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Wildlife and Native Plants Study Group Newsletter

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WELCOME to the Autumn edition of Wildlife & Native Plants. A new millenium, a new year and already we are into the third month. Fortunately the weather is becoming more amenable to working with our native flora and fauna. Here in the SA mallee we have had some real shockers of days with temperatures in the low to mid 40s and the weather has also been quite muggy. With such endless days of high temperatures even the established native species are looking very limp and stressed- just like us I guess! - and some have even curled up their toes. But I must say how quickly the native bush returns to its glory after a little bit of moisture. I know some of our readers have had other climatic extremes to put up with, even floods and pouring rains, cyclones and drought. Australia I believe however is still the lucky country when we look at the fate of some other nations and countries around the world.

2001 THE INTERNATIONAL YEAR OF THE VOLUNTEER

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- Gum Nuts, Seedpods and Cones (A roundup of articles and snippets)
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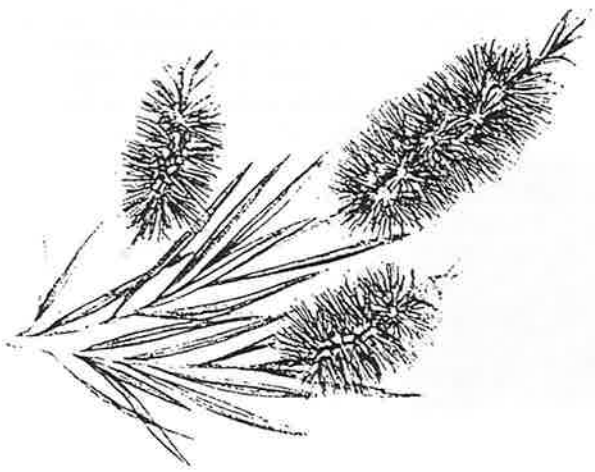
2001 INTERNATIONAL BIODIVERSITY OBSERVATION YEAR



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Recently when arranging the books in my library (had to do something when it was too hot outside!) I found a book by Robert Lamb titled 'World Without Trees - Man's devastation of his own environment'.
Written in the 1970s, this follows the example set by Rachel Carson's Silent Spring. Many of you may have read it and even dismissed it, all those years ago. Basically the endpiece says it all ' *A world without trees would be dull and depressing. But more importantly a world without trees would be disaster for mankind.'*

Depressing yes, but it is a book which looks at the importance of trees in our world and considers what will happen if we continue to remove the remnants of the world's finest vegetation. A story with great importance to Australia - not just about trees but our native flora, and the importance of protecting what we have for the sake of all living things. It also makes us question on what we have done to correct the problems over the past twenty or so years.

To quote from the book, Lamb writes:

Every living thing in its natural habitat forms part of an ecosystem. An ecosystem is a localized network of plants and animals interacting with the climate, and with each other, in recognizable and continual cycles governed mainly by the character and availability of the most basic of food resources - the dominant vegetation. It is the vegetation which calls the tune as far as all animals are concerned. The vegetation is in turn heavily dependent on weather and soil conditions.

For example, an abnormally cold summer in a grassland region, will result in a shortage of the grass seed of various kinds which form a basic item in the diet of some small rodents. By reason of the shortage of food, the rodents in question will breed in smaller numbers. In turn the populations of hawks, owls, foxes and so on, which feed on the rodents, must also be reduced.

Still this example does not show us the full complexity of what is involved. Animals in their turn affect the soil, and the supply of vegetation. Without the action of worms, insects, millipedes and so on, the soil loses a major part of its ability to produce vegetation. These soil organisms feed on the excreta of animals that live above ground, and on fragments of dead vegetation, including those dropped or partly dismantled by plant-eating animals above ground. The ways in which energy is cycled in one form or another through the living world are endless but theoretically measurable.

Such intricate patterns of interdependence define what we call ecosystems. The concept of the ecosystem can be applied on any scale from the ecosphere (the entire biological energy-exchange system of a whole planet) downward. '

Later on, Lamb states:
'...when an organism is taken from its proper habitat and transferred to an alien ecosystem, the result is likely to be trouble and enforced change for the organism itself or for the organism's new neighbours - and, in the not so long run, trouble for us.'
Well I'd have to agree with that statement, given that weed species dominate our continent and have modified and even brought about the extinction of some of our native flora species. Using the inference already made by him, that the loss of these plant species has almost certainly impacted on our native fauna species, and has resulted in mass extinctions.

??? How true then, do you find his statement that ....
'unless we are prepared to reverse our present policies and protect them - (trees) stand to become the dinosaurs of the present era. '

We need to be more concerned and responsible for our native species where they currently exist. Remnant vegetation remains in our conservation reserves and parks and on private land, but is it enough? NO! What about that which exists on our roadsides and which continues throughout much of Australia to be destroyed in the name of progress. Fortunately, some local governments are in tune to this conservation of roadside remnants, and are prepared to close these roads off to traffic and allow them to revegetate as windbreaks and buffers. In many rural areas the natural vegetation occurring on roadsides is the only remaining remnant of what used to be in the area prior to land clearance. It gives us an indication of what the vegetation used to be like in the area.

Rachel Carson in Silent Spring (1963) wrote also about the importance of roadside vegetation. Although her description was meant for the US, it holds as much truth today and in Australia, as it did then. She wrote:
Of some seventy species of shrubs and vines that are typical roadside species... about sixty five are important to wildlife as food. Such vegetation is also the habitat of wild bees and other pollinating insects. Man is more dependent on these wild pollinators than he usually realizes....Some agricultural crops are partly or wholly dependent on the services of the native pollinating insects. Many herbs, shrubs, and trees of forest and range depend on native insects for their reproduction...without these both wild animals and range stock would find little food.

Are our revegetation efforts enough then?

Budda included in his teaching the obligation of every good Buddhist that he should plant and see to the establishment of one tree at least every five years. While not discrediting the philosophy, because it was on the right track, I'd have to say we each have to plant a lot more than one tree every five years to have any effect at all! Should we just be pessimistic and accept that 'what will be, will be', and that we are doomed anyway, while we continue to destroy our native flora. Or do we take a stand albeit a bit late, to conserve what we can, and plant what and where we can with native species to ensure the survival of native species. Do we stop progress and demand that forests be conserved and not logged, hence destroying an economic and social base. Perhaps the answer is different again, but as even Lamb pointed out 20 years ago it is a difficult decision to reconcile economy and environment. Perhaps we need to consider the environment as an accountable asset - what is its value? what are the costs if we destroy it? what are the benefits if we maintain it? Lets bring it into the accounting equation, and give it a value. Here is what Lamb says:

'When each of us thinks what we stand to lose by deforestation, we are bound to think both big and small. Of the woodland sights and sounds imprinted on our senses during many a childhood vacation or picnic. Of the dark immensity of the many tiered rain and cloud forests of the tropics. Of the crisp feel of wood fibre in the opening page of a new book. Of the never-still edge of the world's deserts as they encroach on fertile land, unchecked by the ranks of tough, dry country trees and shrubs which used to hold them back. Of the swish of the carpenter's plane across the fresh surface of seasoned timber - man's oldest and most versatile construction material.

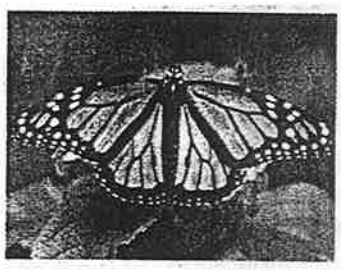
As matters stand now, such different thoughts and feelings cannot be harmonized within a single point of view, a sane consensus from which a practical solution to the world problem of deforestation can arise. The interests which govern the protection and the exploitation of trees pull in too many different directions. The reconciling of these interests so as to secure a proper future for trees and- it follows- for ourselves, is the great challenge of the century.

The confused and universal danger of deforestation.....our individual and alive response to it : which will win?

Well, we have left Lamb's century behind and are already well into the next. Will there be trees and our native Australian flora and fauna in the future? What are our great grandchildren going to see- will they be able to appreciate what we have now, or will we have destroyed it all?

Ralph Waldo Emerson wrote:

"At the gates of the forest, the surprised man of the world is forced to leave his city estimates of great and small, wise and foolish. The knapsack of custom falls off his back with the first step he makes into these precincts. Here is sanctity which shames our religions, and reality which discredits our heroes. We have crept out of our crowded houses into the night and morning... the incommunicable trees begin to persuade us to live with them and quit our life of solemn trifles. Here no history or church or state is interpolated on the divine sky and the immortal year."



The Wildlife Garden

"Yet even a small corner of a garden can help to redress the balance by recreating the kinds of habitats we are increasingly removing from the countryside. A tiny patch within a city garden - even one surrounded by urban mayhem- can provide a safe haven for an enormous range of animal, insect and plant life if allowed to be a little on the 'wild side.'

A garden full of wildlife is well balanced and healthy. Many of the animals you attract will pay you 'rent' by keeping the population of garden pests in check and by pollinating flowering and fruiting plants.

What would a garden be without the sounds of wildlife? Birdsong, buzzing bees and grasshoppers chattering providing a background symphony we barely notice, but would miss dreadfully if it suddenly stopped. "

[Excerpt from **Plants for the Wildlife Garden** by Peter Thurman (1994)]

NATIVE PLANTS AND CAGED BIRDS- LANDSCAPING AN AVIARY

by Chris Jones

Several months ago I was asked to write an article on what native species could be fed to caged aviary birds, and what were the best native species to plant in an aviary. The simplest answer to this is knowing what the particular species of bird eats in the wild, and then trying to create a habitat very similar. It is possible to combine both native flora and fauna for effective and manageable aviculture, however we must understand the limitations of both.

In the wild birds are occupied most of the day in finding food, avoiding predators, and ranging over an extensive territory. They seek food from a range of plant species, probably in a ratio of 2:200 or more, where at this rate two birds do very little damage to vegetation. However in a confined aviary situation, the ratio tends to be reversed- becoming 200 birds to 2 plants. The result is obvious and even with lesser numbers of birds, the variety of plants tends to be limited. Compounding this is that the birds' day is very structured and after stretching, preening, eating, and squabbling boredom seems to set in, and so most birds (particularly parrots) start to chew anything or everything, and with limited plants in an aviary the plants become the losers. So what plant species are suited to which bird species in outdoor aviaries in temperate to subtropical Australian climates?

Cockatoos and larger parrots will benefit from grasses/lawn (commercial variety) and the inclusion of a tough native grass such as Lomandra. Fresh eucalypt leaves and branches tied to the sides of an aviary will relieve the boredom, and add to the greenery of the aviary. Ensure a container of water is nearby, and offer tougher wood and cones for gnawing - (an excellent way to utilise the introduced radiata pine and its cones! Keep the plants simple because the birds are highly destructive.

With smaller parrots and lorikeets such as neophemas and lorikeets, smaller Grevilleas such as `Robyn Gordon' are excellent protection and food sources for the birds when planted in an aviary. They are compact plants which flower profusely, and provide foliage, nectar and pollen to supplement a birds diet. Lorikeets love fruit, so you could also consider planting Eugenia or Syzygium (lillypilly). Callistemons, Melaleucas, Acacias and grasses all add to the interest and aesthetics of the aviary.

Finches, doves, pigeons and quail are fairly non-destructive to plants, and offer similar protection, nesting sites and food sources. From experience it would seem that the smaller the bird, the smaller or finer the leaf size and structure of a plant. Use plantings of leptospermum (tea trees), melaleuca (paperbarks), acacia, grasses and other shrubby types of plants. Remember that quail are generally ground birds and so a variety of grasses and seedheads, and leaf litter is required for these birds, which delight in scratching about. Insects visiting the plants will also be a welcome addition to the diet.

Consider not only the needs of the birds (perches, nesting sites, shelter, security, insects) but the needs of the plants, eg. is there enough sun or shade, is the soil suitable, etc.for the plant to do well and survive constant abuse from the birds.

Softbills appreciate dense foliage, deriving maximum benefit from visiting insects such as aphids, caterpillars, scale insects, grasshoppers, moths, beetles and flies, and the nectar from the plants. These birds also like to scratch amongst leaf litter. Consider Muehlenbeckia, Lomandra, Callistemon, Banksia and grasses such as

Pennisetum or Ophiopogan (Mondo grass). Bamboos are best kept in large tubs to prevent their growth in unwanted places.

Some General hints

- Never allow plants to grow through the top or sides of the aviary - as it damages the netting; detracts from the aesthetics created; is a `pain' to prune; is a risk in high winds; and allows other unwanted animals to visit (eg. raptors, neighbours feline etc.)
- Plants should be kept about 500mm from the top of the aviary - this allows birds to freely fly over them;
- Never place plants directly under perches, or perches directly over plants, as the plants will collect droppings, and damage the plant leaves and appearance;
- Never use poisonous plants;
- Keep thorny or spiny plants out of the aviary - seek out better plants such as Muehlenbeckia;
- Ensure plants are watered regularly to cope with continuous fertilizing.

Where space permits a walk-through aviary is probably the best alternative, (equivalent to a 3 star + hotel), as complete mini-habitats can be created for particular species. Water features, elevated walkways, seating etc can be provided. The largest example of a walk-through aviary in the southern hemisphere would be that of Currumbin Sanctuary on the Gold Coast, however others such as the Rainforest Habitat in Cairns, Featherdale Wildlife Park in NSW, and zoos can provide interesting experiences and ideas for the enthusiast. Even a humble private, walk-through aviary has much to offer. Our own provides its own unique experience in wildlife as it contains finches, a magpie lark and peafowl, along with a reptile or two.

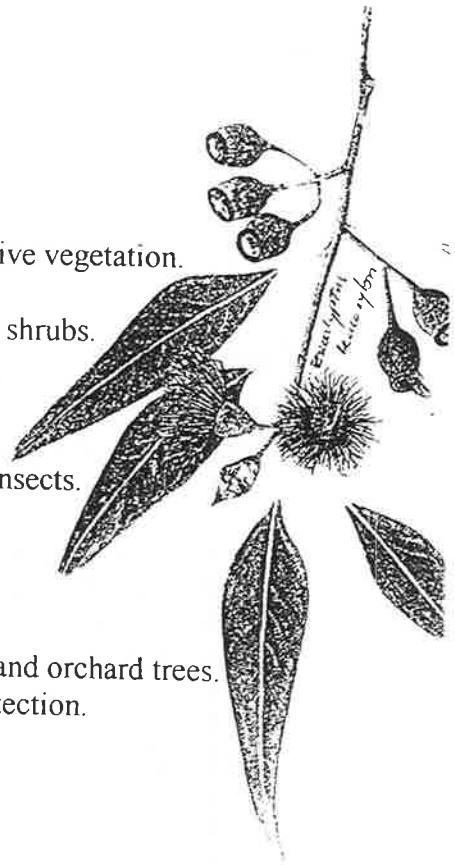
Nature also provides useful materials for an aviary. Starting with the very obvious - hollow logs are ideal for nesting, and natural branch perches are much better for birds than the factory supplied dowel. Nature also provides a vast array of materials and variations in thickness and size of the perch, and in the type of surface providing birds with variety for healthy exercise for their feet, and beaks. Then for good measure, add a variety of regular fresh branches of native plants for food and to relieve boredom.

NATIVE FOODS FOR CAGED BIRDS

Caged birds require a diet which will keep them in good health and vitality and provide them with the essentials that they would normally get from the wild. Birds, like people, require good nutritional foods and a balanced diet for optimal health. Most proprietary brands are OK when combined with fresh water and sunlight, however supplementation of additional foods is beneficial. For example most seed and grain eating birds such as budgerigars, parrots, cockatoos, canaries, finches, doves and pigeons, quail, pheasants and waterfowl benefit from sprouted seed, seeding grass heads, fruit and vegetables, even livefoods such as mealworms, ants and maggots. Cockatoos also eat a variety of nuts, mealworms, fruits & vegetables and even woodborer larvae.

Native foods include casuarina cones, berries of native fruits and trees such as white cedar, figs, quandongs, Burdekin plums, eucalyptus buds and nuts, flowering shrubs such as grevilleas, callistemons, kangaroo paws and native grasses. Native foods provide a stimulus and variation to the diet to birds in captivity, and also assist with adequate nutrition for breeding times. What the bird eats in the wild state is normally safe to provide in captivity, but like anything new will often take a while for caged birds to accept.

Ack. Handbook of Birds, Cages,and Aviaries ABK.1997



Possum

Natural habitat Forest and woodland areas.
Food Eucalyptus leaves and flowers, fruits and buds of native vegetation. Frequently also forage for household scraps.
Shelter Tree hollows. Ringtails will also build nests in dense shrubs.

Glider

Natural habitat Tall open forests and woodland.
Food Acacia gum, eucalyptus leaves and sap, manna and insects.
Shelter Tree hollows.

Flying fox (fruit bat)

Natural habitat Large trees in forests or in mangroves for roosting.
Food Variety of blossoms, nectar and fruits of native trees and orchard trees.
Shelter Roost in large trees with adequate foliage to give protection.

Cockatoo and rosella

Natural habitat Prefer tall trees for roosting.
Food Variety of native and exotic seeds and fruits.
Nesting Tree hollows.

Lorikeet

Natural habitat Timbered areas.
Food Pollen, nectar, blossoms, fruit, seeds and insects.
Nesting Hollow limb of a tree.

Kookaburra

Natural habitat Woodlands and open forests.
Food Snakes, lizards, nesting birds, frogs, rodents and insects.
Nesting Hole in a tree.

Magpie

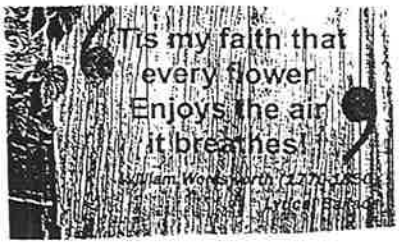
Natural habitat Woodland with tall trees.
Food Insects, worms, slugs, frogs and carrion.
Nesting Stick nest high in tree, lined with wool, hair and grass.

PLANT SPECIES G = grasses	HONEYEATERS	INSECT EATERS	SEED EATERS
Acacia pycnantha	X	X	X
Acacia (most)		X	X
Acmena smithii			X
Acronychia acidula			X
Acronychia imperforata			X
Acrotriche serrulata			X
Actinotus helianthi		X	
Adenanthos obovatus	X		
Agonis (all)		X	X
Albizia lophantha		X	X
Alectryon coriaceus			X
Allocasuarina (all)			X
Alphitonia excelsa			X
Alygogyne huegelii	X		
Alyxia buxifolia			X
Angophora bakeri			X
A ngophora hispida			X
Angophora costata	X		X
Anigozanthos (all)	X		
Araucaria cunninghamii			X
Araucaria bidwilli			X
Astelia alpina			X
Asterolasia		X	
Astroloma (all)	X		X
Atherosperma moschatum			X
Austromyrtus dulcis			X
Baeckea (all)		X	
Banksia (all)	X	X	X (all)
Beaufortia (all)	X		
Billardiera cyamosa			X
Billardiera longiflora	X		X
Billardiera scandens	X		X
Blandifordia(all	X		
Boronia		X	
Brachysema (all)	X		
Bursaria		X	
Callistemon (all)	X	X	
Callitris (most)			X
Calocephalus brownii		X	
Calothamnus (all)	X		
Calytrix (all)		X	
Cassia (all)		X	
Cassinia (all)		X	
Castanospermum australe			X
Casuarina (most)			X
Ceratopetalum gummiferum		X	
Chamelaucium	X	X	

uncinatum			
Chorizema cordatum		X	
Cinnamomum oliveri			X
Cissus (some)			X
Clerodendrum tomentosum			X
Coprosma (some)			X
Cordyline petiolaris			X
Cordyline stricta			X
Correa (all)	X		
Craspedia		X	
Crowea saligna			X
Cryptocarya laevigata			X
Cupaniopsis anarcardioides			X
Cyathodes (most)			X
Danthonia (most) G			X
Darwinia (all)	X		
Davidsonia pruriens			X
Dianella (most)			X
Dillwynia		X	
Dicanthium sericeum G			X
Diploglottis (most)			X
Dryandra (all)	X		X (some)
Ehretia acuminata			X
Einadia nutans			X
Elaeocarpus (some)			X
Elattostachys nervosa			X
Epacris (all)	X		
Eragrostis (most) G			X
Eremaea (all)	X		
Eremophila alternifolia	X		
Eremophila bignoniflora			X
Eremophila glabra	X		
Eremophila longifolia	X		X
Eremophila maculata	X		
Eremophila oppositifolia	X		X
Eriostemon (some)		X	
Eucalyptus (most)	X	X (all)	X (most)
Eugenia reinwardtiana			X
Euodia elleryana			X
Ficus (most)			X
Gahnia (most) G			X
Geijera parviflora			X
Glischrocaryon		X	
Glochidion ferdinandi			X
Gompholobium (all)		X	
Goodenia (all)		X	
Goodia lotifolia			X
Grevillea (most)	X	X	X banksii
Hakea (most)	X	X	X adnata, eriantha, sericea
Harpullia alata			X

Hedycarya			X
Helichrysum (all)		X	
Hibbertia (all)		X	
Hicksbeachia pinnatifolia			X
Hymenosporum flavum		X	
Isopogon (all)		X	
Isotoma (all)		X	
Ixodia archillaeoides		X	
Jacksonia (all)			
Jasminum suavissimum		X	
Juncus (most) G			X
Kennedia coccinea	X	X	
Kennedia macrophylla	X	X	
Kennedia nigricans	X	X	
Kunzea baxteri	X	X	
Lambertia (all)	X		
Lepidosperma (most) G			X
Leptospermum (all)		X	X flavescens only
Leucopogon parviflorus			X
Lomandra (most)			X
Macadamia (most)			X
Melaleuca (most)	X	X (all)	
Melastoma affine			X
Melia azedarach			X
Mentha (all)		X	
Micromyrtus ciliata		X	
Montia australasica		X	
Myoporum (all)		X	X deserti & ellipticum only
Olearia (all)		X	
Orthrosanthus (all)		X	
Passiflora cinnabarina			X
Patersonia (all)		X	
Phebalium (all)		X	
Phyla nodiflora		X	
Pimelea (all)		X	
Pittosporum phylliraeoides	X		X
Pittosporum revolutum			X
Pittosporum undulatum	X		X
Poa labillardieri G			X
Poa sieberiana G			X
Poa tenera G			X
Podocarpus elegans			X
Polyscias elegans			X
Pomaderris (all)		X	
Prostanthera aspalathoides	X	X (all)	
Pultenea (all)		X	X (gunnii only)
Rapanea howittiana			X
Regelia (all)	X		

Rubus parvifolius			X
Santalum (most)			X
Scaveola		X	X
Schefflera actinophylla			X
Schizomeria ovata			X
Sloanea australis			X
Solanum aviculare			X
Spyridium		X	
Stylidium		X	
Stenocarpus sinuatus	X		
Stipa aristglumis G			X
Stipa elegantissima G			X
Stipa variabilis G			X
Stipa verticillata G			X
Swainsona (all)		X	
Syzygium australe			X
Syzygium luehmanii			X
Syzygium oleosum			X
Syzygium wilsonii			X
Syzygium hodgkinsoniae			X
Telopea (all)	X		
Templetonia retusa	X		
Themeda triandra G			X
Thryptomene (all)		X	
Thysanotus (all)		X	
Tristania conferta	X		
Tristania laurina	X		
Veronica (all)			
Verticordia (all)			
Viminaria juncea		X	
Wahlenbergia (all)		X	
Xanthorrhoea (all)		X	X
Xanthosia		X	



MICE AND RATS

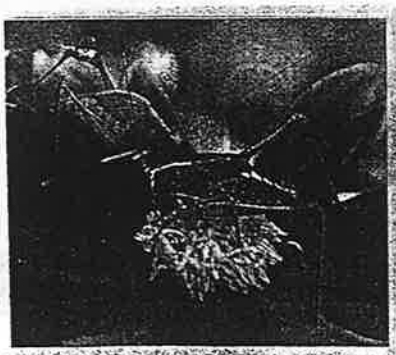
Facts about mice

- Average mouse weighs 10-25gm.
- Mice live in colonies of 1-40 individuals per burrow
- Mice live for a year
- Mice feed at night
- They do not need access to water
- Young are weaned at 20 days and reach sexual maturity within a month of birth
- Females can deliver their first litter at 6-7 weeks after a 20 day gestation
- Litter size is 1-10
- One breeding pair can provide 2000 descendants over 3-4 generations
- Mice can breed at anytime - optimum breeding time is spring and autumn
- An adult mouse requires 4 gms of food a day
- 125 mice are equivalent to one sheep, with one million mice eating as much as 8000 sheep, consuming 120 tonnes in 4 weeks
- Plagues are common - numbers being 1000 mice per hectare.
- Mice can damage buildings, equipment, electrical wiring, ruin stock and animal feeds, native seed, stored goods and also transmit disease
- Mice can excavate and eat sown and germinating seed and plants
- Mice can jump up to 40cm., can climb vertically on rough surfaces and gain access through gaps upto 8mm, or by tunnelling.

Minimise Risk by taking the following actions:

- Remove harboured rubbish.
- Remove weeds and long grasses from around fencelines, plantings and buildings.
- Ensure storage areas and sheds are mouse-proof.
- Ensure all areas are sealed.
- Fill all holes.

BOOK REVIEW



DENSEY CLYNE'S

Wildlife

of australia

Australia's best-known naturalist, photographer, writer and TV presenter shares her passion for natural history

'Everyone who's travelled along country and outback roads, even busy coastal highways, can recall with delight some brief encounter with wildlife. Camping holidays bring the exquisite pleasures of unfamiliar morning bird-song, evening encounters with waking nocturnal animals, and time to look more deeply into things. And for me there's as much pleasure – if not more – in following the seasonal activities of the wildlife in my suburban garden.

I hope this collection of essays about creatures large and small and mostly familiar will both inform and entertain you ... the stories are not really mine; I have merely translated into words the plots and characters provided by nature'

—Densey Clyne

Colour photographs • Softcover • 144 pages •

Is Evolution LOGICAL?

TODAY, the theory of evolution is said to be a fact by those who promote it. Yet, how logical are the assertions that they so often make? Consider the following.

Silk produced by spiders is one of the strongest materials known. According to *New Scientist*, "each fibre can stretch by 40 per cent of its length and absorb a hundred times as much energy as steel without breaking." How is this extraordinary silk made? A viscous liquid, a protein, passes through minute tubes in the spider's body, and the liquid is changed to a solid thread by a rearrangement of its protein molecules, explains *Encyclopædia Britannica*.

New Scientist concludes: "The spider has evolved techniques way beyond those of even the most skilful chemist." Is it conceivable that the spider has evolved a manufacturing technique so complex that man has yet to understand it?

An article in *The Wall Street Journal*, by Phillip E. Johnson, a University of California law professor, notes that the evidence for evolution is lacking but that its supporters still often ridicule those who question it. The article comments: "Evolution theory is having serious trouble with the evidence—but its proponents don't want an honest debate that might undermine their world view."

Another example showing the lack of logic in evolutionary thinking has to do with plants. Scientists researching in Morocco have unearthed 150 fossils of *archaeopteris*, "the closest relative so far discovered of the first seed plants, ancestor of most of today's trees," says *The Daily Telegraph* of London. The newspaper's science editor declares that this plant "helped to shape the modern world by inventing leaves and branches." "To invent" is "to devise by thinking." Is it logical to credit a plant with the ability to think and to invent?

Solomon, one of the wisest of men, advises us to 'guard our thinking ability,' to think for ourselves. The need to do so has never been greater.—Proverbs 5:2.

from Awake! June 8, 2000

FACTS

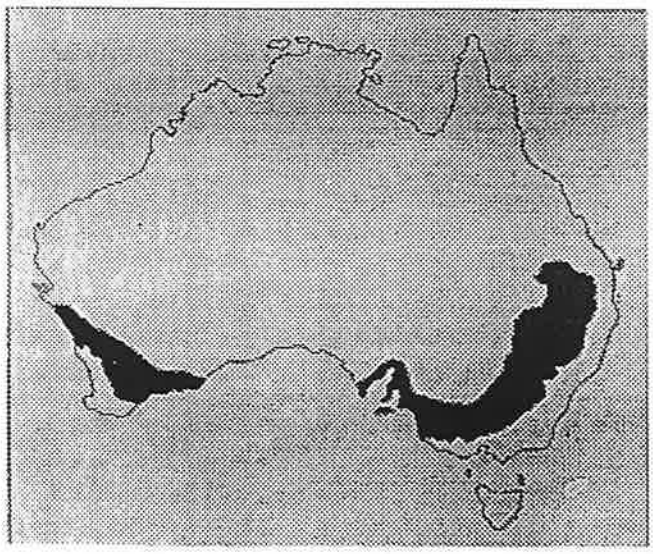
- A parrot has no "wishbone".
- Worldwide, about 30 species of parrot are endangered, threatened by habitat destruction and by collecting for the cage bird trade.
- A parrot is one of the world's rarest birds. The Kakapo is a flightless parrot from New Zealand. A male, which may weigh over 2 kg, advertises for females with a booming call. The female incubates the eggs and rears the young alone.
- How many human words can an Australian parrot mimic? "Prudle", a female African Grey Parrot living in England, has a vocabulary of around 800 words.
- The oldest bird recorded was a Sulphur-crested Cockatoo which died at London Zoo in 1982, aged 80+.

Woodland Birds and the Brigalow Belt Woodlands of Queensland

Peter Sparshott, Woodland Birds Project Officer, Birds Australia, and Nadeem Samnakay, Extension Officer, Queensland Parks and Wildlife Service

The bulk of clearing has been occurring in the Southern Brigalow Belt bioregion containing temperate woodlands. The southern brigalow belt woodlands of Queensland provide a home for more than 328 species of birds. Three of these species are listed as endangered, a further 21 species are listed as vulnerable or rare. One species, the paradise parrot, is presumed extinct.

It has been well documented that in the southern woodlands of Australia, woodland birds are declining in numbers. This decline in bird species and abundance has continued to the extent that many species are now regionally extinct in areas of southern Australia (Grey-crowned Babbler) or have distributions which are greatly reduced from their former range (Barking Owl). The temperate woodlands of Australia once covered 10% of land in eastern and south western mainland Australia. Since European settlement more than 80% of that area has been cleared of its former vegetation for agriculture. Up until the last decade Queensland's lack of agricultural development relative to the southern states has meant it has not experienced the same decline in woodland birds compared to its southern state counterparts.



Temperate woodlands of Australia

Brigalow Belt Bioregion, Queensland

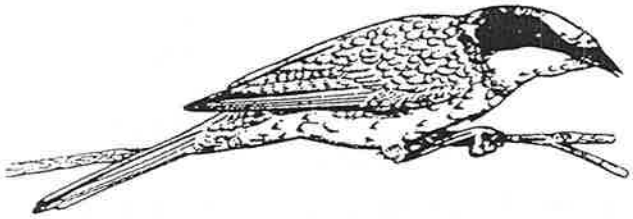
The rate of clearing in Queensland is a trend which has been increasing over recent years. Based on 1995 - 1997 data, clearing rates approximate 130 000 hectares per annum in the entire brigalow belt. The bulk of clearing has been occurring in the Southern Brigalow Belt bioregion where these temperate woodlands occur. The southern brigalow belt woodlands of Queensland provide a home for more than 328 species of birds. Three of these species are listed as endangered, a further 21 species are listed as vulnerable or rare. One species, the paradise parrot, is presumed extinct.

These woodland communities are diverse in both flora and fauna and provide a home for a rich community of birds. Vegetation clearing is the largest threat to our woodland birds and many more are being affected by the resulting actions of clearing - grazing, urbanisation and fragmentation of the landscape. Degradation of remnant vegetation through processes such as over-grazing (both domestic stock and ferals), tree dieback, weed invasion, inappropriate fire regimes, rising saline groundwater, increased nutrient input from fertiliser and stock and increased wind speeds also have an impact on woodland bird habitats. Modification and simplification of remnant vegetation as a result of the above mentioned processes makes the remaining habitat unsuitable for many species. As a consequence many woodland birds are now in peril. Species such as the bush stone curlew and painted honeyeater are very rare throughout the woodland area. Many other species such as the hooded robin, black-throated finch, yellow-tufted

FROM 'LIFE LINES' CBN Vol 6 No 3 Spring 2000

honeyeater and black-chinned honeyeater are declining in many districts.

Different woodland birds have different needs for food and shelter. Owls and parrots need big old trees with hollows to nest in, in fact approximately one third of all woodland bird species require hollows for nesting. Other birds have more subtle needs. Large old trees produce more nectar per area of foliage than small trees, making them vital for honeyeaters, for example the endangered regent honeyeater. Babblers need dense shrubs or saplings in which to build their stick nests. Curlews live on the ground but need fallen branches and sticks to hide amongst. A healthy patch of woodland will have large old trees, saplings and younger trees, fallen timber and a diverse understorey of native plants. These features provide habitat for the full range of woodland birds.

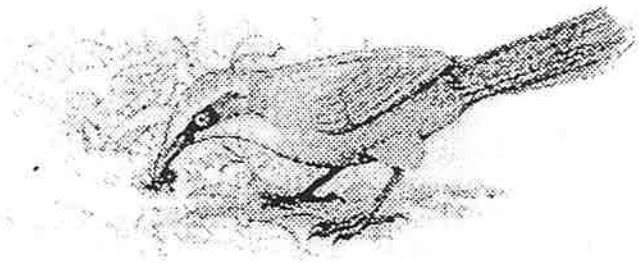


Yellow-tufted Honeyeater

There are now 24 bird species of woodland birds listed as threatened in the Southern Brigalow Belt, one of these species, the paradise parrot has not been seen since the 1930's and is presumed extinct. Disturbingly, recent research from throughout the temperate woodlands of Australia has found that dozens of woodland birds are still declining in total numbers and distribution. Many of these declines are occurring rapidly. For example grey-crowned babblers are still common in Queensland but they are now extinct in south-eastern South Australia, very rare in Victoria and are declining at the edges of their range in New South Wales. Other woodland birds show similar patterns. The underlying cause for the decline is lack of suitable habitat. More than 56 % of the woodland region has been cleared in the brigalow belt region. Similar losses have occurred in other states. In some districts the destruction of woodlands has been nearly total, with less than 1% of the original vegetation remaining. These losses have made woodlands one of the most threatened ecosystems in Australia. Some native birds, such as noisy miners, magpies, galahs and crested pigeons, do well in the farmland created. These adaptable species are now common in regional Queensland.

One of the major implications of a reduction in the number and diversity of woodland birds, is the effect it has on the woodland ecosystem. Woodland birds are vital in maintaining healthy woodlands and productive agriculture. They act as controllers of insect populations on trees, and also in crops and pastures. This can be crucial in maintaining a sustainable landscape. For example trees provide shelter for stock, act as windbreaks and in many areas are vital for lowering salty water tables. A diversity of woodland birds is important in keeping insect numbers on trees under control and reducing the incidence of dieback.

Grey-crowned Babbler



Managing Woodlands

In the southern brigalow belt, eucalypt woodlands on fertile alluvial plains have been preferentially cleared, including areas of coolibah (*Eucalyptus coolabah*), Queensland blue gum (*E. tereticornis)* and poplar box (*E. populnea*). These areas are now of high conservation value and ideally should not be cleared.

More recently, less fertile eucalypt woodlands have been cleared for grazing including *E. populnea* on clay soils, silver and narrow leaf iron bark communities (*E. melanaphloia* and *E. crebra*) and mountain coolibah (*E. orgadophilla*).

If grazing is to be undertaken in such woodlands, ideally stock access should be restricted to prevent overgrazing and to allow regeneration of both grasses and woody vegetation.

It is important to retain a network of vegetation patches of differing communities in the landscape such that remnant areas are large enough to be self sustaining and that connectivity is maintained within these patches to allow for movement of wildlife reliant on shelter. A well managed

landscape will maintain biodiversity and contribute towards sustainable land use.

Recent research by CSIRO Wildlife and Ecology in the south eastern portion of the brigalow belt (Grazed Eucalypt Woodlands Project) has resulted in the following recommendations towards sustainable use of grazing lands:-

- Woodland or forest should be maintained over at least 30% of the property area;
- Favour natural regeneration of existing native trees to planting and re-creating habitat;
- To maintain patch viability, woodland remnants should be a minimum of 5-10 hectares;
- retain trees of different ages within stands to retain the long term viability of tree populations;
- Maintain or regenerate trees in appropriate places to minimise degradation and enhance livestock production.

Additionally, it is strongly recommended that at least 10% of the property be managed for wildlife values.

While the majority of the emphasis has been on eucalypt woodland, vast areas of fertile brigalow/ belah (*Acacia harpophylla / Casuarina cristata*) woodlands have been cleared. These small isolated remnants have extremely high conservation value and should be managed such that they remain viable for the long term. This would include aspects of not clearing, controlling or removing grazing pressure and where possible recreating linkages and buffers from disturbance.

While the plight of woodland birds and woodland communities in the Brigalow Belt has been under great pressure from broad scale vegetation clearing, the future does have some positives to look forward to. With the increased adoption of sustainable agricultural production systems coupled with new vegetation management legislation to protect endangered regional ecosystems our woodland communities do have some hope for the future. It will only be through continued community awareness raising of the plight of the woodland birds and increased protection of remnant vegetation that the Brigalow Belt biodiversity will be preserved.

Mr. Peter Sparshott
Woodland Birds of Queensland Coordinator
Birds Australia

Mr. Nadeem Samnakay
Extension Officer
Queensland Parks and Wildlife Service

Further reading and advice

- Threatened species of Western New South Wales. Ayers, Nash & Baggett. 1996. National Parks and Wildlife Service, Sydney.
- Conserving the woodland birds in the wheat and sheep belts of southern Australia. Robinson & Trail. 1996. R.A.O.U (Birds Australia), Melbourne
- The Conservation Status of Queensland Bioregional Ecosystems. Sattler & Williams. 1999. EPA Brisbane.
- McIntyre. S., McIvor. J. G. & Macleod, N.D. (1999) Principles for sustainable grazing in eucalypt woodlands: landscape-scale indicators and the search for thresholds. CSIRO

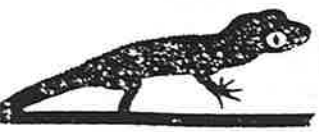
Land Clearing Driving Lizard Decline in NSW

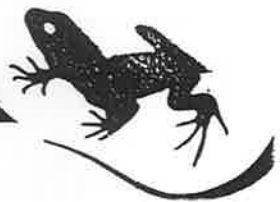
Two lizard species have disappeared and further nine are in decline

A small dragon and a species of legless lizard have vanished from agricultural areas of central New South Wales. Up to a further nine reptile species are in decline and may be facing the same fate, a CSIRO wildlife researcher warned today. "Declines are an ongoing process. As soon as we start reducing native vegetation, we risk losing species," Dr Driscoll says.

"The amount of native vegetation left in the places I studied is down to about 15 or 20 per cent, not enough for all reptile species to survive. Land managers have a real opportunity to develop their land sustainably by not clearing down to that level, or by re-establishing more than 15 to 20 percent cover of the original vegetation communities. An important benefit of this work is that we can recognise what's going wrong in our agricultural lands, and can plan to avoid similar declines in other parts of the country. So with careful planning we'll be in a position to improve the chances of our scaly friends in production landscapes.

"There are museum records of the hooded scaly-foot and painted dragon from the Rankins Springs area of NSW," Dr Driscoll says. "However despite my extensive trapping program, I didn't capture a single specimen in the agricultural landscape. Extensive land clearing seems to be the reason for their demise because I found thriving populations of both species in uncleared areas." Three 'declining' species were found only in small nature reserves in Dr Driscoll's study area, while six species seemed to survive better in reserves than in linear bush remnants like windbreaks and roadside vegetation.





GUMNUTS, SEEDPODS and CONES

A new feature highlighting stories of interest .....

From Gumnuts Issue 32

NATIVE ALTERNATIVES TO EXOTIC SPECIES

Interest in finding alternative native species to common or weedy exotics brought the following information from Colleen Keena in Qld.
(from Queensland Landscape Design News, May-June 1994)

Spathodea campanulata (Tulip tree):
Alternatives...
Castanospermum australis,
Stenocarpus sinuatus

Senna floribunda:
Alternatives...
Cassia nemophila,
C.coronolloides,
C.artemisioides,
C.tomentella

Tamarix aphylla:
Alternatives...
Casuarina spp

Eucalyptus torelliana
Alternatives...
Local Eucalyptus spp

Cinnamomum camphora (Camphor Laurel):
Alternatives...
Ficus spp,
Syzygium spp,

Castanospermum australis,
Eucalyptus spp

Celtus sinensis: Alternatives...
Melia azedarach,
Buckinghamia celcissima

Arecastrum romanzoffianum (Cocos palm):
Alternatives...
Archontophoenix cunninghamiana,
Livistonia australis

Cotoneaster panosus:
Alternatives...
Acmena spp,
Syzygium spp,
Macaranga tanarius

Koelreuteria paniculata:
Alternatives...
Melia azedarach,
Barklya syringifolia,
Buckinghamia celcissima

Raphiolepis indica:
Alternatives...
Acmena spp,
Syzygium spp,
Macaranga tanarius

Albizia lebbeck:
Alternatives...
Acacia spp

Jacaranda mimosaefolia (Jacaranda):
Alternatives...
Brachychiton acerifolius,
Grevillea robusta,

Leucaena leucocephala:
Alternatives...
Acacia spp

Ochna serrulata:
Alternatives...
numerous rainforest understorey shrub species

Murraya paniculata:
Alternatives..
Pittosporum revolutum

Morus spp (Mulberry):
Alternatives...
Melia azedarach,
Toona australis,
Pittosporum undulatum,
P.rhombifolium

Phytolacca dioica (Packalacca/Ombu tree):
Alternatives...
Ficus superba,
F.obliqua

Pinus elliottii, P.radiata:
Alternatives...
Araucaria spp,
Agathis spp,
Callitris spp,
Podocarpus spp

Tipuana tipu:
Alternatives...
Acacia spp

Duranta repens:
Alternatives..
Backhousia citriodora,
Melaleuca spp (small),
Callistemon spp

Schefflera actinophylla (Umbrella tree):
Alternatives...
Omalanthus populifolius,
Macaranga tanarius

Thanks Colleen.

The Editor of GumNuts however provides a word of caution:
'This list is obviously aimed at Queensland conditions and may not be appropriate elsewhere. For example, Pittosporum undulatum would not be a good alternative choice for anything in the Sydney area and probably elsewhere in south-eastern Australia.'

From Gumnuts Issue 33
This topic had quite a response and below are some of the following comments:

From Celia Voss
"I wonder if we are a bit hard on introduced species like Pinus radiata (Monterey Pine). The tree is very useful in farm settings for shade and wind protection. And it plays host to many varieties of native birds, including (in my area) magpies, peewees, galahs, cockatoos, rosellas and herons. The magpies and herons nest year after year in the same trees. (The swallows insist on nesting in the machinery shed!) All through summer the galahs roost in the pines as evening sets in, ignoring the eucalypts and wattles. And, of course, cockatoos love the seeds of Pinus radiata. The tree is also very long-lived compared to many native species, some being well over 120 years old. In my garden I have native plants happily growing under a Pinus radiata."

The Editor of GumNuts responded.....
Thanks Celia. I suppose whether it's a useful plant depends on your location. I know that it's a problem species in the Blue Mountains area and is spreading from plantations into natural bushland. The spread is apparently being helped by yellow tailed cockatoos which feed on the cones.

Ernie Ryder suggests that
"It is extremely difficult to get natives as substitutes for many exotics. The reason exotics do so well as weeds is partly because they are tough, disease and pest resistant as well as being attractive in the first place...

Good points,Ernie. We often forget that many native species are just as foreign as exotics (and just as weedy) when they are grown in areas remote from their natural habitats (or even in their natural range where conditions have been changed due to human activities).

Frank Scheele offers the following thoughts.....
"I noticed the interesting list of feral-replacement plants.... Agonis flexuosa (willow myrtle) is a superior replacement for Willow trees. Our worst enemy in Toowoomba (90 minutes west of Brisbane) is privet but thankfully the Council has been campaigning to get ratepayers to remove it. Celtus sinensis is also an environmental weed here since it grows rampantly and innumerable seedlings set under all the trees. I have had the misfortune to have to deal with, those growing on neighbouring properties. Unfortunately, the public seems to be closely attached to its Camphor Laurel (Cinnamomum camphora) avenues, which are almost an icon of the city, even though they are considered environmental weeds in NSW. They are positively ugly where planted under power lines, because they grow too tall and are cut back by the electricity authority The resulting vertical regrowth branches have no redeeming aesthetic qualities. However they still throw shade over the road. Therefore the alternatives in Toowoomba would need to be able to replace the street plantings of these trees. Of the alternatives suggested Ficus spp are completely unsuitable because of the damage they would cause to the roads and underground services. Even though I would love to see more beautiful Moreton Bay figs planted in some of our parks, where they would do no damage and provide wonderful shade over playground equipment.I love the suggested Syzygium and Acmena spp (lilly pillies), but if they were used, they would preferably have to be able to fit under power lines and still throw shade. I suppose their regrowth after trimming could not possibly be as ugly as that of the camphor laurels, so they would have to be a better choice. Castanospermum australis (black bean) is also a beautiful tree, but the big bean pods might be a public safety issue in road reserves, or at least some residents would consider it a nuisance to have to pick those up and dispose of them. Eucalyptus spp particularly mallee species and others such as E."Summer Red" would be ideal and spectacular in flower under power lines but the latter is a bit expensive since grafted. Also they are not exceptionally shady trees and therefore could not replace the camphor laurels.I notice that Pittosporum undulatum is not favoured in south-eastern Australia, presumably because of its self-seeding properties there. I had a mature specimen in my front yard at a previous Toowoomba address, and for over three years,I don't remember any seed setting or any seedlings sprouting, even though it flowered magnificently and the scent is surely one of the best. It has the potential to be a great shade tree if the lower branches are trimmed away and would probably stay at or about power line level in Toowoomba. It is fast-growing. Therefore it would be one of my favourite candidates to replace the camphor laurels. The suggestion that Buckinghamia

celcissima could replace Celtus sinensis would not work in Toowoomba, where the former is a much smaller tree although infinitely superior in flower. I don't see Celtus used in road reserves and they could easily be replaced by any number of lilly pilly species in the private properties where they typically grow.

Thanks Frank. It is, of course, impossible to produce a list of alternatives that will work everywhere because of differences in climate, as you have mentioned. I hope Pittosporum undulatum does not become a problem in your area - it really is an attractive small tree with unfortunate weedy tendencies, at least in southern Australia.

Claire Staines suggested Geijera salicifolia as a possible replacement for camphor laurel, and no doubt there are many others.

I would have to agree with the Gum Nuts Editor, because no species will serve every purpose or location. If it did, then Nature would have created a monoculture. We have a wealth of Australian indigenous species, from which to choose from, and while I support the idea of planting natives as urban street trees, we should not go out to destroy earlier settled areas which have been planted with English trees or pines. They may be just as much a part of our historical, cultural and social heritage. The odd one or two perhaps could be removed and replaced with natives if it was under stress, but to destroy them all, for the sake of planting natives is morally wrong in my book, because it is depriving life and beauty and appreciation of the vast and diverse world of plants. We have many open areas, and new subdivisions in urban Australia, that could be planted aesthetically with the right native species, that can add dollars to the landscape, the marketable view, and value of residential lifestyles.

We have over the years categorised plants for particular purposes- screen plants, street trees and amenity plantings, bush foods, fodder crops, agroforestry, cut flowers, wildlife corridors etc. There are a great range of Australian native and exotic species from which to choose from, as well as a number of natural and patented hybrids. To me, it is a matter of appropriate and responsible management!

WHICH BIRDS? WHICH FRUIT?
Birds and Plants of the Sydney Region
From Gum Nuts Iss 32. comes the following question from Christine Coe

"I would like some helpful advice on research I am doing regarding birds and plants in the Sydney Region. It seems so hard to find specifically which native fruits, etc native birds will eat. Do they all eat all of them or do some only eat certain ones? Where could I get this information?" Christine is particularly interested in the following plant species and knowing which birds eat what parts. Any ideas???

Species:
Macrozamia communis
Styphelia tubiflora
Lomandra longifolia
Leptomaria acida
Smilax glyciphylla
Persoonia pinifolia
Canivalia maritima
Imperata cylindrica
Typha orientalis
Livistona australis
Ceratopetalum gummiferum
Diuris aurea
Cissus antarctica
Brachychiton populneus
Leptospermum polygalifolium
Astroloma humifusum
Eupomatia laurina
Phragmates australis
Cymbonotus lausonianus
Melaleuca linarifolia
Carpobrotus glaucesens
Gastrodia sesamoides
Elatostema reticulatum
Pimelea linifolia
Dicksonia antarctica

Members can you help?
Any members' with personal observations on any of these plants ? Please share your experiences with us. All replies will be published in this newsletter.

DO TREES REALLY INCREASE AIR POLLUTION?

Recent studies reported in Gum Nuts and reproduced below indicate that trees actually create air pollution. While I find this a little hard to believe, having witnessed the effects during a sandstorm , where movement was possible in dense vegetation and visibility was fine, but which became totally obscured on bare pasture land - highlighted the value to me of having windbreaks. In this instance the trees as a wind break were a barrier to the severe winds, and the vegetation almost seemed to act as air purifiers - But out in the open where there were no obstructions, one couldn't see more than two or three feet in front of them, and the severity of the wind meant very little headway at all. One step forward, two steps backwards in fact!

But then we have just experienced many days of temperatures in the high 30s and low 40s, and looking at the vegetation in a distance on this day, the horizonal haze could persuade me that the story and the results of such scientific research may be feasible ..... but science Is open to question and interpretation.....Anyway members, read on, and you be the judge. The research has been conducted by CSIRO.

Australia's native plants emit chemical compounds that can interact with other air pollutants to exacerbate smog formation over Australian cities, CSIRO researchers have found.

Scientists from CSIRO Energy Technology and Atmospheric Research have been commissioned by the NSW Environmental Protection Authority (EPA) to investigate emissions of organic compounds from Australian eucalypt trees and grasses that contribute to the formation of photochemical smog.

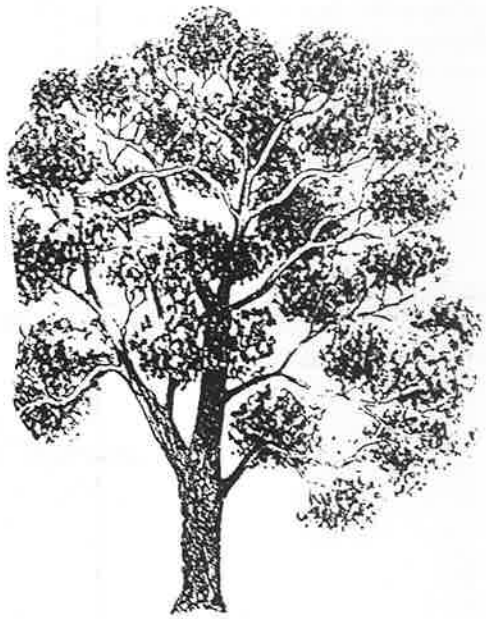
"It's not just cars and industry that cause air pollution," says Mr Ian Galbally, from CSIRO Atmospheric Research. "Plants release highly reactive hydrocarbons that can add significantly to photochemical smog problems. That is, smog caused by the reaction of sunlight with chemical compounds like those from industry, car exhausts and now, as we've discovered, plants," he says.

"The blue haze you often see over the Dandenongs in Victoria and in the Blue Mountains near Sydney is caused in part by the gases released by vegetation. We found that grasses, particularly when cut, are potent emitters of reactive hydrocarbons."

"Plants release these compounds into the atmosphere in large quantities. These volatile compounds add to the photo chemical smog in the same way as emissions from human sources - there is no discrimination," says Dr Peter Nelson, senior research scientist with CSIRO Energy Technology.

"We are measuring the emissions rates of hydrocarbons from three Australian eucalypt species, using large branches of mature trees," says Dr Nelson."We deliberately sought trees that hadn't been grown under controlled conditions, but were 'real world' specimens. Previous studies have concentrated on a small number of single leaves of cultivated plants and performed measurements under very controlled conditions of temperature and radiation," says Dr Nelson.

"One of the things we have found already is a close relationship between the amount of the sun's radiation, of the type that is important for photosynthesis and the plant's growth, and the level of hydrocarbons they emit. Emission rates are highest during the day and drop off towards evening."We can use this information to assist the EPA to more accurately estimate chemical emissions from Australian trees and grasses," he says.



WWF

If the earth
were only a few feet in
diameter, floating a few feet above
a field somewhere, people would come
from everywhere to marvel at it. People would
walk around it, marvelling at its big pools of water,
its little pools and the water flowing between the pools.
People would marvel at the bumps on it, and the holes
in it, and they would marvel at the very thin layer of gas
surrounding it and the water suspended in the gas. The
people would marvel at all the creatures walking around
the surface of the ball, and the creatures in the water.
The people would declare it precious because it was the
only one, and they would protect it so that it would not be
hurt. The ball would be the greatest wonder known, and
people would come to behold it, to be healed, to gain
knowledge, to know beauty and to wonder how it
could be. People would love it, and defend it with their
lives, because they would somehow know that
their lives, their own roundness, could be
nothing without it. If the Earth
were only a few feet in
diameter.

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for ASGAP Wildlife & Native Plants Study Group