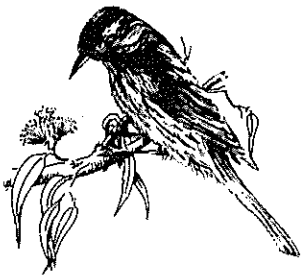
LAND FOR WILDLIFE NEWS



Newsletter of the LAND FOR WILDLIFE scheme

Photo: Andrew Corrick.

Why did these pelicans choose this site to roost and nest?

What makes a dam or wetland more attractive to waterbirds?

See page 10 for suggestions and page 4 for the creation of a *Land for Wildlife* swamp.

How can fishing-line and other rubbish become a death trap for wildlife such as pelicans?

Page 9 shows an array of tragic consequences that could have been avoided.

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DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES

Bird Observers Club of Australia

Editorial

With Stephen Platt and family spending three months travelling their way up the east coast to QLD on a well-deserved holiday, I will be editing this issue of *Land for Wildlife News*, as well as co-ordinating the scheme from Heidelberg. I hope you enjoy this issue and find the articles interesting and inspiring!

New Positions

Two additional half-time extension officers will be appointed to the program. They will be based in the Department's North-west Area and based at St Arnaud and at Swan Hill.

Properties

A total of 277 properties have joined the scheme this year to the end of July. This brings the total number of registered properties to 2476 and the total area of habitat being restored or retained under the *Land for Wildlife* scheme to 55 420 hectares.

Felicity Nicholls, Editor.

You are invited to contribute your comments, ideas, etc. to this newsletter. Write to The editor *Land for Wildlife News*, PO Box 137, Heidelberg, 3084.

Across the editor's desk

Fencing and wildlife

I am surprised and disappointed that in your article, "Living with Kangaroos", *Land for Wildlife* News, Vol.2, No. 4, you have almost completely omitted to alert the readers to the danger that both barbed wire and electric fences pose to wildlife.

The only danger you mention is to echidnas becoming entrapped in a badly designed electric fence. Yet as *Land for Wildlife* Note no. 29 shows and the photograph on p.3 of the note confirm, wildlife is killed through becoming entangled or snagged on barbed wires or electrocuted by electric fences. In addition, I know of cases of kangaroos and wallabies having to be destroyed because of the injuries they incurred through entanglement in barbed wire fences.

Kangaroos and wallabies are good jumpers, but the barbs on wires add to the severity of the injuries they incur when they fail to clear the fence because of their youth, or panic when frightened, or exhaustion when chased by dogs.

The adverse effects of fences are very important and should be stressed whenever the issue of erecting fences is discussed.

Stan Pelczynski, Bendigo

Dear Stan,

The article on "Living with wildlife" is a broad outline of the issues involved when kangaroos inhabit agricultural areas. Fencing may be the only answer for many landholders, for whom authorised destruction or harassment may not be appropriate or acceptable.

Readers must be aware that all types of fences may cause injury to wildlife. Kangaroos can become entangled in plain wire fences. *Land for Wildlife* Note 29 clearly states that fencing can have negative impacts on wildlife, if not properly designed. This also includes forming a barrier to wildlife movement which is an essential part of maintaining the health of wildlife populations (see LFW Note 3 Creating habitat corridors for wildlife).

The solution is to select wire spacings that avoid entangling wildlife and to use plain wire wherever possible. Electric fencing has reduced the need to use barb wire but again, entanglement of wildlife is a possibility. The kangaroo gate illustrated in *Land for Wildlife News* Vol.2 No. 4 and Note 29, shows a "kangaroo-friendly" approach to the issue of kangaroos and fences and is recommended wherever kangaroos pass through or under fences. Use of such gates helps maintain fences in tightly-strained condition.

Felicity Nicholls

Frog Hollows

Apropos of your article "Creating frog habitat on you property" (LFW News Vol. 2 no. 4), I would like to tell about our frog habitat which eventuated because of the existence of huge buried granite boulders, too close to the house to blast away. Gentle folds encouraged the retention of rainwater in a chain of three depressions, varying in size from little larger than a puddle to a small pond about one metre in diameter. Extra depth was achieved by cementing small rocks on the borders. We then created small garden beds beyond. Water depth varies from eight inches to fifteen inches. We were thrilled to find that this small area attracted frogs.

Two varieties of nardoo and isolepis, with angled lobelia scrambling among them, now cover the largest pond. They are rather rampant so need thinning every year. This is done while there is very little water in the pools during summer. Swamp goodenia, maidenhair fern, native violet, kidney plant and patersonia fill the beds.

It wasn't long before little frogs, suspected to be spotted grass frogs which we had often come across when digging channels for power, moved in and almost deafened us with their chorus. Banjo frogs arrived a couple of years later. Once a frog appeared which burrowed backwards when put on the ground again after we had a good look at it. Another little fellow with bright orange under its legs has also visited at least once.

In late winter the nardoo stems support hosts of jelly-like egg masses. The entrance to the house is gained via a timber walkway over the pools and can take longer than necessary after the tadpoles have hatched. Is it possible to differentiate between eggs or tadpoles of the various species? I once watched two small frogs depositing bright green egg-jelly in a puddle alongside a bush track until I had the distinct impression that they told me not to perve! I have since wondered whether the jelly would have remained that colour or would it have changed to the common clear form.

L. Levens, Upper Beaconsfield.

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Practicalities
Direct seeding Rufous Bristlebird Habitat

The Supplement to the *Land for Wildlife* News Volume 1 No. 9, (February 1993), Direct seeding of native vegetation, contained an article on direct seeding of vegetation for Rufous Bristlebird habitat. This article gives an update on that work.

The areas seeded at Port Campbell, in south-west Victoria in 1992 are now over one metre high and provide dense cover for the birds. In 1993 this site had a further three kilometres of 20m wide (6 hectares) direct seeding to link the previous year's direct seeding strips with the Port Campbell National Park. This involved the co-operation of the two landholders with the Department of Conservation and Natural Resources (CNR) and the enthusiasm and planning of Bill O' Shea (local seed collector, seeding contractor and fauna expert). It is hoped that in the spring of 1994, the previous seeding will be joined to some privately owned remnant bush by more direct seeding.

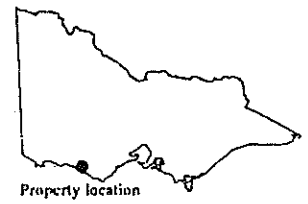
In 1993 areas at Nirranda (west of Peterborough) and at Peterborough were identified as being important remnant habitat for the Bristlebird. Stands of remnant manna gum and messmate were fenced off to exclude stock and so remove the grazing pressure which has caused understorey decline and subsequent habitat destruction. Direct seeding has been used to join the areas of remnant bush together. In areas where habitat has been badly degraded, a buffer strip was direct seeded on the south and west boundaries to assist regeneration. Almost 30 hectares of habitat was fenced and 3.5 hectares was direct seeded. Funding was made available by CNR through the Flora and Fauna Guarantee and *Land for Wildlife* programs.

The seeding at Nirranda was done in the first week of October using the mouldboard plough method. This involves ploughing with a mouldboard, which buries the weed seed, rolling with a tractor, broadcasting the seed by hand and then rolling the area again to provide good seed to soil contact. The seed used was collected locally and represented 14 species of trees, shrubs and rushes. The seeding rate used was 6 kg/ha and made up of a mixture of 20% eucalypts, 40% wattles and 40% other species, and seed was mixed with sand at a rate of 10 sand : 1 seed, for easier broadcasting.

Bill O'Shea looking at the results of the 1992 direct seeding strip at Port Campbell. Photo:Claire Dennis

The Australian Trust for Conservation Volunteers (ATCV) helped out with some brushing of tea tree at Port Campbell and at a couple of sites at Nirranda.

The direct seeding looks great with many species germinating. The areas close to the coast (within one kilometre) and exposed to salt laden blasts from the Southern Ocean look as if they will also be successful. Close proximity to the coast means that the growth habit of these plants tends to be considerably more horizontal than those further inland.



A survey of the distribution and population density of the birds has also been undertaken. This survey has been financed by CNR and carried out by local fauna contractors. The monitoring is usually done in the summer months when the birds are calling. A report on this will appear in a later *Land for Wildlife* News.

Claire Dennis, LFWEO, Colac

The Rufous Bristlebird, *Dasyornis broadbenti broadbenti*, is a threatened species (classified rare by Garnett 1992 for Australia) and is found in a coastal strip between Anglesea in Victoria and the South Australia border. The birds live mainly in the dense coastal heathland but may also be found in forested gullies a short distance from the coast.

The Rufous Bristlebirds are grey-brown blackbird-like birds with erect tails and a rich rufous colouring on their heads.

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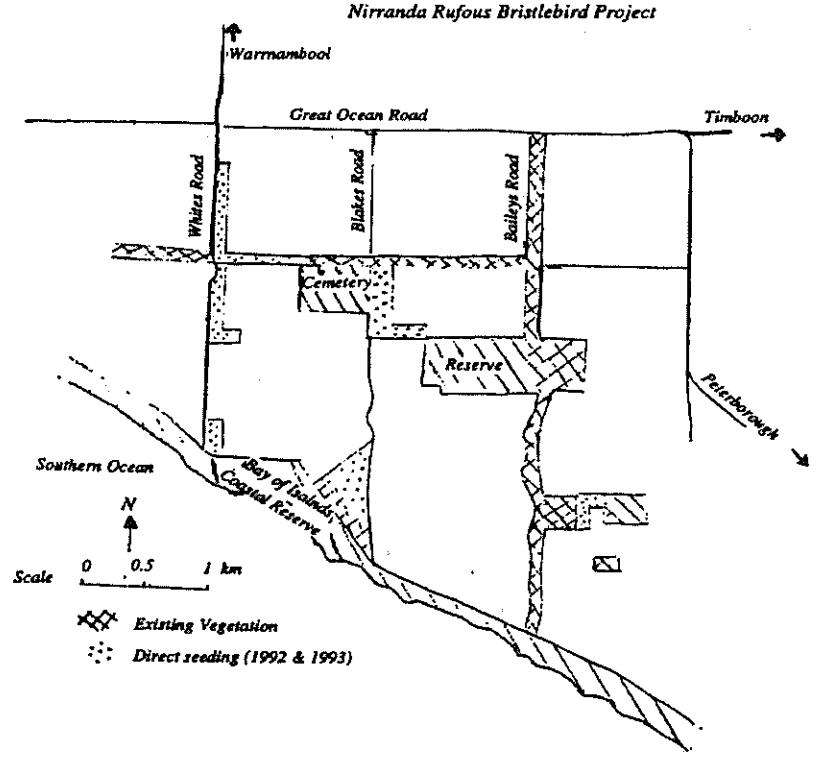
Nirranda Rufous Bristlebird Project



Robert Pogue: Creation of a *Land for Wildlife* swamp

Robert Pogue, of Toolamba, farms 120 hectares of land, of which approximately two thirds is flood irrigated perennial and annual pastures, with the balance being dry land and swamp area. Robert produces wool and prime lambs.

In the 1960's, Robert decided to do something constructive about a 16 hectare area of low land on his farm inundated by large inflows of drainage water to the area from a catchment of almost 400 hectares. The drainage water was from irrigation (August to May), and from winter rains. The initial work undertaken was to construct banks to confine water to the low area, and thus keep it off the rest of the farm. The water could then be pumped into a Rural Water Commission channel when authorised. These banks are no longer functional, but make excellent tree growing sites.

Tree planting was started in 1974 and 1975, followed by planting of a one hectare site in 1981 under a Victorian Government Tree Assistance Scheme. Each year since then plantings have been more extensive. Species selection is influenced by site characteristics which include waterlogging, salinity and soil types, as well as experimentation (much trial and error) in trying to create a wildlife habitat.

Particular species found to be successful in this altered regime are indigenous eucalypts (Red Gum, Grey Box, White Box, Yellow Box), together with salt and water tolerant species (Swamp Gum, Swamp Mallet and Swamp Yate). Melaleucas have proved to be very adaptable, as have several species of Casuarinas, Acacias, Callistemons, Grevilleas and Hakeas. Approximately 80 different shrub and tree species have been tried, and between 3000 and 3500 trees planted.

Additional value as a habitat area was created when two islands were constructed in the late 1970's, and these were planted with shrubs and trees. Robert's goal was to provide some protection for nesting birds from cats. Ducks and water rats inhabit the islands now.

Over the years, Robert has closely monitored the wildlife in his 16 hectare swamp. There has been a marked increase in insect and bird life. As the swamp has developed, and plantings matured, bird life has become much more common, with approximately 25 species as new sightings in the past seven or eight years. Robert says that 90 bird species have been sighted in the area, Birds forage out into the surrounding agricultural and rural residential land, using the *Land for Wildlife* area as a refuge for roosting and nesting.

According to Robert, the quantity and diversity of insect life has increased with re-establishment of trees and shrubs, followed closely by the insect-eating birds. Prolific aquatic wildlife has now inhabited the area, such as small native fish, minnows, shrimps, yabbies, snails and mussels. Water rats and tortoises are common. Some young Macquarie Perch and Yellow Belly were introduced in the early 1980's, with the result that pelicans and cormorants are seen regularly feeding.

Robert Pogue's *Land for Wildlife* area shows clearly what a difference can be made to an environment where rapid mature tree decline was occurring because of waterlogging, salinity and rising water-

Robert Pogue standing next to his 16 hectares swamp and associated plantings. Photo: Liz Raven

tables. Initiative, enthusiasm and the willingness to learn by "trial and error" have paid off for Robert.

Liz Raven, LFWEO, Benalla.

Red-browed Finches stick together at night

Photo: Brian Hill

Photo: Graeme Chapman

The Red-browed finch or firetail, *Emblema temporalis*, is a familiar finch, common along the coast and associated highlands of Eastern Australia.

During breeding, usually from August to December in Victoria, the pair bond is permanent and very strong. Single flask-shaped nests are constructed and often placed in a thorny bush, within a few metres of the ground.

However, during non-breeding times, they flock and build special colonial roosting nests in which to spend the night. The photo of these roosting nests was taken at a *Land for Wildlife* property at Branxholme, owned by the Fentons.

Environmental weeds are plants that invade native vegetation, and adversely affect the regeneration and survival of indigenous flora and fauna. The invasion of weeds is among the most serious conservation problems in Victoria (Department of Conservation and Environment, 1992). All indigenous plant communities in Victoria have been or are at risk of being invaded by environmental weeds. Impacts resulting from weed invasion can be spectacular but are more usually subtle and obscured by other processes such as altered fire and grazing regimes and the fragmentation of vegetation. Without intervention, gross and irreversible modifications to the structure, function and diversity of our remaining natural ecosystems can be anticipated (Carr *et al.* 1992).

A staggering 576 species of environmental weeds are now recognised in Victoria. Controlling and monitoring these invasive species has placed a considerable and growing burden on land management authorities. The then Department of Conservation and Environment spent more than $320,000 on environmental weed control programmes in the financial year 1990-91 (Carr *et al.* 1992). There is general consensus among land managers that greater outlays will be required in the future if the problem is to be adequately addressed.

Arum Lily (Zantedeschia aethiopica), an African species introduced for ornament, is now a widespread environmental weed in Victoria. Photo: CNR.

Many environmental weeds are also weeds of agriculture. Approximately 60 species considered to be environmental weeds are also proclaimed "noxious weeds" under the *Vermin and Noxious Weeds Act 1958*. A typical example, is the aggressive tussock forming Chilean Needle Grass (*Nassella trichotoma*). This particularly pernicious species does not discriminate between a remnant native grassland and improved pasture. It will invade and ultimately dominate both environments if left unchecked. Other notable species in this category include Ragwort (*Senecio jacobaea*), Blackberry (*Rubus fruticosis spp agg*), Gorse (*Ulex europaeus*), Horehound (*Marrubium vulgare*), Skeleton Weed (*Chondrilla juncea*) and Onionweed (*Asphodelus fistulosis*).

While the introduction of many environmental weeds into the State has been inadvertent, an alarming number of introductions have been intentional. Carr (1993) estimates that between 65 and 70% of Victoria's 1221 naturalised[1] exotic species of plants have been deliberately introspecies have been recruited to the swelling ranks of environmental weeds and continue to be actively promoted by land management agencies, and some sections of the horticultural and agricultural industry.

Ornamental or garden plants frequently escape from cultivation to become environmental weeds. Examples include Pampas Grass (*Cortaderia* spp), Agapanthus (*Agapanthus praecox*), Bridal Creeper (*Myrsiphyllum asparagoides*), English Ivy (*Hedera helix*) and Cotoneaster (*Cotoneaster* spp.).

However, other species introduced for productive purposes have been just as troublesome. This category includes some economically important species such as Tagasaste (*Cytisis palmensis*), a native of the Canary Islands, introduced as a fodder plant; Monterey Pine (*Pinus radiata*), a native of California, introduced for timber production; and Canary Grass (*Phalaris aquatica*), a native of Europe, introduced for improved pasture production. Ironically, there are numerous examples of serious environmental weeds which have been deliberately introduced in the past to ameliorate land degradation problems. Willows (*Salix* spp.), planted widely in rural Victoria to stabilise stream and river banks, have extended their range along virtually all our major drainage systems. The result has been widespread modifications to stream structure and the loss of important riparian communities of flora and fauna. In New South Wales, the South African native Bitou Bush or Boneseed (*Chrysanthemoides monilifera* spp *rotundata*) was used extensively to arrest sand dune drift up until the late 1960s (Weiss, 1986). Its dramatic success has been at the expense of vast acreages of our coast and hinterland. The tragedy is that in each of these cases there were perfectly adequate locally indigenous species which could have been used.

As land managers, we need to carefully weigh up the ecological ramifications of our actions. To avoid repeating the mistakes of the past, we need to seek long term solutions to our environmental dilemmas. Before looking elsewhere for plants to perform particular functions, consider the many locally indigenous alternatives.

Matt White, CNR

[1] footnote A naturalised plant is one that has been introduced (deliberately or otherwise) and which has subsequently become established beyond the likelihood of natural extinction.

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Land for Wildlife

Property for Sale

WARRANDYTE. 1 ACRE RIVER FRONTAGE. Three bedroom solid brick house with views of the Dandenong Hills. Gas-ducted heating/slow combustion fire/open fire. Brick garage and workshop, 4-car brick carport. Many native birds - cockatoos, parrots, pigeons, wrens etc.

One acre adjoining on seperate title. Will sell together or seperately. Phone (03) 844 3981.

Community Fireguard

Community fireguard is a project developed by the CFA with sponsorship from Electricity Services Victoria (ESV), which supports groups to develop their own solutions to problems and provides skills and knowledge to help them put fire strategies in place. The program concentrates on involving people and encouraging them to take responsibility for their own fire safety. It is a flexible program allowing it to be incorporated into the activities of existing groups such as Landcare, Neighbourhood Watch and even Land for Wildlife Groups.

Since the beginning of 1994, fourteen new Community Fireguard groups have been formed. The groups, which meet regularly, have developed survival strategies for their area, including plans for the elderly and disabled. Many have improved their fire fighting equipment and developed phone trees to improve communication and warning. They have developed a sound knowledge of fire behaviour and are better prepared to face a major fire.

Landholders in the Land for Wildlife scheme may find the Community Fireguard project valuable, providing information and resources for the formulation of a fire strategy that not only considers protecting life and property, but also the protection of valuable habitat.

If you want to know more about the program, you can contact David Beckingsale (Community Fireguard Project Team Leader) on (03) 262 8410.

Just the right size!

This Grey Shrike-thrush made its nest in a child's bike helmet, hanging on a hook about two metres from the back door of a *Land for Wildlife* property. The birds made their nest during the quiet week days when the landowners were out and about. The first weekend with the family home, the birds flew agitatedly off the nest every time a family member used the door. By the end of the weekend, the birds had gained enough confidence to remain on the nest with the pedestrian activity and the door banging, and even allowed close inspection and photos by the family.

After hatching, but during the busy feeding days, the hot water system, housed behind the wood on which the hook and nest were hanging, sprung a leak and had to be replaced. The bird family were repositioned a metre or so away for an hour or two while the plumbers worked noisily on the hot water system. The birds continued feeding the two chicks through the hammering, singing and other activities. The nest was placed back after the work was finished.

The birds raised two fledglings and then decided it had been such a good idea that they returned a couple of weeks later to raise three more.

Claire Dennis,
LFWEO, Colac.

A young Grey shrike-thrush perched on its nest in a bike helmet. Photo:Claire Dennis

Ill-mannered ravens at Stawell Hospital!

Stawell Hospital called recently with a wildlife problem that was rather new to them. Ravens have been attacking the upstairs windows.

I made an inspection to gauge the extent and found the bird problem had only started this year and it was only a few windows the birds seemed to attack. All the flywire screens had been damaged.

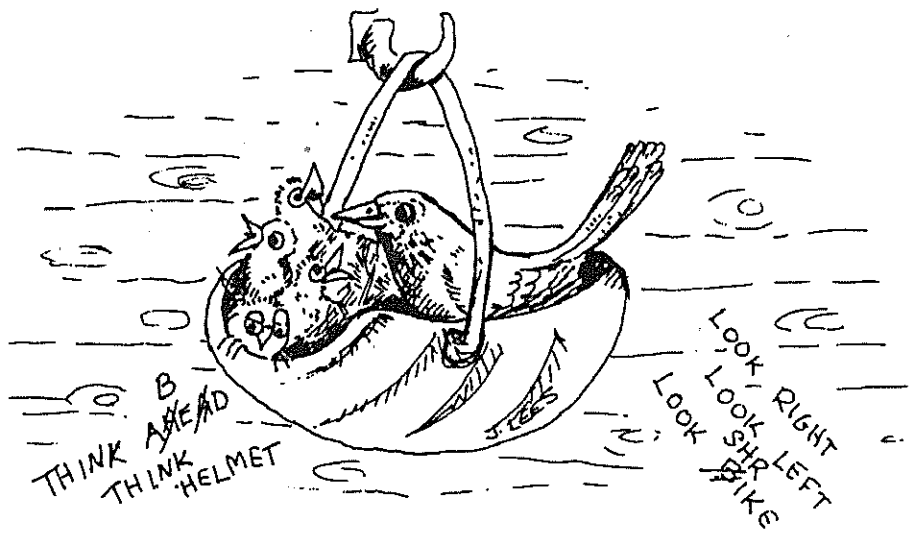
I thought at first the birds might have been seeking insects from the window edges, but it soon became obvious a straight out attack was involved. Further investigations revealed there was a nest site in a large yellow gum about 100 metres away.

When I stood out on the roof, the windows looked like mirrors because of the reflective surface to reduce summer heat, so the ravens saw only competitors within their nesting zone. But the problem was new because the hospital is building new units adjacent to the present complex and a number of good sized yellow gums had been knocked out to make way for the expansion.

Fortunately, the birds have not been damaging the windows, aside from the flywire, because I have seen magpies smash glass. Parrots can also break glass and many smaller birds can break their own necks or get knocked out when they hit windows.

With the hospital problem, I have suggested netted screens set out from the window or shade cloth to reduce the mirror image for the "competitor birds". They should only require screens during the nesting period.

Barry Clugston, LFWEO, Horsham



"A PROUD MOMENT — THE HATCHING OF THE WORLDS FIRST HELMETED BIKE THRUSH".

Native fishes - the Broad-finned Galaxias and Spotted Galaxias

What is the reason for the eggs of these fish being out of water? Why do the larvae spend winter at sea? Why is bankside vegetation so important for these fish? How does the Broad-finned Galaxias climb high waterfalls? In this article we look at some aspects of the biology of two species of galaxiids.

Galaxiids (Family Galaxiidae) are southern hemisphere freshwater fish, widespread in cool temperate climates in southern Australia, New Zealand, southern South America and the southern tip of Africa. They are relatively small and scaleless with a long, tubular shape and a single soft rayed dorsal fin situated well back towards the tail. The family Galaxiidae contains about 46 species, eight of which occur in Victoria.

DISTRIBUTION

The Broad-finned Galaxias (or Cimbing Galaxias) *Galaxia brevipinnis* and the Spotted Galaxias *Galaxias truttaceus* are found in coastal drainages in south-eastern Australia and Tasmania. The Broad-finned Galaxias is also in New Zealand and the Spotted Galaxias in south-west Australia. In Victoria both species occur in streams flowing south of the Great Dividing Range, the Spotted Galaxias usually closer to the coast and the Broad-finned Galaxias further inland. Recently, a population of Broad-finned Galaxias has been discovered in the Upper Murray system. These may have originated from the Snowy River via the Snowy Mountain Scheme. Throughout this range, their distributions are patchy, although they can be locally abundant.

DESCRIPTION

Superficially, the Spotted Galaxias has a trout-like appearance, with round spots on an olive-grey background on its trunk, each spot surrounded by a pale halo. Typically, fins are orange to orange-red with black margins. They can grow to about 20 cm in length.

The Broad-finned Galaxias has dark coloured markings which vary from bands to irregular blotches, on a light background, often with irridescence on the back and sides. They can grow to about 27 cm in length. Both species are commonly 7 to 15 cm in length. The juveniles (45 to 50 mm) are transparent.

HABITAT PREFERENCES

The Broad-finned Galaxias is usually in rocky, faster flowing upland streams where it dwells under stones or wood debris feeding mainly on aquatic invertebrates, mostly insect larvae. The Spotted Galaxias, however, inhabits the lower reaches of streams, preferring quiter still water, especially amongst logs. It feeds on aquatic and terrestrial invertebrates. Both species, particularly the Broad-finned Galaxias, are only abundant in streams surrounded by an adequate cover of native trees and/or shrubs.

BREEDING

These two galaxiids use the same unusual spawning strategy, where eggs are out of water for extended periods of several days or weeks. Breeding occurs in late autumn/early winter during a high water flow. Males and females spawn en masse on pebble beds along stream margins, although the Spotted Galaxias will also lay eggs amongst bankside grasses and sedges. Following spawning, many adults die.

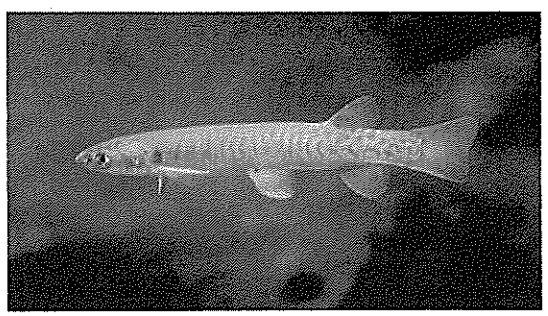
When the stream recedes to its normal level, all eggs are left out of water along the banks. Eggs are deposited on the surface of and in the spaces between pebbles and other larger substrate particles, over areas of up to 25 m², most being located within one metre, but up to seven metres from the water's edge. Once the embryo has fully developed (about 2 weeks after spawning) eggs will only hatch when inundated and agitated by a subsequent high water flow. In laboratory experiments, viable eggs kept out of water in a damp environment for three months, hatched immediately when immersed and shaken in water.

The newly hatched larvae are then swept to sea, where they feed on plankton. Since these streams have little or no food for larvae over winter, but the ocean is plankton rich, this strategy of ensuring that hatching only occurs during high water flows, guarantees larvae a fast trip to their marine feeding grounds. If hatching occurred on a normal flow, they may not reach the sea quickly enough to avoid starvation.

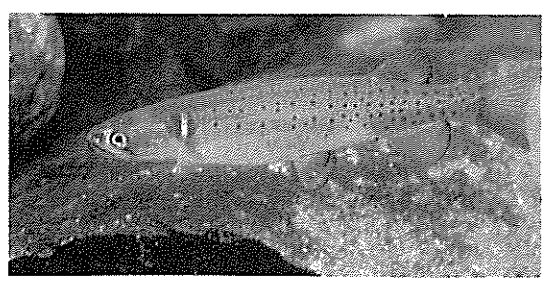
Juveniles return from the sea the following spring, when stream temperatures are increasing and their is a greater availability of food. Using their large pectoral and anal fins as suction caps, the juveniles of the Broad-finned Galaxias have the extraordinary ability to climb damp, vertical surfaces such as high falls. Consequently, this species is often found well inland usually at higher elevations, whereas the Spotted Galaxias, which cannot climb is more common in the lower reaches of streams.

CONSERVATION

Bankside vegetation is crucial to the conservation of these species (and all other Victorian native freshwater fishes). It provides shading which protects the eggs from dessication, it is the source of instream habitat such as wood debris and is the main food source for the aquatic food chain, e.g., instream litter is proc-

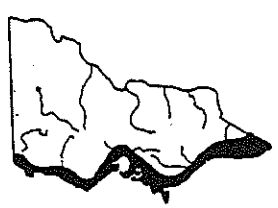


Broad-finned Galaxias Photo:CNR



Spotted Galaxias Photo:CNR

Broad-finned Galaxias



Spotted Galaxias

continued page 8.

Deer in Victoria

Deer have been part of the environment in Victoria for many years now. A number of species were liberated in Victoria from the mid 1800's but only four species persist in the wild today; these are Sambar, Red, Hog and Fallow Deer. All deer species are declared to be wildlife in Victoria, under the provisions of the *Wildlife Act* 1975, and are fully protected, except during hunting seasons in areas open to hunting.

Sambar Deer are found mainly in the eastern highlands of Victoria, while Hog Deer may be found in a range of habitat types including freshwater marshes, wet grasslands, saline marshes and lake and river margins[1] in the coastal areas from Tarwin to Mallacoota. The main population of Red Deer is found in and around the Grampians National Park and Fallow Deer are mainly found around the pine plantations in the Koetong area, in the north-east part of the state. Isolated populations of all these deer species may be found elsewhere in Victoria.

Originally, deer were introduced to provide hunting for early settlers. In recent times, many deer farms have been established to cater for the growing demand for venison. However, there still is a great interest in hunting deer in Victoria with over 7000 people taking out licences allowing them to hunt deer, in season. Hunters must abide by regulations and a Code of Practice while hunting deer. Some hunt for trophies and many hunt for meat.

Sambar Deer, which can be hunted all year round with no bag limit, are the most widespread of the deer species in Victoria and are much sought after by hunters. A fully grown Sambar stag may weigh as much as 270 kg. Hog Deer are also sought after but have a more restricted range. The one month hunting season in April with a bag limit of two animals per hunter

Hog Deer stag Photo:David Young.

(one male and one female) means there is less opportunity to hunt for this species. A mature Hog Deer stag weighs around 50 kg. Red Deer can only be hunted in a one month season in June and there is no bag limit. A mature Red Deer stag can weigh up to 160 kg. At this time, there is no open season for Fallow Deer in Victoria.

There have been few studies on deer in Victoria and little knowledge on their affect on the environment. Hunting may be instrumental in controlling numbers of deer in many parts of Victoria. In other parts, where hunting is not allowed, monitoring may be required to ensure that numbers do not increase to a level where they do cause damage.

George Grossek, CNR.

Sambar Deer hind Photo:Errol Mason.

Reference:[1]
Mayze, R.J. and Moore, G.I. (1990) *The Hog Deer.* The Australian Deer Research Foundation LTD.

Continued from page 2.

Dear Laura,
Your letter demonstrates that frog habitat need not be large and can be ornamental in design, whetherby intention or as a matter of circumstances. Shallow water with water plants for adult frogs to deposit their eggs on is ideal. This combination provides food and cover for the free-swimming tadpoles.

The frog you mentioned which burrowed backwards could possibly be a Common Spadefoot Toad, a frog that burrows and remains buried much of the time, becoming active after rains. The frog with bright orange under its legs could be a Southern Brown Tree-frog, a widespread and common species. *The Frogwatch Field Guide to Victorian Frogs* (1991) by Hero, J-M., Littlejohn, M. & Marantelli, G. may confirm the identification of these species. It is possible to identify frogs by egg masses and tadpoles but mainly down to genus level. The Frogwatch Field Guide gives a simple description of eggs and tadpoles for each species.

Felicity Nicholls.

continued from page 7.

essed by aquatic invertebrates which in turn are eaten by fish. It also prevents erosion and siltation by binding the banks. Siltation smothers the food, habitat and spawning sites of
native fish. This explains why these species, especially the Broad-finned Galaxias has disappeared from streams that have lost their forest canopy.

As for most fishes, the Broad-finned and Spotted Galaxiids require good water quality. The spawning of these galaxiids will be adversely affected by the regulation of streams (i.e. the artificial control of flows), which can remove natural high flows required for spawning, hatching and the passage of larvae to the sea. Activities such as gravel removal are also detrimental by destroying spawning sites. Because they are relatively small fish, galaxiids are also susceptible to predation by larger introduced species of fish. Their conservation status in Victoria is "Potentially threatened".

Bill O'Connor, CNR.

References & further reading:

Cadwallader, P.L. & Backhouse G.N. (1983) *A guide to the freshwater fish of Victoria.* Government Printer, Melb.

Koehn, J.D. & O'Connor, W.G. (1990) *Biological information for management of native freshwater fish in Victoria.* CNR, Freshwater Fish Management Branch, ARI.

Platypus favour redgums

The platypus is perhaps one of our most interesting creatures which evokes a lot of attention but tends to elude observation. A seven-year study at the University of Ballarat has produced some very interesting results. Sites in Mt Emu Creek and Baillies Creek, near Skipton, were monitored. Platypus behaviour was observed and tracked using a transmitter which was araldited to the base of the platypus tail.

Of the five burrow sites studied, all were located under River Redgums of at least 25 metres in height and of considerable age. Streamside trees were also found to be important in providing foraging sites. Reed beds were another area where platypus spent long periods of time, presumably foraging within the silt and gleaning off plant stems.

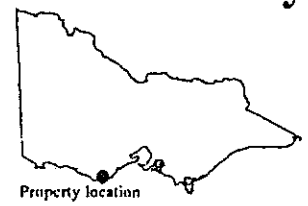
During periods of flooding the platypus were observed to alter their behaviour, spending more time out of water resting and gleaning on overhanging tree foliage.

One of the cold realities of the study was the finding of a dead platypus strangled by a rubber band. A similar incident occurred at Badgers Creek, Healesville. Rubbish of all sorts causes significant mortalities and injuries to our wildlife. The message is clear- **restore, revegetate and don't rubbish!**

Michelle Butler, LFWEO, Ballarat

Reference: Prevett, Stephens & Marion (1994) Status, ecology and behaviour of the Platypus, *Ornithorhynchus anatinus*, in Mt. Emu and Baillies Creeks, Victoria. Uni. of Ballarat, Vic.

Observations of Platypus in the Otways



This report of platypus in the south west Otways was sent in from a *Land for Wildlife* landholder, Colin Douglas.

"The property is hilly to steep and each paddock rather than fenced is separated by Blackwood gullies sharply banked with swiftly running permanent streams which all eventually run into the Johanna River, which has its source near Melba Gully State Park.

The rainfall is in the 1270 mm (50 inches) plus category. Of the 122 hectares (300 acres), half is cleared. The natural vegetation, in the main, is Manna Gum, Blue Gum, Stringybark, Messmate, Blackwood, Beech Myrtle, Satin Box and various types of ferns.

In this case it would appear that man's interference with the water system has in fact encouraged platypus. In order to obtain ready access between paddocks, dirt walls with spillways have been made across gullies with the result that dams have formed. I doubt otherwise, that platypus could thrive for long, as the autumn and winter rains storm down the creek making habitation impossible. There are five such dams, each housing families of about four.

The main diet appears to be water sodden (drowned) large worms (15-20 cm. long) and whitish in colour. There are small yabbies, but not very plentiful. It gets so wet here that the worms are forced out of the ground and in an endeavour to migrate to higher ground, drown or are swept in large numbers into the creeks. Some mornings, it is possible to find several shovel-fulls heaped in the corners of the concrete cow shed.

We have never seen more than four platypus at any one time. They do not seem to be worried by the tramping of stock as they pass over the access bank, nor by motorbikes or tractors. But as soon as human voices are heard, even from a distance, they dive.

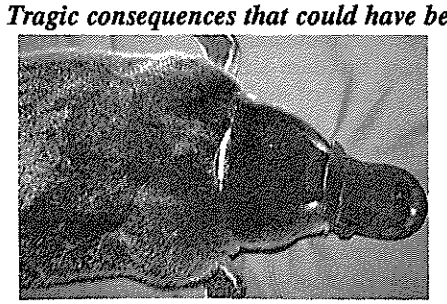
They are normally seen floating quietly on the surface or coming up, apparently for air, which they do every three or four minutes. But it is difficult to say how long they stay down as one cannot say if it is the same individual you are observing. It is almost impossible to anticipate where they emerge, as they make absolutely no noise or ripple, which is the exact opposite to when they dive and hit their tail, leaving quite a splash, particularly when alarmed. You can tell when they are about, through a strong stream of bubbles intermittently rising to the surface as they swim underwater. Very often they don't surface completely, but only the tip of their bill appears.

During the "dry" periods around January, I found three dead platypus in the paddocks, one hundred yards inland, intact and apparently unharmed. I presume they died from hunger or even suicided in order to provide sufficient tucker for younger members. This could happen fairly often as foxes are present in large numbers and I am sure would eat any they found."

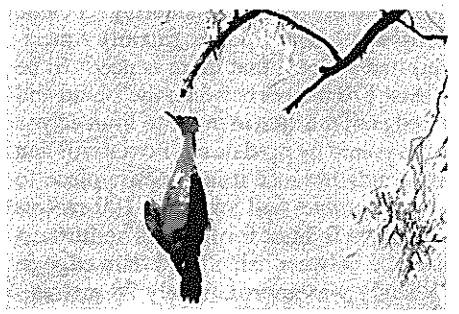
Claire Dennis, LFWEO, Colac

(The platypus were more likely juvenile individuals which were more susceptible to predation, were forced out by adults or were naturally dispersing and were inexperienced enough to head inland, away from water. All of these factors can contribute to the high mortality of juvenile platypus. Editor)

Tragic consequences that could have been avoided. Any type of rubbish can become a death trap for all forms of wildlife.



This platypus was still alive when trapped along the Watts River, even though it had both a loop of fishing line and an elastic band caught around its neck. Photo:R. Booth



A little pied cormorant hanging from a noose of fishing line not far from a couple of nests. Photo:Felicity Nicholls

A pelican with its beak caught in a yabby net. The bird would have died from starvation or drowning. Photo:George Appleby

Farm dams - what the waterbirds want!

Central to the conservation of waterbirds is the need to maintain adequate wetland habitat. In Australia the drainage of natural wetlands to gain more land for agriculture has led to widespread alteration and decline of waterbird habitat. Many of the remaining wetlands are influenced by unpredictable rainfall and are either temporary or seasonal. Therefore the availability of wetland habitat in Australia is of particular importance to conservation of waterbird populations.

Farm dams are a common feature of rural areas and have the potential to contribute to the conservation of waterbirds by providing small isolates of wetland habitat. There are thought to be approximately 300,000 farm dams scattered throughout Victoria alone, with more being constructed each week. While individual dams may have little obvious impact on waterbird conservation, collectively they could provide a lot of suitable habitat and play a significant role in conserving Australian waterbirds.

The use of farm dams as a resource for wildlife conservation is not a recent idea and many guidelines for improving a dam for wildlife have emerged over the years. However, little is known about which characteristics of wetlands (including farm dams) influence their use by waterbirds, and therefore whether the suggested guidelines actually provide appropriate waterbird habitat.

Farm dam with clutch of young Shelduck. Photo:Andrew Corrick

To complete my Honours Degree in Science at Melbourne University last year, I undertook a research project to address this problem. My aim was to determine if dam size, area of shallow water, area of emergent vegetation, islands and tree density surrounding the dam influenced the diversity and abundance of waterbirds. I studied 34 farm dams located around the township of Newham in central Victoria. The results indicated that careful thought is necessary before including some of the suggested features in an existing dam or before constructing a new one. Therefore, I will discuss some of the trends that appeared in my study and point out where careful thought may be necessary before implementing the suggested guidelines. I also learnt other important facts; care should be exercised before navigating electric fences in the rain, or entering a paddock with a lone bull or over-friendly pet emus!

Dam Size

Not surprisingly, dam size had the most influence on abundance and diversity of waterbirds. It is well known that the number of species increases as area increases, and a larger area can support more birds of each species. It has been suggested that larger areas contain greater diversity of habitat type and therefore attract different species. It may be beneficial to create habitat diversity such as an area of very shallow water/mudflats or areas of dense vegetation. However, dam size explained only some of the variation between the dams, suggesting that other variables were also involved.

Islands

Islands are considered important in attracting waterbirds because they provide an area secure from predators and increase other features such as perimeter length and shallow water. My study showed a positive relationship between waterbird abundance and the presence of islands. This result was strongly influenced by two dams, which were amongst the largest, so it is important to keep in mind that the greater abundance of birds on these dams may be the result of dam size rather than the presence of an island.

The physical characteristics of the island may have been influencing waterbird abundance and are worth considering. I came across a number of studies (mainly American) that suggest that there is needs to be at least 170 metres between the island and the edge of the dam in order to limit access to the island by predators. Foxes will den on islands because it is a secure place to raise pups and will swim 70-100 metres each night to hunt for food. The furthest distance between island and dam edge in my study was approximately 20 metres.

The islands on the two influential dams were large in size (200+ m^2) whilst the others were much smaller (19 m^2). A study in America found that island size effected the abundance of brooding waterfowl. This may be the case as in my study, larger islands provide greater physical area and habitat for waterbirds and as aresult may be more attractive.

Therefore, islands may enhance waterbird abundance only on larger dams where the island can be large in size and or isolated from the edge. Furthermore, islands may need to be easily accessible (gradually steepening of banks, rocks and logs) and provide some form of shelter (logs, vegetation and a variety of terrain).

Shallow water

A variety of water depths is important for attracting waterbird diversity. For example, diving species such as cormorants require deep water, while wading species like spoonbills and egrets prefer areas of shallow water. It has been recommended that 60% of the dam's surface area be shallow water. However, I found that proportion of shallow water was not a significant influence on waterbird numbers and diversity. Interestingly, larger dams had lower ratios of shallow water but the physical area of shallow water was much larger than that found in smaller dams. For example, I found that the area of shallow water that made up 59% of a smaller dam (1 491 m^2) was much smaller than the area that made up 15% of a large dam (31 772 m^2). It is therefore possible that the area (not proportion) of shallow water that is more influential.

If this is so, then smaller dams need to have a greater area of their water as shallow. For small dams, increasing the area of shallow water becomes less and less feasible and compromises the primary role of the farm dam, which is water storage. In these cases it may be better to increase the dam size (automatically increasing area of shallow water). Finally, I found that 10-20% shallow water was adequate to achieve a wide diversity of waterbirds in larger dams.

Emergent aquatic vegetation

The area of emergent aquatic vegetation was not an important feature influencing waterbird abundance and diversity. However, it may be important to ensure that a dam is not entirely covered by aquatic vegetation so that access to the water is not prevented, but enough vegetation remains to provide a 'safe' area for birds to retreat to if disturbed. Emergent aquatic vegetation is also important as nesting and roosting habitat for some waterbirds, such as swamphens and coots. Also, waterbirds eat a range of plant species, therefore if waterbird diversity is desirable then it may be advantageous to ensure that there are a number of aquatic plant species present.

Tree density

Trees surrounding dams are often advocated as being important in attracting wildlife to farm dams. Some degrees of terrestrial vegetation is thought to enhance farm dams and encourage birds by providing some habitat and shelter. However, dams surrounded by high tree density tended to attract fewer water birds. It is thought that high tree densities tend to reduce flight paths, making landing and taking off difficult, especially for larger birds such as black swans which need a longer "runway".

Also, it is possible that the ability for waterbirds to spot a potential predator is reduced because predators are concealed by surrounding trees. It appeared that species such as cormorants and ibis which utilised trees were found to use dams surrounded by trees more than species that do not use trees, like many duck species and coots.

Other features

The features studied, described only some of the variation in waterbird abundance and diversity between dams, indicating that other features are of importance in attracting waterbirds.

Different waterbird species will have different ecological requirements. For example, a diving fish-eating species such as cormorants will require deep water and small fish, whilst a wading species will require shallow water and aquatic vegetation.

Features such as pH, salinity and turbidity are less easily controlled and may effect waterbirds either directly or indirectly, by effecting the growth of aquatic flora and fauna, both of which are potential sources of food. It has long been observed that turbidity can be controlled or prevented by simply fencing all or part of the dam from stock

Farm dams have the potential to play an important role in nature conservation, but the primary role of the farm dam is water storage. It is therefore important to maximise the attractiveness to waterbirds without diminishing the water storage capacity.

My study demonstrated that size is the most influential factor increasing abundance and diversity of waterbirds, and where possible, dam size should be increased. However, before modifying an existing dam or planning a new one, careful thought should go into deciding what you the landholder, wants from the dam and what can be feasibly done. Other than water storage, is the dam to be used for recreational purposes and what type? Do you want to attract a particular type of bird or species? Or do you want a wide diversity of species? After these are decided, careful thought needs to be directed at determining the feature(s) which will have the best chance of producing the result you want.

Leona Knight, Kyneton

Landholders unite for wildlife

A habitat corridor for wildlife from the Strezelecki Ranges to the northern foothill. Sounds impossible!

Landholders from the Callignee\Traralgon South area don't think so. They have recently decided to join forces and work together as a *Land for Wildlife* group to help link areas of remnant vegetation for wildlife habitat. This is the first *Land for Wildlife* group to register in Central Gippsland and the third group across the state, with several others working towards registration.

"We are all members of the *Land for Wildlife* scheme and try to do our bit to help wildlife on our own properties," said local member Rosemary Nevill, "but you can achieve so much more being part of a group."

"So far we have been meeting regularly at different members' properties. You learn a lot from looking at how other people manage their patch of bush, as most people encounter similar problems".

"Whether it is weed management, dam construction or fencing, we are sharing ideas and trying to find some solutions which are beneficial not only for us as landholders, but also for the community and the native wildlife", she said.

The group believes they can go a long way to achieving their vision by co-ordinating with Landcare groups to target specific revegetation projects around the area" Such projects would attempt to link remnant and restored habitats along roadsides and streamsides as well as incorporating native shelterbelts, farm tree plantations and existing conservation reserves.

"By tackling smaller short-term projects, on both community and privately owned land, we can gradually work towards our overall goal" Rosemary said.

At their next meeting the group intends to start work on their first project of fencing and revegetating a streamside common to several properties. In addition, they plan to use aerial photographs to help them plan their strategy for the area.

In the meantime, they want to attract landholders who are currently not in the *Land for Wildlife* scheme to join their group and

their quest for establishing this important habitat corridor.

Gail Gatt, LFWEO, Central Gippsland

Callignee\Traralgon South Land for Wildlife Group. Photo:Gail Gatt

Vol 2, No 5.

Dairy farmer finds wildlife retreat

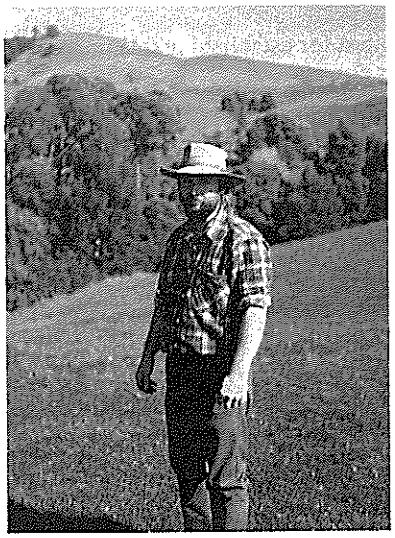
Where do you go to get away from it all?

For David and Kim Sissons and their two daughters, the answer lies just down the road. The Sissons have recently purchased a 17 hectare bush retreat near Allambie, just 15 km away from the dairying property they have leased for the past ten years at Yarragon South.

Both properties are now registered in the *Land for Wildlife* scheme and both provide valuable habitat for wildlife. The 83 hectare dairy farm offers a kilometre of streamside vegetation containing a number of old hollow bearing trees and areas of healthy understorey. Sections have been fenced off and David hopes to fence the entire length of the streamside in future years, as well as a corner in each paddock for shelter of stock. This corridor has the potential to link with other gully corridors on neighbouring properties. David agrees that planting local native species and allowing natural regeneration yields benefits for his farm as well as the wildlife.

The recently acquired 'bush retreat' boasts 15 hectares of natural bushland and gives a real indication of just what the Western Strezelecki Ranges would have been like 200 years ago. "It's just so relaxing to come here", says David. "It's a great break from the long hours of dairying and the good thing about it is that I can have a piece of paradise without being too far away from the farm".

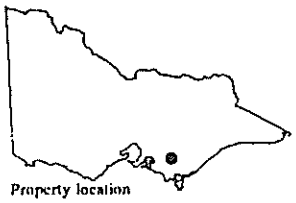
Two dense fern gullies contain large Mountain Ash (*Eucalyptus regnans*) and Manna Gum (*Eucalyptus viminalis*) as well as a spectacular two tier waterfall.



David Sisson at his dairy farm. Photo:A. Horner

Sisson's dairy farm showing streamside vegetation. Phot:A. Horner

Sisson's bush retreat gully. Photo:Gail Gatt



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They are ground dwelling and feed mainly on insects and seeds. Their nest is built close to the ground in tussocks or low shrubs. Being poor fliers they will not cross even short distances of open paddock. For these reasons they are extremely vulnerable to predation by cats and foxes.

The aim of the direct seeding is, for the first few years, to provide cover suitable for dispersal of the birds, and then, as the vegetation becomes thicker and more established, to eventually provide habitat for the birds.

The property is in close proximity to Mt. Worth State Park providing important habitat links with this park and other bushland reserves nearby.

The family have a keen interest in birdlife and the eastern whip bird, rufous fantail and eastern spinebill are just three of a long list of birds that they enjoy observing on their bush property.

For those farmers who need to be able to relax occasionally, but cannot afford to spend hours in travel time, a bush retreat nearby, may just be the answer!

Gail Gatt, LFWEO, Central Gippsland

Land for Wildlife

Property for Sale

NAGAMBIE AREA. 28 acres in Central Victoria adjoining the Mt. Black Flora and Fauna Reserve. Diverse flora - Box/Ironbark woodland covers entire block. Australian Grass Trees and many varieties of native wildflowers. Diverse variety of fauna including Eastern Grey Kangaroos, Swamp Wallabies, Echidna and Sugar Glider habitat. Up to 120 species of birds recorded in surrounding area. Attractive retreat approximately 2 hours from Melbourne. $31, 500. Phone (057) 94 2475

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