 30 still being considered.

### Frogs are extremely sensitive to changes in their environment.

Frog expert Michael Tyler states: *'the innocent frog is being appreciated as a sensitive indicator organism of subtle environmental change. It constitutes an early, environmental warning system of benefit to humanity.'*

### HOW TO HELP YOUR LOCAL FROGS SURVIVE

- ❖ Learn as much as you can about frogs in general and identify which ones inhabit your local area.
- ❖ If developing land, preserve frog habitat. Don't drain frog-breeding sites.
- ❖ Make your garden frog-friendly, with damp, shady places, or include a backyard pond.
- ❖ Remember that frogs to exist tadpoles need to be left in peace.
- ❖ Don't use herbicide or pesticide if there are other natural ways to control a pest animal or plant.
- ❖ Discourage domestic pets from harassing or killing frogs.
- ❖ Learn to recognise cane toads, and exterminate eggs. (Eggs are in strings not masses, tadpoles are completely black)
- ❖ Don't eat frog legs or other delicacies of frogs.
- ❖ When off road driving, avoid damaging creek banks, sand dunes or shallow swamps.
- ❖ Identify frog sounds.



*[Ack. Information on Frogs from Slater/Parish Amazing Facts about Australian Frogs and Reptiles (1997)]*

**SEPTEMBER IS EARTH ALIVE!  
BIODIVERSITY MONTH** *(ack. CBN, 2000)*

Earth Alive is a national celebration of Australia's rich diversity of life, and September and the celebration, between 1-15 September represents what all Australians can do to help conserve wildlife habitat. Biodiversity month is held in September each year, the first month of Spring - the season of life. It is co-ordinated nationally by the Community Biodiversity Network.

**The theme for 2000 is protecting and restoring wildlife habitat.** The slogan is: "*Hands on for Life.*" The national ecosystem in focus will be woodlands, particularly their role in providing habitat for native birds.

Australia is a special place. Over one million different animal and plant species, and hundreds of ecosystems call Australia home - about 7.5% of all life on Earth. Biodiversity underpins our way of life. Forests and bush filter the water that most Australians drink, and produce fresh air to breathe. Australian plants are the source of medicines that help treat diseases from leukemia to motion sickness. Our national parks earn billions of dollars each year from tourism. We are also starting to appreciate the immense value of our native bush in helping hold natural cycles in balance, such as keeping water tables stable and dryland salinity in check.

But Australia's diversity of life is in trouble. The independent National State of Environment Report concludes that continuing loss of biodiversity is probably Australia's biggest environmental problem. Despite the scale of the problem, market research has shown that most people still think that biodiversity loss occurs overseas or in the Australian outback. Indeed, only 1 in 10 Australians even knows what biodiversity means.

To turn this problem around, communities and governments around Australia are getting more involved in protecting remnant vegetation, restoring wetlands, and conserving wildlife habitat. Earth Alive! Biodiversity Month aims to both increase awareness about the importance of the species, habitats and ecosystems in your local area, as well as celebrate the efforts of local and regional groups to conserve biodiversity. To get involved check out the CBN website at [www.cbn.org.au](http://www.cbn.org.au) to find an event near you.



**NATIONAL THREATENED SPECIES DAY**

National Threatened Species Day is held on September 7 each year to mark the day in 1936 that the last Tasmanian Tiger died in captivity in Hobart Zoo. It aims to raise awareness about Australia's threatened species, and also encourages all Australians to get involved in helping save these unique and special plants and animals and the environments they live in.

**EARTH ALIVE HABITAT GARDEN**

Where good looks and native wildlife meet.

Ever wondered how to produce a garden that is both visually stunning and provides homes for a range of local native plants and animals?

"An Earth Alive Habitat garden is a very practical way to help conserve native plants and animals found in your local area," Andreas Glanznig says. "Providing homes and shelter for native birds, lizards, frogs and other wildlife connects backyards to the web of life in the region."

According to the National State of the Environment report, the loss of habitat is the biggest threat causing the decline of Australia's plant and animal species. Our birds are particularly at risk, with one of Australia's most senior biodiversity scientists projecting that half of Australia's land birds will become extinct by the year 2100.

The Earth Alive! Habitat Garden is part of Earth Alive! Biodiversity Month being celebrated throughout September. Biodiversity Month includes hundreds of events that promote biodiversity and how families and communities can get involved in conserving Australia's diverse range of native plant and animal species, and ecosystems. Sir William Deane, Governor General of Australia, is the patron of Biodiversity Month.

The Earth Alive! Habitat Garden will be on display at the Darling Harbour Festival of Gardens Exhibition between 24-27 September at Tumbalong Park, Darling Harbour, NSW.





## LOCAL SEED SUPPLY FOR REVEGETATION - How local is local seed?

The issue of seed supply has been one which has concerned me over the past five years as more and more revegetation projects and landcare groups collect seed from remnant bushlands and road reserves. The question, 'How local is local?' has been raised often, and is an area of concern on several points.

Firstly, the amount of seed being collected by well intentioned people for revegetation projects, eg. landcare and catchment groups, has often caused a major problem in the natural world, and also impacts on the commercial and economic situation. This is because remnant bushland becomes trampled and collection is on an adhoc basis where there is little concern for the numbers of same species plants. To be sustainable collection needs to occur from a range of species where there is at least five to ten healthy plants of that same species in that location. Collecting all the seed from one bush when there is only one plant of that species spells doom in the natural world, and places that species into a precarious situation often bordering on extinction in that region. When numbers of people also collect from the same plant over a period of time in one growing season, this also drastically reduces the available seed and the viability of seed remaining. This then interrupts the natural regeneration cycle of the plant.

Secondly this then means that seed for other projects must come from greater distance and therefore is often of different genetic variation. This may cause modification of the species in a remnant area as different strains of genetic material are introduced.

How local then is local? Still a tough question, as some species could be within a kilometre, others within a five kilometre radius and still others at 50kms. distance. This often comes back to the seed supplied from such groups as Trees for Life which has been collected in a defined region which may be a botanical bioregion and be collected from a number of different locations over thousands of hectares. Then there is the argument that the landscape has been so modified, what does it matter? There is also the argument that in Pre-European times the vegetation would have been much more diverse than it currently is, and species would have

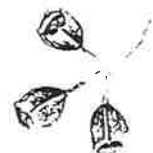
occurred across a larger range. This then supports that plant species occurring in one part of the region should be incorporated into other parts of the region.

Some may argue that the landscape is already modified beyond its natural state, so then the argument becomes, what does it really matter, as long as trees are going into the ground. Can we have our cake and eat it too? I believe so.

In the first instance we should be reintroducing back into the same area the seed that has been collected from that area, particularly when reintroducing species into remnant patches of bushland, or in only slightly degraded areas. This of course is vital in our National Park areas, Crown reserves and heritage areas. The 'natural' native vegetation is unique and the habitat and ecosystem which has evolved is the most adaptable to that particular area. It has adapted to suit the existing conditions. If we cannot obtain seed locally then we should be trying to obtain seed from the closest available area, generally that within a few kilometres for this particular type of revegetation.

When wanting to introduce seed and/or plants into an agroforestry situation, in farm paddocks for windbreaks, stock shelter or fodder, in amenity or landscape gardening, or even in home gardens we need to be able to choose the right species for the desired outcomes. This is selected with as much care, simply to ensure that the species are suitable for the conditions - eg. the pH of the soil, the climate, rainfall, soil type such as clay, sand or loam, and whether the species chosen can sustain frosts or droughts. Because of the range of species available, which often include hybrid species cloned in nurseries seed from different provenances are introduced. We have all probably at some time introduced species into our gardens which are non-local provenance, that may be from other areas of Australia, or even exotics. So you see, we can have our cake and eat it too. It is all a matter of logic.

We can have a very rich and colourful garden by combining local provenance and other introduced provenance species in urban and rural areas, providing we are not planting in a remnant area or along watercourses. In some cases species which are introduced into an area, will over a period of time adapt to become almost a part of the natural landscape, and they then out





perform or even enhance the native species. This is purpose planting, and the purposes can be as varied as the species trialled, but is most often for providing windbreaks, fodder and for attracting birds. Some species such as the arid land plants do exceptionally well in mallee areas, as the conditions are not so dissimilar- the plants needing to be drought and frost tolerant, able to survive on less than 300mm rainfall, and capable of adapting and thriving on poorer soils.

Our botanic gardens around Australia have both local and introduced species not only from home but from overseas as well. They are exceptional areas of beauty and shade, and a delight to view. This supports the view that there must be two types of areas, that which allows for the study of many botanical species and growing plants for enjoyment and purpose, and the other for introduction of only local provenance in remnant areas which are being regenerated and revegetated.

The natural bushland cannot survive the onslaught of many hundreds of people collecting seed from the same bushes, simply for the purpose of putting local seed back into the same area. Government authorities need to ensure that seed collected from the wild is harvested sustainably and for the right purpose such as for revegetation of remnants, corridors and road reserves in rural areas. Seed for farmland should come from that property, or be introduced from commercial seed orchards or merchants. It's a tough call I know, but it is the only way that our natural heritage will remain viable and protected, for future generations.

It is evident throughout much of Australia that we have modified our environment to such an extent that our vegetation is in many instances in a state of decline, landscapes are degraded, and species are not regenerating naturally. So much damage we have unleashed on the natural system, that we have inadvertently altered the natural world, and the species own capabilities of adapting to natural disasters eg. insect imbalance.

Over the past ten years much successful revegetation effort has occurred as a result of the Landcare movement, and communities becoming responsible and aware of the problems we face. They have been trying to re-establish vegetation on lands that have been degraded, on soils that are suffering from dryland salinity,

waterlogging, erosion etc. In most instances the results speak for themselves and have been very successful. However we cannot replace trees at the same rate as Governments and developers are in some parts of Australia are allowing their removal, and neither can we let adhoc collection continue at the decline of our native bushland. There are many millions of hectares that have been revegetated and these areas themselves should be able to support ongoing local revegetation efforts through the seed orchard environment.

Regardless what belief you have of our native plants, and the revegetation or regeneration of the countryside, we must not become too complacent. We cannot afford to lose our valuable remnant patches, nor can we sit back and allow introduced and exotic species to become pest plants in either an agricultural or a conservation sense. At the same time, we cannot sit back and do nothing, while our soil blows or washes away.

#### YOUR VIEWS



Helen Moss (SGAP Vic.) has some equally strong views on human interference and the introduction of non provenance species. She states categorically that 'what remains of our local bushland, and its diverse but interdependent species, must not be 'rationalised' for the sake of expediency.' In her letter she says, 'The idea of using locally-sourced propagating material to produce plants for local regeneration projects is to preserve local variations present in plant species that may be very widespread.

Certainly, where the population of a particular species on one site has declined to the extent that it is no longer viable, other plants of the same species must be introduced if the population is to survive. These plants should ideally be sourced from the closest population of that species, not from the first available, or most convenient, source. As Kermit said, it's not easy being green, but if we get it wrong, it is the ecology of the site in question, and ultimately the biota of Australia as a whole, which loses.'

My sentiments exactly in areas of conservation significance. We need to be environmentally conscious, but we also need to be realistic as revegetation and planting species occurs for other reasons than to restore the landscape. There must be a balance in everything we do. We need



to use common sense when we are planting for a particular purpose. In some areas which have been dramatically altered and modified by both human and natural means, and where local species are no longer an option, it makes good sense to introduce other natives that perform best under those conditions. For example on badly degraded and saline discharge areas, one wouldn't plant the whole lunar landscape, but plant windbreaks and salt tolerant species from the edge of the saltpan back to other unaffected lands. This will prevent or reduce saline expansion, provide a necessary windbreak to prevent sand dunes from blowing out further, and may be of value for fodder in drought periods, while also returning organic matter to the soil.

Similarly in an agroforestry situation, there must be a number of native species that have proven themselves as a timber product, but there must also be some quick growing introduced species that can provide economic returns. Realistically a mixture of species should be used, as markets will determine what is planted. Timber species in agroforestry are selected on their capabilities to perform and provide a specialty market whether it be for furniture construction, building, fence posts, firewood or woodchips. Once again the location will demand the types of species planted and common sense must be used where there are nearby creek or drainage lines.

Common sense must prevail!

### **Some Quotes on TREES**

*Frank Lloyd Wright said:*

*'the best friend on earth of man is the tree. When we use the tree respectfully and economically, we have one of the greatest resources of the earth.'*

*Lucy Larcom said: 'he who plants a tree plants hope.'*

*Alexander Smith is quoted as saying:*

*'A man does not plant a tree for himself, he plants it for posterity.'*



*Eucalyptus gracilis*

### **A STRATEGIC FRAMEWORK**

A strategic framework has been identified by Warren Mortlock in his research and action plans of Florabank. Warren has also recently submitted an article pertaining to local seed supply for revegetation and offers similar viewpoints as I shared with you earlier. He questions where all the seed will come from? The article covers the major issues about seed, and calls for a strategic approach at local and regional levels with the strong support of state and national governments to better supply the seed needs of community revegetation projects.

Adequate supply of local seed is an issue of great strategic significance in addressing big environmental problems such as salinity, erosion, vegetation decline, and loss of biodiversity. It is a fundamental resource management consideration. The article is recommended to you for reading.

FloraBank aims to improve the availability and quality of native seed for revegetation and conservation purposes in Australia. Our goal is that people are better informed about collecting, storing and using native seed, that they exchange information and share ideas about native seed. We encourage practices that protect Australia's biodiversity.

Greening Australia administers FloraBank in partnership with CSIRO Forestry and Forest Products through the Australian Tree Seed Centre, and the Australian National Botanic Gardens.



### **NATIONAL WATTLE DAY**

If you haven't heard, September 1<sup>st</sup> is National Wattle Day. On this day many groups Australia wide will be celebrating and undertaking community activities. It is also planned that the Prime Minister will make a statement encouraging everyone to support the purpose of Wattle Day, as a day of unity. Wattle Day has been promoted and organised by the Australian Plants Society in conjunction with the McFarlane Burnett Medical Research Centre.

# Eucalypt Woodland

## Green Tea-tree *Leptospermum coriaceum*

Growing as a shrub, green tea-tree occurs in clumps and thickets in mallee and woodland. It is often on dune crests and calcareous sand where it flowers in the spring, its pollen and nectar providing food for many insects.

## Soft Millotia *Millotia tenuifolia*

A small annual forb, soft millotia produces creamy-white or yellow flowers in late winter and spring. Mainly occurring on sandy soils, it grows in winter and quickly dies once the hot dry weather of summer arrives.

## Yellow Gum *Eucalyptus leucoxylon*

While its pollen is sparse, yellow gum is a prolific producer of honey, an important food source for birds and insects. Yellow gum grows on heavy alluvial soils, clays and sandy loams. It forms the dominant overstorey in woodlands of the southern mallees, although at the limits of its range it may grow as a low, stunted tree on these sites.

## Wood Gecko *Diplodactylus vittatus*

The terrestrial wood gecko usually spends the day in or under fallen logs, branches or litter. It forages for insects in the litter and under shrubs and tussocks, needing to use the cover for protection from predators.

## Baeckeas *Baeckea* species

The moister sites of mallee communities support the baeckeas, or heath-myrtles. The numerous white or pinkish flowers of these low, woody shrubs appear in spring and summer, providing food for native bees and other insects. The desert baeckea, *Baeckea crassifolia*, forms part of many mallee communities.

## Dwarf She-oak *Casuarina pusilla*

Most frequently found in the sandy heaths of the southern mallee communities, the dwarf she-oak grows as a shrub or small tree on better-watered sites.

## Brown Stringybark *Eucalyptus baxteri*

Many insects shelter in and beneath the bark of brown stringybark. This tree usually grows on poor sandy soils over a clay subsoil deficient in minerals. In woodlands of the mallee it is at the limits of its range and is often a small, stunted tree.

## Chocolate Wattlebird *Chalinolobus morio*

Moths are pursued with great aerial manoeuvrability by the chocolate wattlebird. It mainly roosts and nests in tree hollows. It has a short hibernation period in mid-winter, feeding on insects into late autumn and again in early spring. Insects are usually in short supply in both periods, but other bat species have a longer hibernation and hence are not competing for this sparse food at the time.

## White Cryptandra *Cryptandra leucophracta*

One of the many low shrubs in eucalypt woodland is white cryptandra, the flowers of which appear in spring and summer. It mainly occurs on sandy soils.

## Broad-leaf Hopbush *Dodonaea viscosa*

The shrubby broad-leaf hopbush, or sticky hopbush, is scattered through yellow gum woodlands. It also forms thickets in openings in the eucalypt canopy which are much-used by small birds for cover and nesting. The leaves are eaten by a wide variety of insects. It is most common on disturbed areas.

Little eagle x 1/8



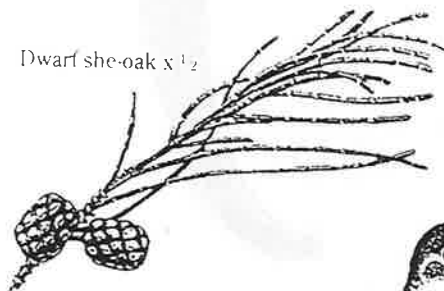
Desert hakea x 1



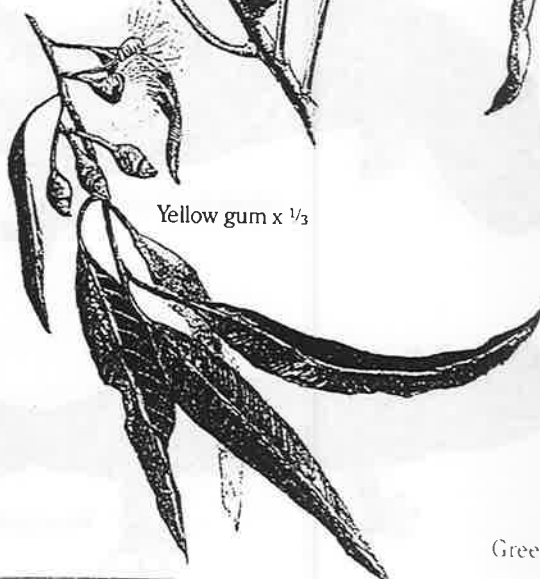
Wallowa x 2/3



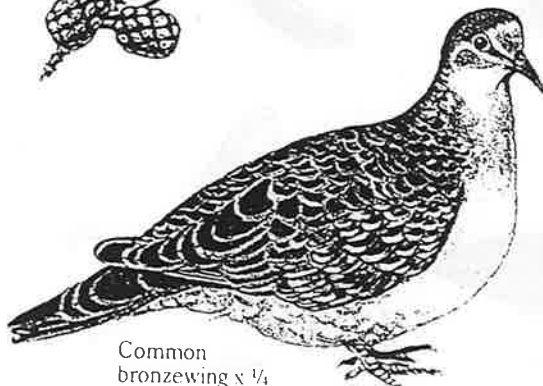
Dwarf she-oak x 1/2



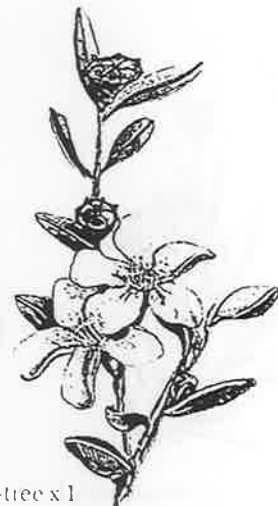
Yellow gum x 1/3



Common  
bronzewing x 1/4



Green tea-tree x 1



**Golden Pennants** *Glischrocaryon behrii*

Common on sandy soils in many southern mallee communities, golden pennants flowers profusely in the spring. The rigid stems of this perennial form dense ground cover for many animals.

**Desert Hakea** *Hakea muelleriana*

Widespread in the southern mallee communities and yellow gum woodlands, the desert hakea grows as a rounded shrub. Sometimes forming dense thorny thickets, it is used as cover by small birds and reptiles.

**Shingle-back** *Trachydosaurus rugosus*

The slow-moving shingle-back is a lizard often encountered crossing roads and tracks. It is diurnal and feeds on invertebrates, especially insects and snails, and carrion, fruit, berries and flowers. When inactive it shelters under debris, fallen branches and dense tussocks of native grasses.

**Wallowa** *Acacia calamifolia*

This wattle is mainly found in woodland and open woodland on a variety of soils, but usually calcareous sands. It is a tall, erect and bushy shrub, with seeds that are eaten by mallee fowl.

**Native Bees** Colletidae & Halictidae

Eucalypt and tea-tree flowers are the main food for native bees. Few native bees are social and most are solitary. A female will make a nest without the cooperation of others and undertake all of the duties at the nest. For some Australian species a few individuals will live together in a nest, but there are no queen or worker castes. The nest may be a burrow in soil or in soft wood where a limb has broken off. While each nest may be separate, there are often many individual nests in a small area. Some native bees are stingless and their honeycombs were keenly sought by Aborigines.

**Common Brush-tailed Possum** *Trichosurus vulpecula*

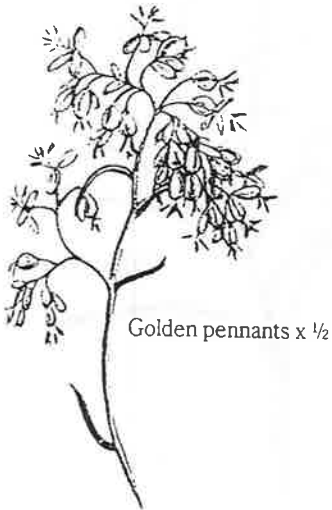
This common nocturnal possum lives in a wide range of open forests and woodlands. It spends the day in dense debris or a hollow tree, branch or log. Its diet is mainly eucalypt and other leaves. This must be supplemented by fruit, buds, bark or ground plants to offset the toxic poisons in the eucalypts. Its major predators are dingos, monitors, *Varanus* species, and carpet pythons, although they do not seem to seriously deplete possum numbers.

**Little Eagle** *Hiraaetus morphnoides*

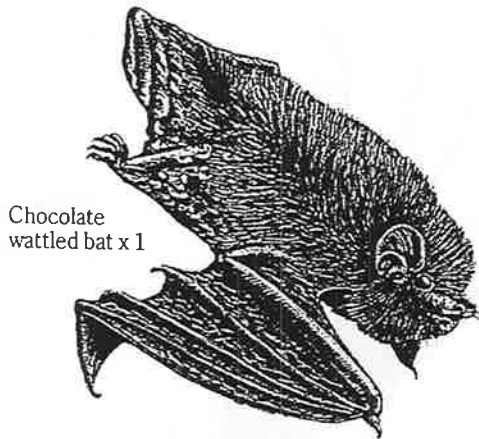
Tall trees are used as lookouts by the powerful little eagle. From these it drops onto young rabbits and other small mammals and reptiles on the ground. There are occasional records of it taking Richard's pipit and also carrion. It prefers dry woodlands and wooded farmlands because it rarely catches its prey in flight, although it has been observed 'hawking' grasshoppers. The little eagle also congregates at mouse plagues. It breeds in late winter to spring and builds stick-nests in trees (often in belahs) or uses the old nests of other birds.

**Common Bronzewing** *Phaps chalcoptera*

The nests of the common bronzewing are usually close to the ground, often in a low fork in the branches. This native pigeon feeds on the ground in clearings, and in woodland and mallee with an open understorey. It primarily feeds on seeds, although a few insects and small snails are also consumed. Among seeds eaten are introduced thistles, paddy melon, kurrajong, wilga, cassias, wattles, saltbush and ballart.



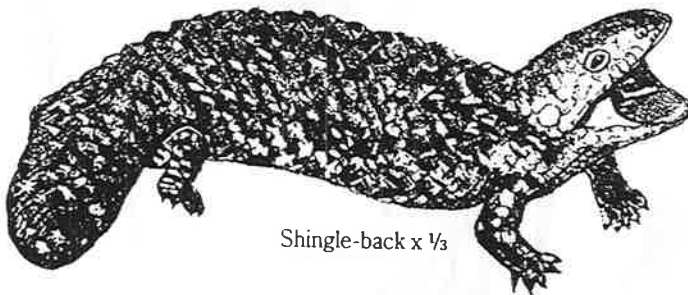
Golden pennants x 1/2



Chocolate wattled bat x 1



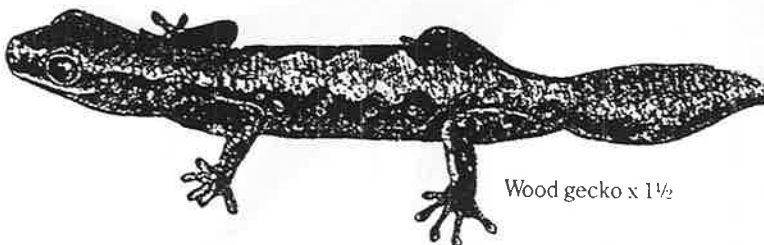
Common brush-tailed possum x 1/4



Shingle-back x 1/3



Soft millotia x 2/3



Wood gecko x 1 1/2



Native bee x 3



**JARRAH - *Eucalyptus marginata***

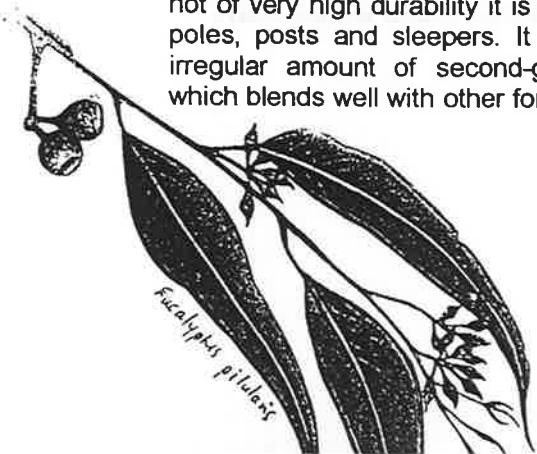
Jarrah occurs in the south west corner of Western Australia, with its prime locality being in a wide belt extending along the Darling Range near Mundaring to east of Perth and south to Albany. A feature of jarrah is its occurrence in fairly pure stands, although marri (*E.calophylla*) commonly occurs with it. Jarrah is one of the most important hardwoods of Australia, being strong, durable and termite resistant. It is used for nearly all purposes -poles, piles, sleepers, heavy construction and general building. Because of its attractive finish it is also used as a finishing timber in furniture construction and building. It is not used as firewood because it has poor burning qualities.

As a small forest tree it grows to a height of 45m with a spread of 7m. It has an erect trunk with reddish grey fibrous bark. Leaves are dark green and glossy. Flowerbuds are orange and conical occurring in groups of 4-8 and the flowers are white appearing from Spring to summer. Jarrah prefers light to medium, well drained soils in a protected sunny position. It is drought and frost resistant.

**BLACKBUTT - *Eucalyptus pilularis***

Blackbutt is common in coastal locations on the eastern seaboard, particularly NSW and south eastern Qld, and also occurs on Fraser Island. It is typically found on slopes of hilly to mountainous country between the sea and the coastal escarpment of the Great Dividing Range. Blackbutt mainly occurs on sandy loams, but is adaptable and grows well on clays and volcanic soils. However it is frost and drought tender. It frequently forms pure stands, and because of its height as a forest tree (70m with a spread of 6m) dominates other species of eucalypts except rose gum (*E.grandis*) in valley bottoms and river flats. It is most closely associated with tallowwood(*E.microcorys*), Sydney blue gum (*E.saligna*) and red mahogany (*E.resinifera*).

Blackbutt is one of the most important hardwoods of Australia being used in general and house construction. Although not of very high durability it is also used for poles, posts and sleepers. It produces an irregular amount of second-grade honey, which blends well with other forms of honey,



but has a strong sharp flavour with a strong, sharp flavour. The tree regenerates well.

Blackbutt is a tall forest tree with erect trunk, fine fibrous bark at the base with whitish or yellowish bark above. Leaves are glossy green and narrow. Flowerbuds are greenish occurring in groups of 6-12. Flowers are creamy white appearing from Spring to Summer and the fruit are brown globular capsules.

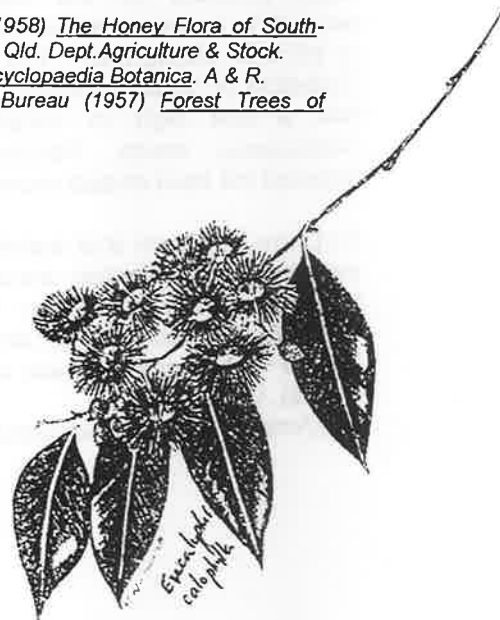
**MARRI - *Eucalyptus calophylla***

Marri is widely distributed throughout southwestern WA and in association with jarrah and karri (*E.diversicolor*). It naturally occurs on the plateau of the Darling Range and the slopes from the range to the sea. It thrives best on alluvial and lateritic soils. On the drier side of its range it extends into the wandoo zone (*E.wandoo*).

Marri is a light coloured timber and its uses are restricted to light construction. It is of value for its ornamental botanicals and flowers.

Marri grows to a height of 30m with a spread of 6m. It has a short, stout trunk and is covered with rough, flaky bark. Smooth, glossy, dark green leaves (up to 18 cms. long) have a paler undersurface. Flowerbuds are small and yellowish green occurring on long stalks, and flowers are creamy white to pale pink appearing in summer. Fruit are large urn shaped capsules. The tree is drought and frost resistant.

*Acknowledgments.*  
 Blake, ST & Roff, C. (1958) *The Honey Flora of South-Eastern Queensland*. Qld. Dept. Agriculture & Stock.  
 Bodkin, F. (1986) *Encyclopaedia Botanica*. A & R.  
 Forestry & Timber Bureau (1957) *Forest Trees of Australia*. C of A.



## FIRE, SEEDS & PARROTS

(Ack. Article by Tim Low, *Nature Australia* Spring 1999)

In heathlands, many plant species store their seeds in woody, fireproof fruits that only open after fire. Storage of seed in the canopy is termed 'serotiny.' Serotinous plants do not shed seed annually but accumulate this seed in their woody capsules. Many of Australia's best known shrubs and trees are serotinous, including some eucalypts, banksias, sheoaks, hakeas, callistemons and beaufortias. However don't be misguided into believing that all have adapted this mechanism for it is simply not the case. Within many genera there are strongly serotinous species, non-serotinous species and others that store some seed and shed the rest seasonally.

The process of serotiny is rare in most parts of the world, although African heathlands and pinus species in North America occur. Australia has more serotinous plants than any other land, which must reflect the pivotal role played by fire on this ancient continent. *Banksia archaeocarpa*, a fossil species from Western Australia (at least 50 million years old) has thick woody follicles indicating that it was a serotinous species.

Parrots are well adapted to obtain the serotinous seeds from woody follicles, and hence the belief that Australia has high numbers of parrot species for this reason. The serotinous seeds are certainly high on the diet list of black cockatoos which crack apart the woody fruits of hakeas and dryandras in WA, and other Black and Red-capped Parrots extract the seeds from the huge gumnuts of the marri (*Eucalyptus calophylla* or *Corymbia calophylla*) which appears to be their staple diet. The Glossy Black Cockatoo of south - eastern Australia also has a diet high in serotinous sheoak (*Allocasuarina*) seeds. Parrots have also targeted the hard coated exotic Pinus seeds.

Tim Low suggests that serotiny could also explain why Australian shrubs and trees become weeds overseas. He mentions Hakeas in South Africa and the Broad leaved Paperbark (*Melaleuca quinquinervia*) in Florida, USA.

(Ed. Note : So what's their excuse?)



## BOOK REVIEWS

*The Best of Australian Birds* by Dave Watts

A photographic delight. The pictures are superb. Whether you're a twitcher, natural history buff or just someone who thinks birds are attractive you won't be disappointed. The book is well designed and beautifully simple. The text which is mainly extended captions has an introduction fitting to the landscape scenario - wetlands, coasts, forests etc. , that assists to create an overall picture of the habitat in which the birds live. It is necessary to think of birds as part of the ecosystem and to understand that while some birds are highly adaptable, others are so specialised that any change to the habitat is disastrous.



**PESTS, DISEASES AND AILMENTS OF AUSTRALIAN PLANTS** by David Jones and Rodger Elliot

A definitive guide that provides much information on integrated pest control, pest feeding habits, beneficial insects, parasitic plants, nutritional deficiencies and toxicities and spraying equipment. An all-you-need-to-know book for amateur and professional gardeners, horticulturalists, commercial nurseries and students.



**GARDENING ON THE WILD SIDE: The New Australian Bush Garden** by Angus Stewart

Angus Stewart shares his understanding of Australian plants as he uncovers those best suited to our gardens. The book looks at new cultivars, propagation, pruning, maintenance, wildflower walk and wildlife.

**THE NEW NATIVE GARDEN- Designing with Australian Plants** by Paul Urquhart

In the past, native gardens have been considered an imitation of natural bushland. By concentrating on design and style concepts such as mass, texture, shape and foliage, this book dispels common misconceptions about the 'bush' garden and shows how native plants can be used in formal, courtyard, cottage and international style gardens. Lots of advice on planning and designing a native garden, how to attract wildlife, plant selection and maintenance, all so that you will be able to create a unique outdoor space.