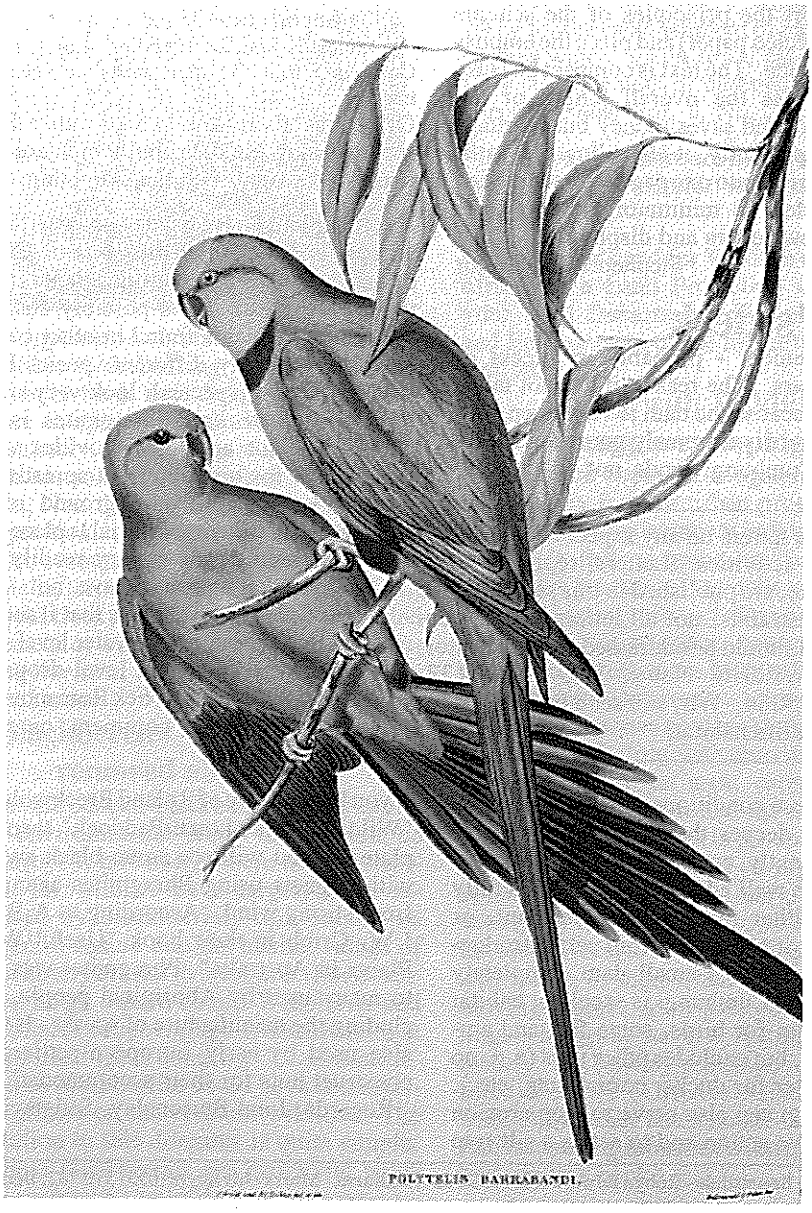
LAND FOR WILDLIFE NEWS

Newsletter of the LAND FOR WILDLIFE scheme

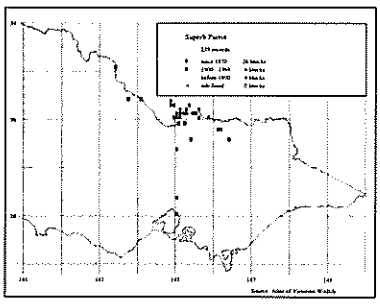
DCE Publication Number 03-20-0400-2

Vol. 1, No. 7; August 1992.



John Gould and H.C. Richter prepared this lithograph titled, 'Polytelis barrabandi', of the Superb Parrot, also known as the Barraband, last century. This species is classified as vulnerable Australia-wide. A *Land for Wildlife* project in conjunction with the Nathalia Tree Group and local community is contributing to the conservation of this species in Victoria. Read about our involvement on page 7.

Inside



Distribution of the Superb Parrot *Polytelis swainsonii* in Victoria. Source: Atlas of Victorian Wildlife, Department of Conservation and Environment, Victoria.

Department of Conservation & Environment

Bird Observers Club of Australia

Editorial

All registered members of *Land for Wildlife* are eligible to receive a sign and Notes folder in which to store Land for Wildlife Notes. If you are fully registered and do not yet have your folder, you can obtain one from your nearest *Land for Wildlife* extension officer (listed below). Members display the sign at their discretion, so not all properties that are in the scheme will necessarily display a sign, however, most choose to do so. Registered properties also receive a Certificate of Registration. Whilst we have endeavoured to provide certificates to all properties some may have been overlooked. If you missed out and would like a certificate, please let us know.

Over two hundred questionnaires have been returned to date. Thank you to those members who contributed. Preliminary results are discussed on page 7.

The Victorian Government has provided additional funding to Land for Wildlife for the new financial year. This will allow the program to appoint two additional half-time extension officers. They will be based in the Department's Central Gippsland (Traralgon) and Alexandra Regions (see below for contact numbers).

The questionnaire results indicate that most people are pleased with this newsletter. There were many excellent suggestions for topics to be covered in future editions. As editor, I have made a number of decisions concerning the presentation of the newsletter which reflect our desire to support the principles of the scheme (e.g. recycled paper) and place the emphasis on advice. The text is compact because this reduces the overall length of the newsletter and saves money but, perhaps more importantly, it also allows us to fit more stories onto one page so that they can be recycled, at minimum cost, in other group newsletters and displays.

Stephen Platt, Editor

Across the editor's desk

Much Maligned Cumbungi

For some time now, I have been thinking of writing to you about the comments made re Cumbungi *Typha latifolia* in LFW Note No. 15, but being lax didn't get around to it and Nick Romanowski has 'beaten me to the drop'. As Nick points out, Cumbungi, whether introduced or native, is all very similar. It is in fact a cosmopolitan plant comprised of a few species that are very difficult to separate.

Sadly, Cumbungi is one of those plants that must be poisoned, ripped out and gotten rid of at all costs and by any means available. I have been approached on more than one occasion by well meaning people and advised to get rid of it while I can. I've even had an offer from an earth-moving contractor to bulldoze it out at a cheap rate as he was working close by. When I reply that I am concerned because it is not doing well enough for my liking, they shake their heads in disbelief.

The Cumbungi has been in the corners of my triangular-shaped dam for as long as I can remember - probably in excess of thirty years. The reason it has not taken over is because the dam is very deep, and the soil here is extremely poor - rocks and clay. Cumbungi tends not to do well under these conditions and will not grow in water deeper than about 1.8 metres. Consequently, anyone with a shallow dam would be well advised to think carefully before either introducing this plant, or allowing it to spread from self introduction, however, a small dam completely covered by Cumbungi is excellent habitat and shelter for birds, some fish and amphibians, but excludes other uses (e.g. no open water for ducks, cormorants, etc.). Cumbungi can also serve to stop erosion from wave action and to act as a silt trap where water enters the dam. Without the Cumbungi, my dam would be a relatively desolate place and no birds other than plovers, lapwings etc. could breed there. Below is a list of birds that I have observed making good use of the Cumbungi.

* Australasian Grebe
* Musk Duck
* Purple Swamp Hen
* Dusky Moorhen
* Eurasian Coot
Black-tailed Native Hen
Buff Banded Landrail
* Reed Warbler
Superb Blue Wren

(*) Indicates species breeding - and using Cumbungi to build their nests i.e. nesting material.

Of course there are lots of other bird species using the dam, but which are not really associated with the Cumbungi.

Another plant I have tried to grow without success is *Phragmites australis* or Common Reed. This bamboo-like plant is also very widespread and is possibly cosmopolitan. The plants found in other countries are probably different species but, like Cumbungi [species], look very similar to *P. australis*. Phragmites is an attractive plant and also provides very good cover for birds etc.. It spreads by shooting from underground roots and if some root material is placed in wet mud it grows very readily. I think the reason I have not succeeded in growing it is that it seems to require a constant water level as it dies when the dam level drops in summer. Perhaps Nick Romanowski would like to comment on this theory.

If you have a copy of Roland Breckwoldt's "Wildlife in the home Paddock" then on plate 21 you will see some black swans with cygnets using Phragmites as cover from strong wind. According to A.B. & J.W. Cribb in their book "Useful Wild Plants in Australia", Phragmites was put to many uses by Aboriginal people, including the manufacture of spears. It was also used by early European settlers to construct huts for their accommodation.

Regards, John Burtonclay, Sedgewick.

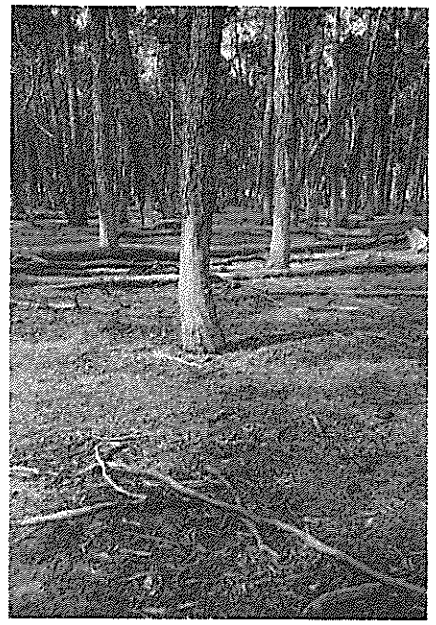
We welcome letters on any aspect of your Land for Wildlife activities. Letters, replies to your questions, etc. are published in this section. Due to space constraints, not all letters can be published. Mail should be addressed to: The Editor, Land for Wildlife News, P.O. Box 137, Heidelberg, 3084. Why not send in your tip for creating wildlife habitat!

Land for Wildlife Extension Officers: Alexandra to be appointed, **Bairnsdale** - Robyn Edwards (051) 52 5280, **Ballarat** - Murray McIntyre (053) 370 782, **Benalla** - Liz Chambers (057) 611 611, **Bendigo** - Peter Morison (054) 446 666, **Central Gippsland** Andrew Horner (051) 722 111,**Colac** - Bill O'Shea (052) 33 5533, Dandenong - Jean Edwards (03) 755 2726, **Geelong** - Carol Green (052) 82 1584, **Horsham** - Barry Clugston (053) 581 588, **Melbourne** - Virginia McCallum (03) 844 2659, **Portland** - Brian Hill (055) 723 033, **Yarram** - Frankie MacLennan (051) 825 155.

Regional Offices of the Department of Conservation and Environment: Alexandra 46 Aitken St. 3714. (057) 72 1633, **Bairnsdale** 210 Main St. 3875. (051) 52 6211, **Ballarat** State Public Offices, Cnr Mair and Doveton Sts. 3350 (053) 33 6782. **Benalla** 57 Bridge St. West 3672. (057) 61 1611, **Bendigo** 31 Mundy Street, 3550. (054) 44 6666, **Central Gippsland** 71 Hotham St. Traralgon 3844. (051) 74 6166, **Colac** State Public Offices 83 Gellibrand St. 3250. (052) 33 5533, **Dandenong** 205 Thomas St. 3175. (03) 706 7000, **Geelong** State Public Offices Cnr Fenwick & Lt Malop Sts. 3220. (052) 26 4667, **Horsham** State Public Offices 21 McLachlan St. 3400. (053) 81 1255, **Melbourne** 9th Floor 49 Spring St. 3000. (03) 412 4585, **Mildura** State Public Offices 253 Eleventh St. 3500. (050) 23 9311, **North East** 1 McKoy Street Wodonga 3690. (060) 55 6111, **Orbost** 52 Stanley St. 3888. (051) 54 6222, **Portland** 8-12 Julia St. 3305. (055) 23 3232, **Yarram** 310 Commercial Rd. 3971. (051) 82 5155. The views expressed in this newsletter do not necessarily reflect the policies of either the Dep't of Conservation and Environment or Bird Observers Club of Australia.

Practicalities

Stringybarks susceptible to stock damage



Stringybark eucalypts are particularly susceptible to de-barking by stock. In this example from near Sale, the trees have been completely girdled and many will eventually die. In any case, this vegetation has no future due to lack of regeneration . Note the total absence of understorey vegetation. Fencing would protect this farm resource (which must offer very little in terms of forage for stock). Individual trees in paddocks can be protected by metal or wire guards. Photo:*Eucalyptus muellerana*, Gippsland. Frankie MacLennan.

Blackberries - should they be removed all at once?

The introduced blackberry *Rubus spp* is an environmental weed that should be destroyed, however, where natural habitats for wildlife have largely been replaced by blackberries, care should be taken to ensure that the habitat values of blackberry are not overlooked. For example, Leigh Ahern found Whipbirds and Pilotbirds sought refuge in blackberries in Gippsland (pers comm.). Total destruction of blackberries could have detrimental effects on the resident wildlife. The solution to this dilemma is quite simple. Where blackberries are providing valuable habitat for wildlife, remove a proportion at a time whilst revegetating the cleared area with local native species as you proceed. When the wildlife has established itself in the new native habitat, finish off the blackberries.

Blackberry control techniques

Methods for the control of Blackberry are outlined in a Pest Plant Note available from offices of the Department of Conservation and Environment. Cultivation (ploughing), particularly of smaller plants, and spraying with herbicides are the two options discussed in this Note which includes detailed recommendations for herbicide application.

The effect of these herbicides on soil, water and fauna is not discussed. However, glyphosate use is apparently highly toxic to frogs (M. Littlejohn, pers comm.).

In some areas Blackberry rust may reduce the health of Blackberry infestations to allow for the establishment of native plant species which, given time, may successfully compete with or outcompete Blackberry (see also Vol. 1, No. 2, p 10).

Please note that there are native species of *Rubus*. Care should be taken not to damage these.

Contact your Land for Wildlife extension officer or a Land Protection Officer at your local Department of Conservation and Environment office for further information.

Living with Wildlife - magpie swooping -

Magpies are beautiful songsters, and an asset to any farm or urban property, but can become dive bombers in Spring. The reason is that magpies are proud and protective parents. They will vigorously defend a nesting territory during the breeding season. It stands to reason that any attempt to threaten the birds will encourage even more aggressive behaviour (i.e. don't throw stones or wave sticks). Some options for dealing with swooping magpies are: avoid the area; carry a short stick, umbrella or rolled-up newspaper above your head; travel in groups; or wear a hat, bicycle helmet or anything else that is handy (icecream container); be confident (they are less likely to swoop); face the bird. When the young fledge, magpies will return to their usual pursuits of removing scarabs from pasture and carolling. Magpies have a fascinating life history. Ian Rowley's account in his book titled *Bird Life* (The Australian Library, Collins) shouldn't be missed. You'll also find fascinating information on many other birds in this book.

Stream litter kills Platypus

Human litter has been associated with the death and injury of Platypus in the Healesville area. Rubber preserving rings, loops of fishing line and a plastic pipe offcut have been found around the neck and thorax of Platypus. Litter may obstruct feeding, lead to wounds which become sites for infection and cause chronic injury and death.

The observed incidence of death of Platypus caused by litter over a two year period, in two streams in the Healesville area, was 10%.

Litter causes the unnecessary death of many species of wildlife. On farms, bailing twine is a danger to birds in particular.

Where do you dispose of your litter? When snagged or tangled, do you retrieve your fishing line and dispose of it carefully?

The removal of native vegetation along streams, predation by foxes and death caused by motor vehicles are other causes of mortality for Platypus.
Information courtesy of Rosemary Booth, veterinarian, Healesville Sanctuary.

What birds are nesting?

How do you find out what birds are nesting in your area? You can of course spend a lot of time patiently watching. Very few people have the sort of time that is necessary.

Kathlene and Reg Johnson, on their property at Bailieston near Rushworth, use a novel method to find this information. Wedged in a sapling, within easy viewing distance, they have a chunk of wool, salvaged from a dead sheep.

The Johnsons' report that birds seem to welcome having nesting material so easily available and will readily use it. "The birds don't just grab a wad of the wool," says Reg. "It is fascinating to watch the meticulous way they select a single strand of the wool at a time. It has given us a great deal of pleasure to be able to watch this annual procedure and at the same time we are able to keep in touch with what is nesting from year to year."

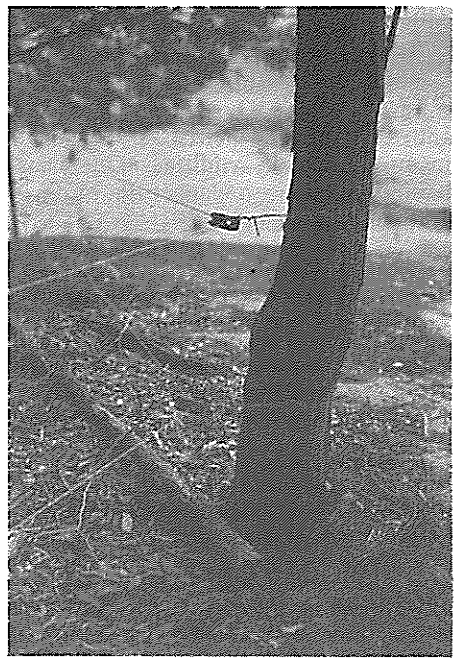
Reg and Kathlene are keen members of the Bird Observers Club of Australia and Reg was one of the originators of the Land for Wildlife idea. Their well-treed property is now protected by a Victorian Conservation Trust Conservation Covenant which, in their case, restricts tree clearance and further subdivision.

Kathlene and Reg have recorded the bird species that they have observed using the wool for nesting. They are the Fuscous Honeyeater, White-naped Honeyeater, Buff-rumped Thornbill, White-eared Honeyeater, Brown-headed Honeyeater, Mistletoebird and Sittella. Of course, not all birds use fine nesting materials so this method is limited to particular species. Anyone else have similar stories?

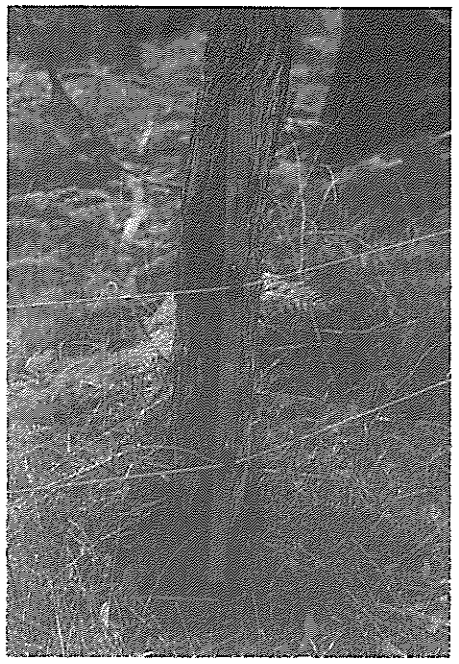
Peter Morison, LFW, Bendigo.

Practicalities

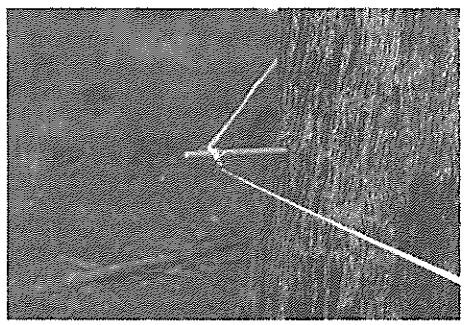
Budget fencing ideas



A tree used as a corner in an electric fence erected to protect native vegetation. A steel pin avoids the need to circle the tree with wire which may eventually kill it.



An insulated wooden stake rests against this remnant tree, taking the strain of the wire off the tree, and saving the cost of a corner post.



A fibreglass rod insulates an electrified wire from the tree.

A log section has been used to anchor a corner in a single strand electric fence.

The above examples are taken from the Quinn property near Meeniyan. See Vol 1, No. 3, p 3 & Vol. 1, No. 4, p 2 for more information on cheap fencing).

Germinating native plants

Natural regeneration and direct seeding will prove cheaper and more effective means of creating vegetation than planting. However, they are not suitable for many properties due to a lack of remnant vegetation or equipment.

A booklet titled "How to Germinate Native Tree and Shrub Seed Enjoyably" is available from Greening Australia. It describes a range of propagation techniques which could equally be applied to many herbacious plants.

Propagating your own plants will not only be rewarding but will allow you to use locally collected seed and so ensure that your stock are suited to your location.

A companion booklet "How to collect Native Tree Seed Easily" is also produced by Greening Australia. Telephone: 03-654 1800 or ask your Land for Wildlife extension officer if they have a spare copy.

Succession and successful revegetation for wildlife

Natural catastrophes, such as a devastating wildfire, can dramatically alter the environment for plant growth. Instantly there is unrestricted light availability, competition from other plants may be temporarily subdued and water and nutrients may be more readily available. Erosion, intense competition from other seedlings and exposure to attack by pests are soon critical factors determining survival.

Some species are adapted to exploit the new regime. They are typically fast colonisers, quick growing (short-lived) and able to use the available nutrients rapidly (such characteristics are also typical of 'weeds'). Legumes, including wattles and native peas, as well as some members of the daisy family, such as *Cassinia*, are in this group. You will recognise them on forest margins, in disturbed areas and following fire. These species eventually give way to the slower-growing, more conservative ones but not before serving a valuable role through re-instating some of the pre-catastrophe conditions. This process is called 'secondary succession'.

A natural catastrophe is not entirely unlike a man-made change such as clearing. It is therefore tempting to think that the qualities of colonizing species could be used to assist revegetation projects. For example, if wattles are typical colonisers for the habitat you are creating, why not include substantial quantities of them in your direct-seeding or planting operations. Sure, they won't last forever but they will reduce windspeed, shelter and bind the soil and enrich the soil nutrients (legumes can 'fix' atmospheric nitrogen and so make it available to other plants) whilst other species get established. They could be used to provide a 'nursery' (or cover crop) for slower-growing species such as eucalypts. Native colonisers are good competitors and you may find that they do better against aggressive introduced pasture species. They may even reduce the vigour of introduced pasture species through shading and competition and so benefit your other native plants. Essentially, the idea is to imitate nature to some extent. As with all techniques, it is wise to trial the method in a small area typical of the site to be revegetated prior to commencing wide scale revegetation. A little time spent experimenting could save a lot of time and money.

Use of native colonisers could also be made in bushland revegetation where an old rubbish dump is being cleaned up or following weed removal if that creates conditions suitable for colonisers.

What determines how many and what kind of birds are found in a eucalypt forest at one time?

What factors determine how many and what kinds of birds there will be in a eucalypt forest? This question has vexed ornithologists for many years, however, some recent studies are providing an insight into this most important question.

What role does the **structure** (height, amount) of the vegetation play? or is the **composition** of the vegetation (types of species,etc.) more important? Some relevant factors are considered below.

The abundance, type and availability of food; the diversity of substrates for shelter, feeding and breeding.

1. Thornbills

Thornbills are small (7 gram) insect-eating forest and woodland birds. Eight species occur in Victoria and all are very similar in appearance.

Brown, Buff-rumped and Striated Thornbills may occur in the same patch of bushland and this has permitted study of the way in which these three species co-exist (Bell, 1985).

Striated Thornbills spend 75% of their time foraging in the tree canopy where they glean insects from eucalypt leaves. Brown Thornbills forage mainly in understorey plants (58%) and principally off foliage. Buff-rumped Thornbills prefer bark surfaces at all levels.

The physical characteristics and social organisation of the thornbills are suited to these various feeding strategies. Striated Thornbills have blunter and shorter beaks, which presumably are better for picking insects off leaves. In autumn and winter they travel in clans of ten to twenty birds. This might be explained by the higher degree of exposure to predators in the canopy and the security afforded to individuals by travelling in groups. Brown Thornbills have fine beaks that enable them to probe for insects amongst the foliage of shrubs. They are also able to take nectar from shrubs using their partially brush-tipped tongue. Unlike the other species, they live throughout the year as territorial pairs. Buff-rumped Thornbills have slightly decurved beaks. These are better suited to probing bark.

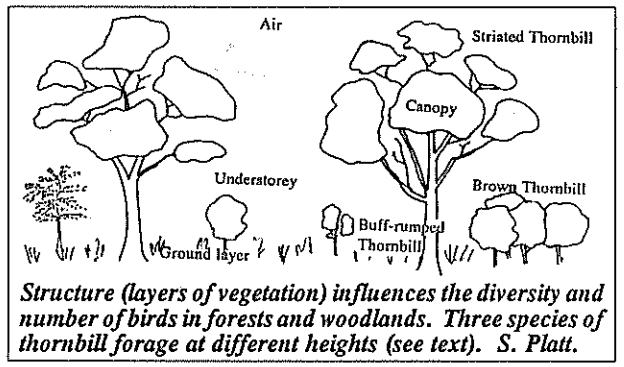
2. Sittellas and treecreepers

Sittellas and treecreepers are specialised bark foragers.

Eucalypt bark is an incredibly varied surface offering quite different opportunities for foraging birds. Stringybarks have coarse fibrous bark on all but the upper branches, boxes are covered in small flakes, ironbarks have deeply furrowed solid bark and the bark of gums is smooth and peels in ribbons which may persist for some time.

Richard Noske found that sittellas forage mainly on stringybarks where they spend about one third of their time on dead branches. In contrast to the treecreepers, sittellas rarely eat ants. They use their wedge-shaped bills to remove flakes of bark, and so expose invertebrates living beneath, and to probe dead wood. Sittellas roost communally, huddled together on a thin horizontal dead branch. They usually place their cup-shaped nest in the vertical fork of a dead branch.

White-throated Treecreepers also prefer stringybarks but spend most of their time on rough bark and less on dead branches. They eat large quantities of ants and will nest and roost in a variety of locations - tree trunks, knotholes, stumps. Pairs occupy small (4 hectare) territories. This species is the most generalised in its requirements.



Structure (layers of vegetation) influences the diversity and number of birds in forests and woodlands. Three species of thornbill forage at different heights (see text). S. Platt.

Red-browed Treecreepers eat more spiders and small beetles than White-throated Treecreepers but also consume large quantities of ants. They have larger group territories and are more specialised in their nesting and roosting requirements.

The environment offers differing opportunities for birds to feed, seek shelter and breed and this has moulded their physical and social characteristics. The structure of the vegetation is probably important because it represents the range of feeding opportunities available to birds. Fine foliage harbours particular kinds of insects, eucalypt leaves offer psyllids, large spiders shelter under shedding bark, etc.

Gilmore (1985) found the number of insectivorous birds at his study sites were correlated with the physical amount of vegetation and the height of the canopy but not the number of plant species. He found four groups (guilds) of birds which co-exist without obvious interaction - canopy air feeders, canopy foliage feeders, bark feeders and ground feeders .

"Bird species diversity is clearly related to environmental productivity, environmental stability, and the available size range of prey". (Recher, 1971).

The age and successional stage of the vegetation. Infestation by parasites and diseases.

Mature plants are quite different from their offspring in the resources they provide to birds. An old eucalypt will have a much greater area of bark on its trunk, is more likely to have peeling or flaking bark, may possess hollows (which don't form in young eucalypts), will produce bulk flowers, fruits ans invertebrates and is more prone to disease than a young eucalypt.

As many stems give way to few in ageing vegetation the relative amount of foraging substrate changes and so, depending on the life strategy and physical characteristics of the birds using the forest, confers advantages or disadvantages.

An early post-fire successional stage in eucalypt forests typically consists of large numbers of short-lived plants, such as wattles and cassinias. Greater proportions of fine foliage and much lower levels of bark are available than in older forests. Further, the structure is more uniform. This will affect bird populations. Ground and shrub foraging birds, such as Brown Thornbill and Yellow-faced Honeyeater, will be more abundant. Canopy (e.g. Striated Thornbill) and bark foragers (e.g. White-throated Treecreeper) will be less abundant.

Old trees are more likely to be infected by mistletoes which attract honeyeaters and the Mistletoebird.

Infestation by canopy insects

Insectivorous birds may be constantly excluded by Bell Miners from sections of forest heavily infested with psyllids (lerp-producing, sap-sucking insects, see Vol 1, No. 5, p 6). Experiments in which Bell Miners were removed from psyllid-infested areas showed that there was an immediate influx of common forest birds such as Striated Thornbill, White-naped Honeyeater, Spotted Pardalote and Eastern and Crimson Rosella. Within four months these species had reduced the

psyllid population to low levels.

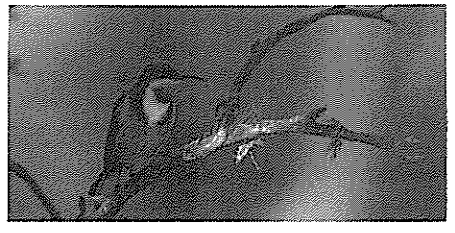
Tree hollows
Birds that nest in hollows will be unable to breed in eucalypt forests in which suitable hollows are unavailable. Young eucalypts do not form hollows. As eucalypts mature hollows begin to form. Birds that use small hollows (e.g. treecreepers, Striated Pardalote, Tree Martin, Sacred Kingfisher) will be able to find nesting hollows at an earlier stage in the maturity of the forest than those that require large hollows (e.g. owls, large parrots and cockatoos).

Members of the eucalypt sub-genus *Symphyomyrtus*, which are often gum (smooth) barked, are better hollow producers than those in *Monocalyptus*. This is not to say that stringybarks do not produce hollows (see page 11 for an example of hollows in Red Stringybark). Different sub-genera of psyllids occur on species of *Symphyomyrtus* and *Monocalyptus*. It has been proposed that this affects the distribution of Spotted and Striated Pardalotes and in turn has been responsible for their different nesting strategies (earthen tunnels vs tree hollows), each taking advantage of the most abundant nest sites in the forest type to which they are adapted (Loyn, 1985a).

Site quality - eucalypt nectar flows, nectar rich flowering shrubs.
Eucalypts produce large quantities of nectar and pollen. A flowering eucalypt will attract a range of birds including honeyeaters, lorikeets and Swift Parrots.

The timing of flowering, the quality and quantity of nectar are all variables which affect bird populations. Eucalypts on high quality sites may be of greater value to birds than those in poorer locations, the former being able to expend more energy on nectar production (see Vol 1, No. 4, p 7, Regent Honeyeater).

Some bird migrations may be timed to regular seasonal occurrences of nectar-producing plants but flowering of many eucalypts is not regular and may be unpredictable. Bird populations will vary throughout the year depending on whether eucalypts are in flower.



Eastern Spinebills are attracted to grevilleas and other nectar-producing shrubs in the understorey during the flowering period.

Similarly, the presence of nectar-producing shrubs in the understorey (e.g. *Banksia, Grevillea, Hakea*) will provide opportunities for nectarivorous birds such as New Holland Honeyeater and Eastern Spinebill.

Degree of isolation and disturbance
Small patches of bushland can be seriously degraded and may be taken over by farmland birds such as Noisy Miners which aggressively exclude other species (Loyn 1985b).

Size of the patch
Diversity of bird species have been found to increase with the size of the forest patch in fragmented forests (Loyn, 1985b).

Both the structure and composition of vegetation have been related to the abundance and diversity of bird species. In terms of management, it is important to concentrate on the management or restoration of natural species complements and vegetation structure. As the life of each species is interwoven with the natural vegetation in which it evolved, artificial, highly species-rich and structurally diverse combinations of plants will **not** necessarily provide any better conditions for native birds.

References:
Bell, H.L. (1985) The Social Behaviour and Foraging Ecology of three Sympatric Thornbills *Acanthiza* spp. in Keast et al., pp. 151-63.
Keast et al. (1985) Birds of Eucalypt Forests and Woodlands, Surrey Beatty and the Royal Aust. Ornithologists Union.
Loyn, R. (1985a), Ecology, Distribution and Density of Birds in Victorian Forests, pp. 33-46, in Keast et al..
Loyn, R.H., (1985b) Birds in Fragmented Forests in Gippsland, Victoria. pp. 323-31, in Keast et al.
Noske, R.A. (1985) Habitat use by Three Bark-foragers of Eucalypt Forests, pp. 193-204, in Keast et al
Pizzey, G. (1988) A Garden of Birds, Viking O'Neil.
Recher, H.L. (1971) Bird species diversity:a review of the relationship between species number and environment. Proceedings, Ecological Society of Australia, 6, pp. 135-52.

Land for Wildlife questionnaire - preliminary results

A questionnaire was included with the last Land for Wildlife newsletter. By mid-July 217 forms had been returned. These returns are the basis for this article.

99% rated the newsletter presentation as either good or excellent (poor 2, good 108, excellent 106, blank 1). 100% rated the content as good or excellent (poor 0, good 98, exc. 116, blank 3). An average of 2.7 people read each newsletter. Total readership of member copies can be estimated as 4100 readers. 93% of respondents want the newsletter to remain quarterly. 63% said that their conservation activity had changed as a result of Land for Wildlife membership. Many others noted that whilst they were already conserving flora and fauna on their property prior to membership, the scheme had provided encouragement and re-inforced their views. 113 (53%) rated the change in their awareness and understanding of the needs of wildlife as substantial. 165 respondents claimed they spent a total of 10 916 days managing the wildlife habitats on their land. Several forms recorded 365 days/year spent managing habitats. 145 returns estimated that $146 058 had been spent last year on managing wildlife habitats (excluding one government authority that was spending considerably more). It appears that in some cases government grant monies had been included in this estimate. This was not the intent of the question and may be responsible for overestimation of the amount spent by landholders. There were many suggestions for improving the program. Greater publicity and increased direct contact (field days, etc.) were the most frequently cited. Involvement of councils, a comparable urban scheme, 'open' properties, local meetings, secondary school involvement, tax deductibility for conservation activities, rate reductions, provision of cheaper plants, hire of equipment, discount materials, chemicals, group purchasing, and loan of money were also suggested. Some landholders commented that monetary incentives would not encourage commitment. Time, labour and money were identified as the major obstacles faced by landholders. Illegal grazing, neighbours, age, foxes (and other feral animals), trespassers, shooters, kangaroos, knowledge, councils and weeds were also seen as obstacles. 173 (80%) said the current level of advice was sufficient for their needs. Of training courses, the majority of respondents favoured field days for training (103), videos were also popular (98) with a TAFE course being the least favoured option (47). 186 said the service they received was prompt and 190 courteous. 170 said they had been kept well informed of when the property would be assessed. On the advice received from the assessor, 76 rated the advice as excellent, 110 as good, 13 as poor and 15 did not respond (some of these were early entrants to the scheme and could not recall).

A copy of each survey form will be passed on to the appropriate extension officer. Responses to many of the questions raised will appear in subsequent newsletters. Many thanks to all those who assisted us by responding to the questionnaire.

Land for Wildlife - at work

Does Land for Wildlife make any difference to flora and fauna conservation on private land? Here are three positive stories which confirm that it is making a difference.

1. Striped Legless Lizards

Recently a landholder observed a small worm-like animal which had been uncovered whilst ploughing. A number of others were found in the furrow. The animal was taken to the Department of Conservation and Environment's Ballarat office to confirm its identity. It was a Striped Legless Lizard *Delma impar* (see Vol. 1, No. 2, p 8), a species classified vulnerable in Victoria. The nearest known locality for this species was some 100km to the south. The property consists of introduced pasture and there are no in-ground rocks. It is interesting to note that previous searches for the Striped Legless Lizard have concentrated on remnant native grassland or areas with rocks that might provide shelter.

What is different about this find is that the landholder concerned is a member of Land for Wildlife and has set aside 15% of the property for nature conservation. Subsequently, Striped Legless Lizards have been found on two other Land for Wildlife properties in the area (Ararat vicinity).

2. Superb Parrots

The native box woodlands in northern Victoria provide important foraging habitat for the Superb Parrot *Polytelis swainsonii*, a species that is vulnerable Australia-wide. Following a consultant's report to the Department of Conservation and Environment on practical measures that could be undertaken by landholders to conserve the parrot, Liz Chambers, the Land for Wildlife extension officer in Benalla Region, discussed the recommendations with property owners in areas identified as important to the species. She has received a tremendously positive response from the community and steps have now been taken to set up a group to ensure ongoing community management of the project and to seek funding.

The project is being co-ordinated by the Nathalia Tree Group with the support and involvement of local schools and councils. Members seeking more information or wishing to contribute should contact Liz Chambers on 057-611 611.

3. Yahoo's Fight Back

The Yahoo, also known as the Catbird or Grey-crowned Babbler, a threatened bird species, attracted an attendance of around fifty people to a seminar/field day on the shores of Lake Eppalock near Bendigo on Sunday the 21st of June 1992.

Attending the seminar were landholders from the immediate Lake Eppalock area as well as from the other. parts of Strathfieldsaye Shire (south of Bendigo).

Travelling in convoy, the group visited the site of a local Yahoo colony. Here John Burtonclay, President of the Bendigo Field Naturalists Club, 'called up' the colony using a tape recording of their call.

The birds (there are 8 in the colony) obliged by arriving in a great state of excitement and performing their usual group antics of bobbing heads, fanned tails, squawking and attacking the tape recorder, much to the delight of the assembled audience.

John suggested that local subdivision of farmland had favoured the bird's survival because stock had been removed from the land thereby allowing regeneration of trees. The bird shows a preference for building its stick nests in saplings.

A bit further around the lake the group visited a pair of Yahoos that had broken away from a colony and were trying to establish a new colony. This pair are totally dependant on private land habitat and the landholders want to take action to protect them.

To plan some action, the group is meeting again on the 9th August at the property of Land for Wildlifer Fay Thompson at Lake Eppalock. Here we aim to plan some habitat protection, restoration and creation and to form an official group to carry out on-going work.

Barry Traill, a Monash University researcher, also spoke at the seminar on the problems facing our Box/Ironbark forests and their dependent fauna.

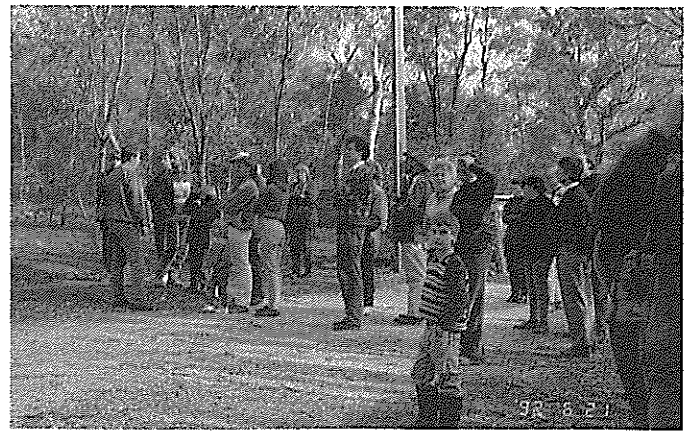
Pointing out the checkered history of the forests he explained that extinction is an on-going process.

"The Regent Honeyeater is now under threat of extinction but the factors causing this probably commenced 100 years ago," he explained. "We are now poised on the edge of a second wave of extinctions of fauna largely because of clearing and degradation of the Box/Ironbark forest."

"Past forestry practices have removed all habitat trees with hollows and current practices tend not to allow these hollow-bearing trees to develop. This is one of the factors contributing to fauna decline," he said.

Barry went on to talk about the Tuan (Brush-tailed Phascogale) and the Squirrel Glider, both very dependent on Box/Ironbark forests in Victoria and both threatened with extinction in this State. The role of private landowners could well be crucial to their long-term survival. Land for Wildlifers are obviously at the forefront of fauna conservation in this State.

Peter Morison, LFW, Bendigo.
More info: Peter Morison, 054-44 6666



John Burtonclay, Land for Wildlifer and president of the Bendigo Field Naturalists Club addresses a section of the crowd watching the Babbler colony. There are currently 1288 hectares of Box-Ironbark forest on 115 Land for Wildlife properties in Victoria. **(Source: Land for Wildlife Statewide Property Register). Photo: Peter Morison.**

Extension Officer role

Land for Wildlife extension officers do a great deal more than property assessments. They are responsible for the co-ordination of the scheme in their Region and for the provision of support services to landholder members. They also promote the scheme in the community and make contact with landholders in priority areas for nature conservation. An important part of their task is to look for techniques and innovative ways in which landholders can be relieved of some of the burdens of managing their property in a way which complements nature conservation. A large part of their work involves contact with landholders and they are continually seeking out ideas that may be of benefit to others. Any suggestions you have in this regard would be welcomed.

LandCare - it can help you.

LandCare groups provide a means for landholders to act co-operatively to address a range of concerns on their properties. In spite of good habitat, many species of fauna will not be present in isolated remnant vegetation if there is insufficient habitat in the *landscape* to support them. Flora and fauna values can feature in LandCare group activities as Jerry O'Neill explains in this article.

LandCare group action can provide many benefits to participants of the Land For Wildlife scheme. LandCare involves local community groups working together to manage local land degradation problems. Issues such as soil erosion control, salinity, pest plants and animals and habitat decline are all tackled by LandCare groups around Victoria. These issues are often interrelated and are seldom isolated to one property and that's why the group approach is the best bet.

LandCare group participants are encouraged and assisted in producing farm and property plans for their own land and work together to develop area plans. These plans aim to integrate the management of various aspects of land degradation and production, including remnant vegetation and wildlife habitat. Property improvements which achieve more than one purpose, such as indigenous windbreaks which also function as wildlife corridors, will provide the greatest benefit.

Workshops are organised to help LandCare groups to develop their property and area plans. These workshops provide an excellent forum for information sharing and for technical specialists to contribute to developing components of the plans.

LandCare group incorporation and insurance provide benefits to group projects. Incorporation enables groups to receive government funding while insurance helps to take the risk out of injury and damage to property resulting from group activities.

LandCare groups often involve local schools to help with local projects such as tree planting activities. This can benefit the group (many hands make for light work) and definitely benefits the education of school students.

Landholders interested in forming a group can initially gain assistance from local government officers and LandCare contacts at DCE Regional Offices.

Priority for LandCare group formation may be influenced by the needs of a given area. In planning for a LandCare group, consideration should be given to the range of issues related to land degradation and habitat decline which may be tackled by a group.

LandCare group boundaries may be based on a combination of water catchment boundaries and community networks.

Once issues and group boundaries have been considered, groups are often assisted to form by calling a meeting of local landholders to discuss local issues and to form a steering committee to get things moving.

Guidelines for the management of LandCare groups are presented in the LandCare Action Pack. The LandCare Action Pack can be forwarded to groups in the early stages of their development. For further information get in touch with the LandCare contact in your DCE Region.

Developing LandCare groups in Melbourne Region (of DCE) have habitat issues as a major component of their group charters. Many landholders within these groups already participate in the Land for Wildlife scheme and some have Conservation Covenants on their properties. Group formation enables these individuals to share information and develop area plans which aim to link habitats and coordinate activities.

Victoria's Decade of Land Care Plan was launched in February of this year. The Plan establishes a process to assess Statewide priorities to guide the allocation of resources. It also suggests a process for community setting of Regional priorities : Regional LandCare Action Plans.

Regional LandCare Action Plans are due for completion this year. The purpose of the Plans is to define regional needs and actions required to manage various aspects of land degradation and habitat decline. Regional LandCare Action Plans will be prepared in consultation with the community and various levels of government. It is proposed that LandCare and other community groups be consulted during that process regarding perceived needs and actions required.

Jerry O'Neill, DCE

Sugar Gliders and biological control of adult scarabs

Restoration of forest and woodland remnants could hold the key to some eucalypt dieback. As Dr Andrew Smith explains, Sugar Gliders and birds consume large quantities (80%) of scarab beetles and other leaf-eating invertebrates in the canopy. Experimental exclusion of vertebrate insectivores may lead to a four-fold increase in insect numbers in a single season. There may be ten times the number of insects and other arthropods in a dieback-affected forest than a healthy one. So measures that increase the diversity of wildlife able to forage in dieback areas will potentially lead to improved health of the vegetation.

Sugar Gliders feed on invertebrates throughout the year but rely on the gums produced by some wattles to survive the winter months when invertebrate numbers are low. Dr Smith says that the density of sugar gliders may range from a minimum of one per hectare in the absence of wattles in the understorey to as much as twelve per hectare where suitable gum-producing wattles (e.g. Black Wattle *Acacia mearnsii*) are present.

There are many forest remnants, that are dying from insect attack and other factors, that would benefit from fencing and reinstatement of understorey species. Of course, trees with suitable hollows and vegetation corridors are other factors that will determine whether Sugar Gliders reinhabit bushland. Hence the value of a landscape approach (c.f. LandCare).

Reference: Smith, A. (1992). Sugar Gliders, wattles and rural dieback, Aust. Network for Plant Conservation Newsletter, Vol 1(2).

'Brolgas on the Volcanic Plains'

An information afternoon sponsored by Friends of the Brolga Inc. and Land for Wildlife will be held at the Willaura Hall on Sunday 6th September 1992 at 1.30pm. Further information: Murray McIntyre, Land for Wildlife extension officer, DCE Ballarat. Telephone (053) 336825.

Selling your property?

Land for Wildlife scheme members who intend to sell their property may seek to have an advertisement placed in this newsletter. Our aim is to assist members to find a new owner for their property that is sympathetic to the natural values of the property. To qualify, your property must have been registered with Land for Wildlife for a minimum of twelve months (from date of application) although consideration will be given to properties registered for a shorter period where special circumstances exist. Enquiries should be directed to the Editor, Land for Wildlife News, P.O. Box 137, Heidelberg, 3084. Don't forget that a conservation covenant can provide legal protection to the conservation values of your property when it is being sold (see News Vol. 1, No. 1). We cannot guarantee space will be available for advertisements. A donation may be requested.

Stephen Platt, Editor

Fire safety and the role of native vegetation

G. Browne of Nilma North made the following comment on our first questionnaire: *"I love the trees but what is the best thing to do with all the sticks that fall. How do I save myself all the work and know I am doing the right thing for the environment? At the moment I am picking them up and burning them but it gets to me at times, a lot of work. I seem to be at it constantly. If I just throw them back into the bush is that OK or am I creating a big fire hazard? I would appreciate some information on this problem."*

In February 1992 Land for Wildlife wrote to the Country Fire Authority (CFA) to seek their views on this subject. Our letter asked the following questions:

1. What contribution do fallen logs, branches, twigs and leaves make respectively to the passage of a wildfire? Is it true that fine fuels are the major danger and that coarser materials, such as branches, whilst they may remain burning following the passage of the fire, are not a major contributor to the main fire front? Can fallen logs, branches, twigs and leaves be left on the ground in areas managed for habitat values without increasing the risk posed by wildfire if precautions are taken around areas such as buildings (e.g. remove debris for a distance of x metres)?
2. If a notice to clear prior to the fire season is issued but a landholder wishes to appeal on conservation grounds against the order, either for an amendment or for exemption, what avenues are available to the landholder and what is the procedure to follow? How is the appeal judged?
3. Are there positive points to be made about the value of retained native vegetation in obstructing radiant heat or reducing progress of the fire front?

The CFA's reply, prepared by Stephen Petris is printed below.

1. Relative Importance of Fine Fuels to Fire Behaviour

First, you question the relative contribution of fallen logs, branches, twigs and leaves to the passage of wildfire. A number of authorities note the importance of fine fuels in influencing fire behaviour parameters. Because of the very high surface area-to-volume ratios of dry, fine fuels such as grass, leaves, and small twigs, the fuel moisture contents of these fuels are very responsive to changes in temperature and relative humidity (Anderson, 1985). As fuel moisture content decreases, these fuels ignite more easily. Similarly, these high surface area-to-volume ratios mean that fine fuels are more effectively preheated by radiation and convection. Thus "ignition is almost instantaneous throughout a piece of dry grass, but dry wood will light up only along its surface" (Luke and McArthur, 1986, 31).

It is almost impossible to accurately distinguish those fuels which ignite and burn readily from those heavier fuels which are consumed slowly after the fire front has passed (Simard *et al.*, 1989,115). Chandler *et al.* suggest that dead fuels larger than one to two centimetres in diameter have little influence on a fire's rate of spread (Chandler *et al.*, 1983, 42). Peet's fire behaviour models for Western Australian jarrah and karri fuels incorporate fuels up to 10 mm in diameter (Cheney, 1981, 160), while the McArthur Fire Danger Meters assume that only fuels up to 6 mm in diameter are consumed in the flame front.

The McArthur Forest Fire Danger Meter is the most widely accepted fire behaviour model for Australian eucalypt forests. Developed empirically from hundreds of experimental fires in sclerophyll forest in the A.C.T., it calculates a value for the Fire Danger Index from a number of weather parameters. The amount of the fine fuel can then be applied to this value to ascertain such fire behaviour elements as rate of spread, flame height, and spotting potential. According to this meter, increasing the quantity of fine fuel increases all these parameters.

While the amount of heavy fuel is important in determining how difficult a fire will be to suppress, and how much damage will be done to the soil, it is clear that to keep potential fires to a manageable size the amount of fine fuel must be reduced. This is one of the cornerstones of most fire prevention policies.

It is recognised that land classified under the 'Land for Wildlife' Program should be subjected to as little disturbance as possible if it is to retain its conservation value. However, if large quantities of loose litter are allowed to accumulate any resulting fire may be so intense as to destroy the native bushland. Simpfendorfer noted that "if there is too much ground fuel, the intensity of the fire is usually enough to override any 'fire resistance' a tree may possess" (Simpfendorfer, 1989, 7).

Furthermore, if fuel is allowed to accumulate, any subsequent fire in the native stand could not reasonably be contained by the use of firebreaks. Such a fire would then endanger adjacent property. This is because of the importance of 'spotting' in the spread of a high intensity forest fire i.e. the process where flaming material is carried downwind of the main fire to ignite new areas of fuel. The research by Wilson on firebreak effectiveness supports this. He showed that even a 10 m wide bare earth firebreak has only a 50% chance of stopping a low intensity grassfire, where there is only a handful of trees present within 20 m of the firebreak (Wilson, 1988, 685). As the intensity of the fire, and the amount of trees increase, the chance of such a firebreak stopping a fire subsequently decreases. Thus, the best fire prevention strategy for reducing damage to both flora and fauna within the native stand, and to other assets on the farm, is some degree of fuel reduction.

In small stands of native bush, slashing, composting or mechanical raking may be options for fuel reduction. However, the only practical technique for larger areas is fuel reduction burning (Simpfendorfer, 1989, 6). A risk of fuel reduction burning is that the imposition of an 'artificial' fire regime may change the composition of the stand over time. However, if the pre-European fire regime can be ascertained it may be possible to duplicate it to some degree. Note that fuel reduction burning has been applied successfully by conservationists for a 326 acre stretch of bushland (Ealey, 1977).

Unfortunately, while fuel reduction burning can be used with only a minor risk of serious damage to trees "it can be a very hazardous operation and should only be considered when all other methods are impracticable" (Simpfendorfer, 1989, 2). I suggest that expertise in this area should be sought from the Fire Protection Branch of your Department.

2. Width of Reduced Ground Litter Zone Around Buildings

Luke has considered the issue of the width of a fuel reduced area between houses in a subdivision and native bushland. He proposed a fuel reduced firebreak between buildings and bushland consisting of two zones. Landholders would be responsible for removing any fuel which might carry a fire in the Inner Zone abutting their homes. In the Outer Zone, public authorities would reduce fuel significantly "to isolate the Inner Zones from flames and lessen the chance of houses being subjected to a shower of fire brands and sparks during a bushfire" (Luke, 1982, 8).

The widths proposed by Luke are repro-

duced below as Table One. Note that the C.F.A. have adopted these widths, with some modifications, in the guide 'Planning Conditions and Guidelines for Subdivisions'. While these fuel reduced firebreaks were not designed to apply to farms, Luke notes that "it is appropriate to recommend that firebreaks adjoining farm buildings should be at least 50 per cent wider than for the normal outer suburban housing situation" (Luke, 1982, 10). However, Luke does not provide any evidence to support his observations.

WIDTHS OF FUEL REDUCED INNER ZONES

Slopes facing N, NW, W, SW, and S

Flat to 5 degree slopes.....20 m
10 degree slopes.....25 m
15 degree slopes.....30 m
20 degree slopes.....40 m

Slopes facing, NE, E, and SE

Flat to 15 degree slopes.....20 m
20 degree slopes.....30 m

WIDTHS OF FUEL REDUCED OUTER ZONES

Slopes facing N, NW, W, SW, and S

Flat land.....10 m
5 degree slopes.....15 m
10 degree slopes.....20 m
15 degree slopes.....40 m
20 degree slopes.....60 m

Slopes facing NE, E, and SE

Flat to 5 degree slopes.....10 m
10 degree slopes.....15 m
15 degree slopes.....20 m
20 degree slopes.....30 m

Table One

3. Avenues for Appealing a Direction Notice to Clear

The procedures for appealing the terms of a direction notice on conservation grounds are to be found in s.41A of the Country Fire Authority Act 1958. Under ss.41A(1) an owner or occupier wishing to appeal should lodge a written appeal, elucidating the grounds of the objection, with the Chief Officer of the Country Fire Authority within seven days of receiving the notice. A copy of the appeal should also be sent to the Municipal Fire Prevention Officer (ss.41A(2)). Usually, the Chief Officer will delegate the responsibility for hearing the appeal to a senior officer of the Authority.

While considering the appeal, the Chief Officer, or his/her delegate, may consult with (a) the aggrieved owner or occupier, the fire prevention officer who issued the direction notice, and/or any person having special knowledge of and experience in any aspects of conservation concerned (ss.41A(3)). If, after considering the appeal, the Chief Officer, or his/her delegate, "is of the opinion that compliance with the direction concerned would be incompatible with the proper needs of conservation he shall cancel or vary the direction and in any other case he shall confirm the direction" (ss.41A(4)). No other guidelines are provided to the Chief Officer, or his/her delegate to assist in the exercise of his/her discretion. The owner or occupier shall receive notice of the outcome of the appeal in writing (ss.41A(5)).

4. Positive Benefits of Retaining Native Vegetation

Certainly there are some positive aspects to retaining native vegetation as a component of a fire prevention plan. First, if trees are arranged as a relatively permeable shelterbelt, wind speed is reduced in the lee of the shelterbelt for a distance of up to 25 times the height of the shelterbelt (Oke, 1987, 245). Wind speed is the most important weather factor in determining the rate of spread of a fire. Thus a significant reduction in wind speed will slow a fire considerably, which, in turn, will reduce the intensity of the fire.

However, a wide forest block is not as effective in reducing wind speeds as a shelterbelt. King notes that winds forced up by a row of trees become stabilised above a forest and thus descend quickly into the lee. This explains why "a gusty wind uproots trees on the leeward side of a wood or wide shelterbelt" (King, 1991, 2).

Secondly, trees are useful in filtering out burning ember and sparks. This reduces the number of spot fires downwind of shelterbelts, and reduces the chances of buildings downwind igniting. In a study of homes affected by the Ash Wednesday fires in 1983, Ramsay *et al.* found that sparks and embers lodging on combustible material was the major source of house ignition (Ramsay *et al.*, 1986, 12). While this was ascertained mainly from personal interviews and inspection of houses that survived the fire, it seems to strengthen the role of airborne embers and debris from leaves, branches, bark and materials on the ground: "and at any site these fires generate heat and embers for longer periods of time" (Cheney in Wilson, 1984, 7). Thus the utility of trees in protecting a home depends largely on the removal of fine fuels at the base of the trees.

Thirdly, Morris and Barber have suggested that trees are useful in reducing radiation (Morris and Barber, 1985,1). Radiation was identified by Ramsay *et al.* as another possible mode of ignition. He suggested that radiation could crack windows, allowing embers to enter the house, and would heat the building and contents "facilitating ignition of embers or flame" (Ramsay *et al.*, 1986, 6). Trees can assist house survival by absorbing radiation and convective heat.

Once again, this has to be balanced against the danger of trees close to the house igniting and contributing to the radiation, direct flame and ember attack. This risk can be minimised by reducing loose ground fuels, and by not siting trees too close to the house.

Finally, trees can assist in reducing the fuel load by suppressing ground vegetation. Simpfendorfer believes that fuel will be suppressed under a shelterbelt if the tree crowns are dense, if the shelterbelt consists of several rows of trees, or if the trees possess a vigorous non-suckering surface root system (Simpfendorfer, 1989, 7). Wilson warns that removal of trees can result in the prolific growth of grasses, posing an annual fuel management problem (Wilson, 1984, 7).

References Cited

Anderson, H.E. (1985), Moisture and Fine Forest Fuel Response, Proceedings of the Eighth Conference on Fire and Forest Meteorology. Society of American Foresters. Detroit, 29 April - 2 May. Pp 192-9.

Chandler, C., Cheney, P., Thomas, P., Trabaud, L. and Williams D. (1983), *Fire in Forestry*. New York: John Wiley and Sons. 450pp.

Cheney, N.P. (1981), Fire Behaviour. ,In Gill, A.M., Groves, R.H. and Noble, I.R. (eds) *Fire in the Australian Biota*. Canberra: Australian Academy of Science. Pp 151-175.

Ealey, E.H.M. (1977), A Case Study of an Ecologically Based, Practical Fire Control Plan. *Victoria's Resources*. September. 3pp.

King, R.L. (1991), Some Shelterbelt Theory and How to Improve Agricultural Climate. Farmnote No. 337. Department of Primary Industry, Tasmania. 6pp.

Luke, R.H. and McArthur, A.G. (1986), *Bushfires in Australia*. Canberra: Australian Government Publishing Service. 359pp.

Luke, R.H. (1982), *Hazard Reduction for the Protection of Buildings and Bushland Areas*. Sydney: Board of Fire Commissioners of N.S.W. 18pp.

Morris, W. and Barber, J. (1985), Bushfire Protection: Using Trees to Make Houses Safer.

Oke, T.R. (1987), *Boundary Layer Climates*. London: Methuen.

Ramsay, G.C., McArthur, N.A. and Dowling, V.P. (1986), Building Survival in Bushfires. Paper Presented at Fourth Biennial Conference. Institution of Fire Engineers. Perth, 21 - 24 October. 17pp.

Simard, A.J., Blank, R.W. and Hobrla, S.L. (1989), Measuring and Interpreting Flame Height in Wildland Fires. *Fire Technology* May. Pp 114-133.

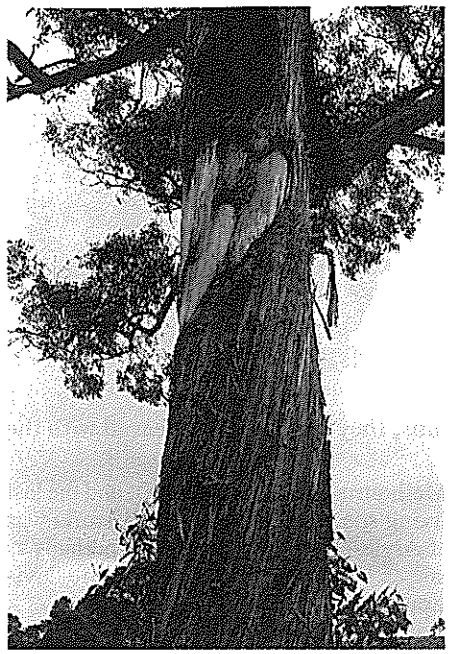
Simpfendorfer, K.J. (1989), *Trees, Farms and Fires*. East Melbourne: Department of Conservation, Forests and Lands. 55pp.

Wilson, A.A.G. (1984). Assessing the Bushfire Hazard of Houses: A Quantitative Approach. Rural Fire Research Centre. Technical Paper No. 6. 15pp.

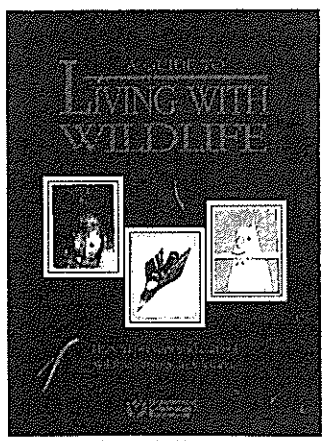
Wilson, A.A.G. (1988), Width of a Firebreak that is Necessary to Stop Grassfires - Some Field Experiments. *Can. J. For. Res.* 18, Pp 682-7.

Bush detective

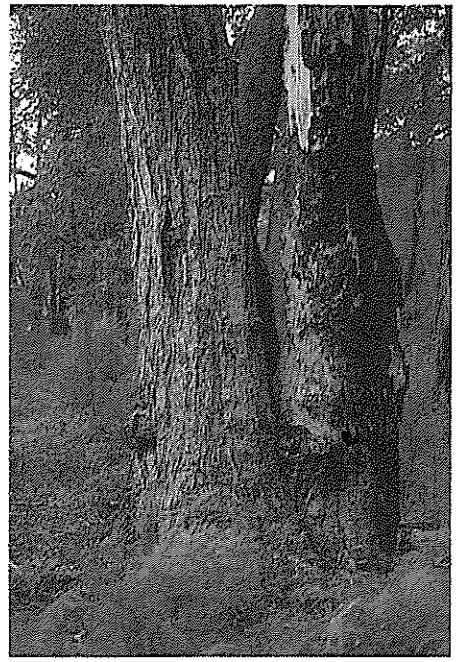
Galahs and goannas



Galahs have stripped away bark from around this Red Stringybark *Eucalyptus macrorhyncha*. Why? Are they trying to deter predators such as large goannas from reaching their nest hole? Ian Rowley suggests that these blazes (scars), combined with eye-wiping behaviour and bill stropping (rubbing alternate sides of the beak on the bare area as in stropping a razor) serve as a warning to other potential hollow-users that this hollow is currently occupied and that trespassers better look out. Reference: Rowley, I. (1990) Behavioural Ecology of the Galah *Eolophus roseicapillus* in the Wheatbelt of Western Australia. Surrey Beatty & Sons Pty Ltd. Photo: Stephen Platt.



'A Guide to Living with Wildlife - how to prevent and control wildlife damage' by Ian Temby. $4.95 plus $2.00 postage and packing from Information Centre, Department of Conservation and Environment, 250 Victoria Parade, EAST MELBOURNE, 3002.



Tree Goannas *Varanus varius* (see Vol. 1, No. 5, p7) have roughed the bark of this messmate eucalypt *E. obliqua*. The reddish sub-surface bark stands out, where it has been exposed by the goannas, against the grey outer bark. Five goannas have been seen near this tree which has a hollow about 25 metres up. Photos (left,above): Frankie MacLennan.

The Parker's property - wetland, rare species, covenant -

Tony and Judith Parker have a decisive policy for the wildlife sensitive parts of their Mitre (west of Horsham) farm. Put simply, "Don't touch and get it fenced is the best way to manage the habitat for the fairly rare Altona Skipper Butterfly" says Tony. The Parkers have a covenant on the Telfers Swamp wetland part of their farm where only light grazing takes place, and the whole farm is part of the Land For Wildlife program. The naturally saline wetland is unique because there is a perched freshwater soak that overlays a section of the salted area. The Altona Skipper *Hesperilla flavescens flavescens* was first discovered at Altona Bay in 1904 and the Wimmera colonies were not discovered and linked until the late 1970s. Other skipper colonies are scattered throughout western Victoria.

"Butterflies are very sensitive to changes in their habitat and environment, whether these be changes to vegetation, food plant availability, soil type, physical nature, temperature or moisture" says a DCE technical report on the Altona Skipper.

"Food plants are particularly important where the range of plants acceptable to the larvae is very limited....and the butterfly does not fly far from the foodplants". Butterfly predators generally consist of small mammals, spiders and birds.

It is possible that the western colonies could have been separated by draining wetlands and clearing vegetation.

The Parkers used to run sheep but, since the wool downturn, have switched to cattle and a cropping enterprise of barley.

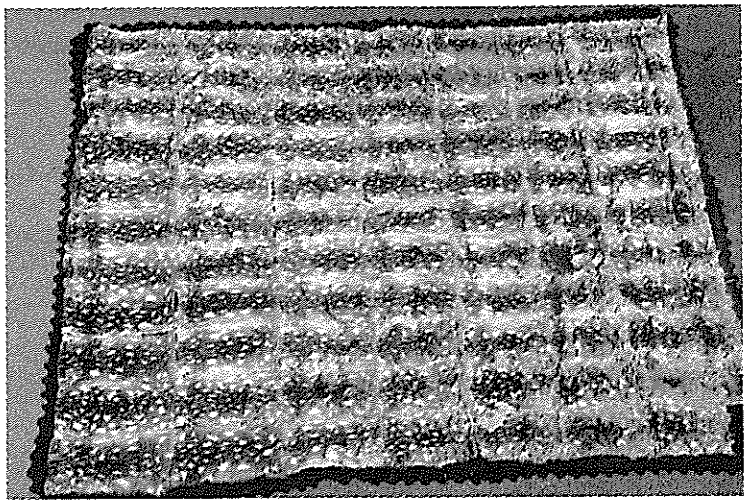
Telfers Swamp is a low lying area to the west of Natimuk and is surrounded by farmland. But the wetland is generally bordered by *Melaleuca* sp. and the Parkers have been planting trees in selected areas further uphill to try and lower the water table. Members of the Wimmera Branch of the Bird Observers Club have counted 47 species of birds in a short two hour session, including Collared Sparrowhawks, Glossy Ibis and Black-tailed Native-hens. Black Swans are using the wetland for nesting. Tony and Judy have nearly finished fencing the wetlands out and stock access will be further restricted.

Barry Clugston, LFW Horsham Region.

Tony Parker stands knee deep in the sedges at Telfer Swamp.

Shallow saline edges at Telfer Swamp. The swamp is protected by a conservation covenant but vulnerable to salinity changes.

Crosby, D.F. (1990) A Management Plan for the Altona Skipper Butterfly Hesperilla flavescens flavescens Waterhouse. Arthur Rylah Inst. Technical Report Series No. 98, DCE.



A rug and handbag made from the skins of Eastern Quolls. Once numerous on the plains, they rapidly disappeared with the arrival of Europeans. Photographs supplied by John Seebeck.

Horace Wheelwright, in 1861, encapsulated the experience of most early settlers in south-eastern Australia when he described the "little Native Cat" as "One of the commonest of all the bush animals". By all accounts the Native Cat (or Eastern Quoll as it is now known) was abundant in that area, and was persecuted by settlers due to its alleged depredations upon poultry.

John Halifax, writing of the Lilydale district about 1880: "I have seen them running away from the carcase in scores on moonlit nights" (Fisheries and Wildlife Division files).

J.S. Adams, Cape Schanck district, 1880s: "Fences (chock and log) were infested with native cats". (Fisheries and Wildlife Division files).

Un-named correspondent to Fisheries and Game Branch, 1934: "It is 45 years since they were abundant in the Warrnambool district....55 years ago, I was offered a bonus of $^1/_2$d a scalp....to trap these native cats.....but I caught so many that the contract was ended" (Fisheries and Wildlife Division files).

J.M. Rosan, Gunbower district: "About 1895....a plague of native cats appeared in the district, and numbers could be seen either day or night...." (Rosan 1945).

T.A. Brittlebank, Somerton district: "In 1882 at Somerton the native cats were so plentiful that they kept the rabbits down" (Brittlebank 1948).

However, about the turn of the century some epidemic disease appeared among Eastern Quolls (Jones 1923, Le Souef 1923), and within a few years the population had been decimated.

By 1923 concern was being expressed for the continued survival of the species, which was apparently only to be found in Victoria near Lake Corangamite, Studley Park and Gelantipy (Le Souef 1923, Fleay 1932).

In 1931 David Fleay trapped a number of Eastern Quolls at their last Western District stronghold, South Dreeite, where the animals were living in stone fences and rocky outcrops, and established a small captive colony at Melbourne Zoo (Fleay 1932, 1935).

In 1934, Fred Lewis, then Chief Inspector of Fisheries and Game proposed protection for 'native cats and tiger cats'. He sought information from his colleagues and the public concerning distribution, diet, damage and decline, particularly for 'native cats', and in December, 1934 advised the Under-Secretary that protection should be proclaimed. This was done on 15 January, 1935 by proclamation of a closed season for the whole year for both species (Fisheries and Wildlife Division files).

It was to be too late for the Eastern Quoll. Fleay (1934) had already remarked upon the changed status of the species - "I was struck by the scarcity of the animals compared with the numbers observed there three years previously" and when, in 1936, R.T. Littlejohns was experimenting with automatic cameras in attempts to photograph the species near Lake Corangamite, he stated that "the species is almost extinct in most parts of Victoria". By the 1940s there were few reports - "To all intents and purposes this Eastern Native Cat....has disappeared from almost the whole of its former range, though....a small colony still lingers along the Yarra Valley right in Melbourne...." (Fleay 1945), and the last living specimen collected in Victoria was at Alvie-Dreeite in the 1950s, perhaps as late as 1958 (Fisheries and Wildlife Division files).

An interesting sidelight to the Eastern Quoll story in Victoria was the discovery, in 1980, of nine mummified carcasses of quolls beneath the floor of the woolshed at 'Stony Point', Darlington. Mr Robert Jamieson, the owner of the property, stated (in litt. to R.M. Warneke, Fisheries and Wildlife Division) that the woolshed was built about 1855, and that the carcases were found when it became necessary to replace some flooring. Perhaps there are many such caches of Eastern Quoll remains beneath Western District buildings - it would certainly be worth the search.

Eastern Quolls are, fortunately, still widespread in Tasmania, and, in fact, may have increased in abundance (Green 1973). Recently the population ecology of the species has been studied in that State (Godsell 1982), providing details of its lifestyle which might eventually be used in an attempt to re-establish Eastern Quolls on the mainland.

by John Seebeck , DCE. [extract from Conley, D. and Dennis, C. (1984) **The Western Plains - A Natural and Social History**, Aust. Inst. Agricultural Science]

'Waterfowl in Australia'

by H.J. Frith, 1977, Reed. 328 pages. This classic text is an ideal reference for anyone wanting to know more about swans, geese and ducks in Australia. It covers identification, habitat, distribution, feeding and breeding requirements and other aspects of the biology of waterfowl.