

# BEND OF ISLANDS CONSERVATION ASSOCIATION INC. NEWSLETTER

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A1100A

Number 46 November 1999



## WHAT NATIVE'S FLOWERING?

Botanical name: *Brachyscome diversifolia* var. *diversifolia*  
Common name: Tall or Large-headed Daisy  
Family: Asteraceae  
Flowering period: October to January

An erect perennial daisy up to 20 - 40 cm high, forming a tuft of slender stems which are hairy and leafy. The leaves are soft and variable, 3 - 10 cm. long, toothed and wedge-shaped, with the lower leaves broader and the upper ones narrower.

Large white single daisy flowers with yellow centres, up to 3 - 4 cm across, are at the end of the stems. The bright green leaves contrast with the white and yellow daisies.

Prefers dry, well drained soils, and a position with full sun, though accepts semi-shade. The plant's habitat range includes rocky escarpments of dry sclerophyll forest. A valuable plant providing nectar for butterflies.

The 'Flora of Melbourne' compiled by the Society for Growing Australian Plants Maroondah, Inc. lists this plant as being endangered in Melbourne.

CRIC HENRY

## PRESIDENT'S REPORT

The past 2 months have seen considerable work in the Planning area, which is reaching completion with the new Format Planning Scheme being adopted by Nillumbik Council. It is close to celebration time for the committed team of BICA members who have worked on this issue over the past few years in order to ensure that the ELZ is protected. We now look to the Nillumbik Council to implement the scheme and to continue protection of this area. We can assume that we will have our Special Use Zone - Environmental Living - Bend of Islands in place in the near future following approval by the Minister. Outstanding issues including the Melbourne Water Land in the ELZ will be reviewed following a strong submission by BICA.

BICA recently hosted a visit by the mayor, Bill Penrose and Councillors Marg Jennings, Sigmund Jorgenson, Penny Mullinar, Neil Roberts and Alex Rosovic together with the CEO of the Shire of Nillumbik, Catherine Dale. The visit introduced the Councillors and CEO to the unique nature of the area and highlighted some of the conservation issues that face the Bend of Islands. Those that attended enjoyed an informative day, an opportunity to put faces to names and discuss issues in an informal setting as well as enjoy a delicious lunch prepared by Janet Mattiske. It was pleasing to note the interest in conservation issues within Council.

As part of the process of keeping the community informed about conservation and to promote the ELZ, BICA is in the process of putting together a website. John McCallum has been the driving force behind this initiative and you should soon be able to find BICA information on the web.

I look forward to seeing you at the AGM on Sunday, November 28.

**Robyn Duff**

## NOTICE OF ANNUAL GENERAL MEETING

The 1999 annual general meeting of BICA Inc. will be held on Sunday, 28 November at Barb Snell's home, Henley Road at 2.00 pm. The meeting will be followed by the ordinary general meeting at which the guest speaker will be James Ensure, president of the Victorian National Parks Association.

As usual please bring your own chair, mug and a plate of something to share for afternoon tea. There will be a BYO barbeque after the meeting.

## NEWSLETTERS FOR 2000

In 2000 we are going to try to relieve some of the stress associated with producing the Newsletter by setting and sticking to a strict time line. At the same time as streamlining the task this will allow us to introduce a seasonal flavour to each edition and will complement Cric's cover articles which have presented a currently flowering indigenous plant each issue for many years.

Our thought is to incorporate the timelines that are based on the 'natural seasons' for this part of Australia. If we do this it would be essential to include not only the key markers that have already been identified for each season but also local notes. Many people keep a record of what they see on an occasional basis; other data is collected more regularly, for example the BICA Bird Survey.

We would like to include more material that has been collected in the local area and encourage everybody to keep looking around them, write it down and let us have it!

As well as continuing to represent what is happening on the wild life scene in the Bend of Islands we will continue to inform members of planning and social matters. The News sheet will continue to supplement the Newsletter n between issues.

Proposed dates for final copy to the editor are as follows. Members should receive the Newsletter two weeks before the advertised event.

Number 47 March 31 to publicise the Field Day on April 16

Number 48 July 21 to publicise the General Meeting on August 6

Number 49 November 10 to publicise the Annual General Meeting on November 26

Please get your thinking caps on, hone those observation skills, sharpen the quill and write something for your newsletter

## A LETTER TO THE EDITOR

Dear Sir,

I wish to respond to the article in the last BICA News reporting on the Trivia Night. The remarks made at my expense need a response to correct an obvious inaccuracy. I think it should be known that all of my insults are well considered and generously given.

This matter should be corrected in your next issue.

Regards (with relevant insults),

Neil.

## LANDCARE REPORT 1999

Peter Gurney

The Bend of Islands Landcare Group's activities this year have been centred largely on weed eradication and bush regeneration along Watsons Creek. This important work is in conjunction with a National Heritage Trust grant funding the improvement of Watsons Creek as an important wildlife corridor between Warrandyte State Park and the Kinglake National Park. Our work has included continuation of our previous bush regeneration around Oxley Bridge and weed eradication between Oxley Bridge and the Yarra River. We have also completed a weed survey of Watsons Creek between Calwells Road and the Yarra which will be the basis for our own group's work and also the NHT funded work along the creek north of Oxley Bridge. The Landcare Group and BICA have also been involved in the Shire of Nillumbik's initial work to develop a management plan for the Watsons Creek catchment.

We will continue to be involved in bushland regeneration work along Watsons Creek and the Watsons Creek catchment management plan for the foreseeable future. Our other work in the ELZ will also continue. We would very much appreciate the help of all ELZ residents at at least one of our monthly working bees which are generally held on the third Sunday afternoon. The sign tree always has details. All ELZ residents have the responsibility to look after their own properties in respect of weeds but we also need to work together to control the spread of pest plants on public land and on private land when requested. This is another way in which our special community is more special. Please help.

Now that daylight saving has commenced, we are planning at least one weekday evening working bee in November and a Saturday afternoon working bee on 11th December to be followed by a barbeque. There will also be a Sunday afternoon working bee on 20th November. Again, watch the sign tree for details.

Many thanks to all the people who have helped this year. We have done some really great work, we have had a lot of fun and some great afternoon billy teas. We have also had some treasured moments, such as coming across a juvenile Powerful Owl roosting only a couple of metres off the ground in a kunzea bush. In its talons was dinner, the carcass of a ring-tailed possum. Powerful owls are an endangered species and this rare close contact made us realise just how important our work is in restoring and maintaining our bushland.

## A LOCAL FERN - AUSTRAL BRACKEN

John McCallum

Because it can be a weed in agricultural land it is often assumed that bracken, like so many farm and garden weeds, is exotic to Australia. In fact there are species in other countries but we have our own. Brackens tend to occur in temperate regions and in Europe there is the original (as named by Linnaeus) *Pteridium aquilinum*; the Australian species is *P. esculentum*.

The genus name, *Pteridium*, refers to its resemblance to ferns in the genus *Pteris*. This comes from the Greek word for fern and is derived from pteron meaning 'wing'. Indeed the whole group of ferns and their allies are collected by botanists in the Division Pteridophyta ('Fern-like plants')

Bracken in its appearance is familiar to all people who have wandered in the bush or on farmland. The thick (5 - 15 cm), woody rhizome or underground stem is creeping and many branched. The stipe or frond stem is long and also woody. It is usually red-brown and is slightly shiny. The tripinnate lamina of the frond is dark green above and paler below. The leaf margins are very markedly curved under. The linear sori (bundles of spore cases) are almost continuous beneath these reflexed margins.

The specific name, *esculentum*, refers to the fact that the indigenous people of parts of Australia, like their counterparts in New Zealand, used the starchy rhizomes to form a paste which they baked into a kind of bread. The young shoots, however are poisonous and are a problem for stock on neglected farmland.

Bracken is the most commonly encountered of all Victorian ferns and is found in the Bend of Islands on deeper soils in gullies or on regenerating farmland. It is absent from most stonier hillsides. Despite being such an invasive pest of agricultural land it is virtually impossible to transplant bracken into a flower pot or garden bed!



## SOME ECOLOGICAL PRICIPLES, PART 2

by Teri O'Brien

*This is the second part of an article by Teri. The first section appeared in BICA Newsletter No. 45, September 1999. The two articles form a summary of a larger work, the full text is available free by email from Teri, or for the cost of photocopying for hard copy.*

### Introduction:

Depending on how we choose to study it, the ELZ has communities of plants, animals and microbes (biota) that interact with one another in various ways. For example, we could look at the ridge-top regions and see how they are established, grow, mature, senesce, and regenerate. We could look at what individuals do during the overall cycle of their group, and then we could compare what we found out with what happens on the lower slopes, or in the riverine systems.

Of course, there are many other levels of scale at which we could explore the ELZ. The fate of a leaf from birth to death and all the things it gets involved in during its time on the tree, in the litter layer, and after a fire is a popular way of examining living processes. Such 'fate-map studies' often shed light on what the interactions are between the different species. Thus, if we applied that approach to the life of a eucalypt flower, it would lead us to discover the production of nectar. That would lead in its turn to all the bird and insect visitors to these flowers, the generation of seeds, their loss to insect predation both in the fruit and once shed onto the ground, the role of ants and birds in seed destruction, seed dispersal, seed germination, etc.

Alternatively, we could take a time slice on the one spot, e.g., 100cm<sup>2</sup> of bark on a mature trunk of a tree, and follow what happens there throughout a day and a night, and/or over the weeks and months of a year. This approach is often adopted to explore 100m<sup>2</sup> regions of the ground to see what the communities of biota are doing as the years go by (study of so-called fixed quadrats).

If you think about this, two things will become obvious. First, the answers you get depend absolutely on how you choose to make the study, and especially on the scale you choose for the study. Secondly, the information you get is usually a mixture of information about structure and information about what the structure is doing, i.e., structure and function. Because the structure is usually in some form of pattern, in the 1940s the famous English ecologist Alex Watt called this analysis the study of Pattern and Process. No more powerful way of looking at ecosystems like those in the ELZ has yet been described by later ecologists, so we'll do a bit of Pattern & Process from our armchairs. Then, when you don't have anything more important to do, you can go

and look at what is outside your door and get acquainted with it all in the flesh (or bark, or soil or....)

### Trees/Shrubs/Grasses

Plant growth is all about gathering light, carbon dioxide, water and mineral nutrients, and then using the processes of plant physiology to turn these resources into plant material (biomass). On land this has been going on for about 300+ million years. Additionally, the temperature must be reasonable, above 60C and below 500C. For the first 180 million years, the Earth produced the Old Flora; mosses, club mosses, ferns, seed ferns, horsetails. Then, at the end of the Cretaceous, some 110 million years ago, the seed plants evolved and soon occupied centre stage. The seed ferns have since disappeared forever, and horsetails have not been in Australia for a very long time. While parts of the Old Flora are still with us, there is little doubt that it is the seed plants which dominate the areas where we live.

The family that is home to eucalypts (Myrtaceae) is an ancient family, probably at least 80 million years old, though eucalypts may be a lot younger, only 20 million or so. It is quite rare for eucalypts to develop a closed canopy, since adult leaves in most species hang vertically, allowing some light to reach the forest floor. Thus there is always an understory in even the densest eucalypt forest, often with many species of shrubs and grasses which receive enough light to grow in the shade of the eucalypts or in the spaces between them. Many studies have shown that eucalypts are not particularly long lived; most are quite mature at 250-300 years old, and very few have been dated at greater than 500 years old. This is no great age compared to the bristle-cone pine of Arizona at 6,000 years, or beech trees at 3-4000. So 50,000 years is time for 100 generations, even if we assumed that the generation took the full 500 years to re-establish itself. If burnt every century or so, there would have been at least 500 generations in the 50,000 years that southern Australia has known an Aboriginal presence.

Eucalypts and the understory woody shrubs are not simple creatures. Their seeds weigh only a milligram or two, but their growth rates after successful germination in a good site are spectacular. Most of the larger eucalypts in the ELZ have regrown since 1962, at least two thirds of them from seed. Some very large trees in the wetter gullies and on some ridge crests survived the 1962 fires, and may be 100+ years old.

Shortly after the trees and shrubs establish their root systems, they enter into an amazing partnership with soil fungi to produce a variety of roots known as mycorrhizas. The fungal partner is responsible for the familiar 'mushrooms and toadstools' that decorate the forest floor in autumn, but these are just the fruiting bodies. The really important bit is the fine, white threads of fungus that on the one hand enter into the root surface and on the other do what fungal threads are good at,

attack the litter layer. If you poke around in the litter when it is moist in autumn or winter, you can find masses of these threads, but you would need a microscope to see the way they are attached into the roots of the trees and shrubs.

This association has recently been shown to involve enormous organisms. In studies here and in the USA, the fungal partner is known to occupy more than 10 acres with the threads all from one individual fungus! These very fine threads, extending like a net through the soil and litter and in contact with literally thousands of roots, often interconnecting different species of tree and shrub, have an enormous surface area. It has been shown that the fungal threads increase the absorbing area of the roots 20-200 fold. So efficient is this system of mycorrhizas that almost all of the minerals contained in the fallen leaves, twigs and bark are recycled back into the plant under undisturbed forest. Indeed, it is this system which allows forests to develop on the thin, mineral-poor soils that are such a feature of Australia including the ELZ.

To grow a wheat crop, one needs soil with about 50-80 parts per million (ppm) of nitrogen and about 2-5 ppm of phosphorus. Our dry sclerophyll forests in the undisturbed state would have less than 10 ppm nitrogen and 0.01-0.2 ppm of phosphorus.

Equally astounding is the size of the root system in the eucalypts and woody shrubs. The few studies made (too tedious and expensive for anyone but students on excursions) have shown that the horizontal spread of roots is at least equal to the height of the top of the tree. In dry sandy soils, it can be five times the height of the crown.

Root depth is rarely measured, but in well-cracked very old rock such as that we live on around here, roots have a great capacity to follow the cracks. They have been measured in horizontal mine openings (adits) at over 20 metres below the surface. Thus, the tree and shrub you see is only a tiny part of an enormous organism, about half of whose weight is below ground. Through its mycorrhizas, each tree may be feeding in an area of hundreds of square metres, and in a soil volume 20 metres deep. As I said, these are not simple creatures!

Curiously, mycorrhizas are rare on grasses, though they are extremely common on all other natives, especially herbs. Studies at Monash Botany in the early 1980s in several types of native bushland failed to find herbs or shrubs that lacked mycorrhizas, but dry sclerophyll woodlands were not in that study.

However, the grass family (Poaceae) has likewise been around for close on 100 million years and its members have their own tricks for survival. While all plants can be looked at as made up of repeating units, this fact is especially clear in grasses. The easiest way to see this is to pull a segment of any tussock grass apart. It is immediately obvious that the tussock is a collection of vertical tiller shoots, all connected at the base by very short horizontal stems (rhizomes). Each tiller has several leaves, each with a blade and a leaf base. At the base of the tiller, the leaf bases are crowded together

because the places where they join the stem (the nodes) are very crowded. These lower nodes usually produce one or more roots, the whole generating a dense mat of fibrous roots with which the plant explores the soil and locks itself into the ground.

If you look at the vertical tiller, you will see that each new leaf arises from inside the sheathing base of the previous leaf. Eventually, the flowering head will emerge from the last leaf sheath. If you now look at a grass that runs across the ground, such as couch grass, you will find that each plant has exactly the same basic structure as the tussock. The difference is in the degree to which the horizontal stems elongate before they produce a vertical tiller. Such grasses form roots at the nodes of the elongated horizontal stems as well as from the base of the tiller shoots. We may therefore consider all grasses to be made up of units that consist of a leaf (with leaf base), a node, a root, and a bud which can form the vertical shoot, made up again of the same units. Between these units, and derived from the node, are the internodes which cause either the vertical or horizontal stems to elongate between leaves.

This extraordinary growth form gives grasses remarkable capacities to compete with other forms of plants. If the top of a tiller is grazed off, a lower leaf will have a bud at its junction with the stem that can generate a new tiller. This makes grasses indestructible by grazing animals or lawn mowers unless they are chewed off or mown below ground. Because the units are repeated all over the plant, death in one region will simply induce regrowth from another. They produce massive numbers of seeds, without requiring anything other than wind to pollinate the flower. The seeds so produced tend to be very fertile and to have smart devices for getting around (awns for burial, hooks to catch into animal coats, flowering heads that can do the tumbleweed trick and spread while blowing across the landscape). The finest divisions of the root system are extremely thin, and have a high surface area, giving to the grasses as a group an efficient means to compete for water and nutrients with all other plants.

Most perennial grasses, especially tussock grasses like our tussock poa, are extremely fire resistant and easily regenerate vegetatively after a burn. They also produce an abundance of seed which can establish new seedlings readily in the ash beds created by fires. While native wallabies and kangaroos readily eat fresh new growth, and while wombats enjoy the underground stems and roots of grasses, tussock grasses, both native and introduced, are under no threat in the ELZ and may be increasing in abundance. Even the seed-eating finches and firetails that come here regularly and graze on the seed heads appear to be making no inroads into the population of grasses.

Rabbits also graze these plants but like kangaroos and wallabies, seem to give up on them in favour of other food once the leaves get to be mature.

As far as I am aware, the full interactions between grasses, shrubs and trees and the grazing animals both native and introduced have yet to be studied in dry sclerophyll



woodlands as found in the ELZ. If the story is like that described in other vegetation types, dense grass swards eventually develop regions in them that senesce and die. In those regions, shrub and tree seedlings gain a foothold. The increased shade and perhaps competition for water and nutrients slowly give the trees and shrubs an edge. Various stages in what may be this process are evident in the reserves outside the ELZ at Dawson and Alma Roads. Seedling shrubs and trees find it very difficult to establish in a healthy grass sward or beneath adult shrubs and trees, and rarely survive the first summer.

Regular fire tends to drive this interaction towards increased grassiness in those systems that have been studied (mallee and alps). Aboriginal firestick agriculture probably achieved this end by that method.

There is a large amount of very useful research that can be done by anyone interested in this topic in our area. Some small exclusion plots with known fire histories and specific regimens for burning and measurement would produce publishable results of great interest and usefulness.

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## **NO BABY EAGLES THIS YEAR!**

by Pamela and Peter Gurney

*An interesting hypothesis. A good solid rabbit and wallaby proof fence around the entire plantation would probably be better than the plastic tree guards on a number of counts!*

For the last five years the Bend of Islands' resident Wedge Tailed Eagles have nested in a large Manna Gum tree in a steep gully along the Yarra escarpment overlooking Mount Lofty. The birds have nested each Spring with the fledgling eagles learning to fly and hunt throughout the summer. For five years the Gurneys and their neighbours have enjoyed the whole routine. In late winter we have watched the eagles courting and going through their aerial foreplay. We have watched them sit their eggs and later share the feeding of the young. We have been enthralled and entertained watching the young learn to fly and we have admired the patience of the adult birds as they encourage the young through all the stages of flying and then hunting. Then we have known Winter is approaching as the young are sent off to be independent and the eagle family is suddenly reduced to the two parent birds. But this year, for some reason, the eagles have not nested.

Over the last five years our eagles have raised seven young, having two chicks in each of the 1996 and 1997 breeding seasons. Generally, eagles only raise one chick, so our eagles have been exceptional parents. Their breeding and family raising

prowess reflecting the ready accessibility of food, namely rabbits, and their confidence in the safety of their nest site and immediate hunting range. In 1998 the eagles had only one chick and they seemed to work very hard over the summer to feed the baby. We think this may have been directly related to the release of rabbit calicivirus, the subsequent decline in rabbit numbers on Mount Lofty and other close-by hunting areas. Eagles do eat other food. We have seen them take possums out of the trees, and about four years ago during high summer we watched the eagles hunting grasshoppers on the Mount Lofty grasslands. In fact, it was Teri O'Brien who deduced from their strange behaviour what was going on. The eagles were on the ground hopping around with out-stretched wings then pausing as if to rest. At first we thought one of the birds had been injured and was flapping around on the ground. We were just about to phone the WSP ranger when Teri dropped in for coffee and re-assuringly worked out what was going on. This behaviour went on for a few days and it was great to watch through binoculars.

So why no breeding eagles in 1999? We think that it may be an accumulation of events with one or two major impacts finally dissuading them from breeding. The decline of rabbits on Mount Lofty and the nearby golf club development site has undoubtedly made life harder for our large feathered friends. Perhaps also the start of the Heritage Golf Club building phase with the large convention centre growing rapidly throughout the Winter and Spring has had an effect. We consider that these may not be the major influences, as the birds were not put off during the last three years by the extensive earth works during golf course construction. Also, we know there are still plenty of rabbits and possums to be had even if the number of rabbits on Mount Lofty has declined somewhat.

There are two other major changes in the environment closer to their nesting site and their immediate hunting range. On Mount Lofty new walking tracks and the road along the top of the feature have been built and topped with Lilydale Topping. The tracks and the road seem unimposing to us, but to the eagles there are now these substantial ribbons of white crossing and circling their foremost hunting range near to their roosting trees and on the approaches to their nest. Mind you, we did see the eagles flying over Mount Lofty and using their roost trees after the toppings were laid, so we doubt whether this is the major influence.

During Autumn, after the new walking tracks were made, dozens of trees were planted on Mount Lofty. The individual plantings are well spread over the feature and each seedling has a plastic plant protector around it. To the eagles these new objects, which suddenly arrived in the autumn, must look rather strange. From our verandah the plastic plant protectors are rather regular in their distribution. They are light blue in colour and reflect the sunlight quite brightly at certain times of the day. And we wonder whether it is this more than any of the other changes that have disturbed the

eagles from their mating and nesting routine.

Early each morning and late each afternoon as the sunlight strikes them there are dozens of plastic light prisms spread about ten to twenty metres apart reflecting the sunlight. With their very sensitive eyes the eagles may see a strange pattern of bright lights all over their closest hunting range. We think that as eagles generally quarter their territory hunting for food in the morning and late afternoon maybe the tree guards are distracting them from soaring in low over Mount Lofty or circling until they spot their prey and streak in for the kill.

We gather that the eagles have not nested elsewhere this year because they fly by regularly at least once every week, just keeping an eye on the place. But they have not been seen hunting over Mount Lofty and they have not been seen in their favourite roosting trees since the tree guards were put in.

We wonder, and we hope that perhaps next year our eagles will return to nest again in the big Manna Gum in the gully over looking Mount Lofty. If anyone has any further ideas or better knowledge of the habits of Wedge Tailed Eagles we are keen to hear of it.

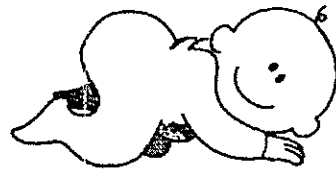
P.S. Marie Krause tells us that a pair of Wood Ducks have taken up temporary residence in the eagles nest !

### **Bander Baby Boom!**

Congratulations to Sue and Phil the proud newish parents of delightful little Matthew James.

Alan Bonny joined the grandparenting club on New Years Day with grandson Jake.

Congratulations also go to Janet Mattiske on recently becoming a grandparent to Phoebe Angeline Grant.



## **CAFE BENDERS UPDATE**

**Alan Bonny**

You probably missed it too but Cafe benders celebrated (unnoticed) its 5th anniversary this year. It was July 1994 that we saw the inaugural "Market" morning that grew into Cafe Benders. Prior to that the Friends of the Fire Brigade group worked hard to raise a few dollars to support our Christmas Hills CFA. A lot of work by a few was the order of the day to achieve a disproportionately small reward for the efforts made.



All credit to Pamela Gurney for coming up with the concept of the market/coffee morning. Now a lot of people contribute in many ways. Direct help with setting up, cleaning up afterwards, washing up, donating cakes and other goodies, making breakfasts and dinners, organising the raw materials, and serving the drinks. And we mustn't forget, those that turn up regularly to make Cafe Benders a continuing success. By sitting around having a pleasant Saturday morning coffee and cake on the third Saturday of the month we have raised over \$8000 since that first market morning.

And the future? See you at the special Christmas Benders night on the 19th. of December.

The results so far

1994 \$901	1997 \$1510
1995 \$1423	1998 \$1666
1996 \$1241	1999 \$1427 (up to end of October 1999)

## **WHERE HAVE ALL THE WASPS GONE?**

**Carol Bonny**

Have you been wondering too? According to a report in "Under Control" "No. 9 May '99 there is no simple or definite answer. Several factors such as rainfall and temperature are often cited as possible explanations for fluctuations in wasp numbers. Occasionally wasp numbers decline significantly even when conditions seem ideal for survival and proliferation. I have already spotted a couple at our bird bath so it looks like it is time to start keeping our eyes peeled for the nests and eradicate them immediately.

## PAINTED BUTTON QUAIL

John McCallum

As we were breakfasting one morning in September we saw a small bird foraging on the drive outside the kitchen window. It was working its way along in a quite determined, systematic way, apparently picking up seeds or some such small material. It scuttled off into some cover very quickly when I went outside with the binoculars for a closer look but I was able to get a good enough view to make out its rich colour and markings.

Button quails (genus *Turnix*) are plump, little birds with rather larger bills than true quails (genus *Coturnix*) which they resemble superficially. Scientists believe, however, that Button quails and true quails are not closely related and owe their similarity in appearance to convergence during evolution. This is the process that results in two species (or groups of species) acquiring similar features through completely separate evolutionary lines. DNA analysis tends to suggest that button quails are more closely related to the rails than to any other group of birds.

There are several examples of convergent evolution between marsupials and placental mammals. Thylacines ('Tasmanian tigers') and wolves have similar size, diet, method of obtaining and dealing with their food, and overall appearance. The ancestors of wolves (placental mammals) and thylacines (marsupials), however, parted evolutionary company long ago. Mammals appeared on Earth a couple of hundred million years ago and the branches that gave rise to modern placental mammals and marsupials separated relatively early in their evolutionary history.

Wolves and thylacines therefore evolved from completely different stock but because they evolved to occupy more or less the same environmental niche (they had the same requirements from the environment), albeit in different parts of the world, they ended up looking very similar to each other.

Back to the button quails. As well as having larger bills than true quails, they exhibit a degree of sexual dimorphism, the females being a bit larger and more brightly coloured than the males. If you get a really good look they lack a hind toe! Button quail tend to inhabit open forest, favouring sloping ground where grass is scarce. Sound familiar? The smaller and bulkier true quail tend to inhabit habitat that has a grassy ground cover. Button quail have a booming voice; maybe some of those bronzewings that have been calling lately have been painted button quail!

Here are a few interesting web sites relating to the article on button quail..

Some notes on the position of button quail in the overall picture of bird classification

<http://www.birminghamzoo.com/ao/pheasant.htm>

More about convergent evolution in birds

<http://www.waypoint1.aone.net.au/converge.htm>

A paper on the use of DNA testing to establish relationships is to be found on

<http://www.birding.com/sibphyl.htm>

## WHATS ON?

•Contact Anitra about an African singing workshop. Cost: \$20 00

Phone: 9712 0010

• Contact Costanza about the Bend of Islands Directory. Cost: \$5 00

Phone: 9712 0003

## FIRST FLIGHT

Carol Bonny

It is a beautiful day, blue sky, a nice breeze and all that good stuff. A large shadow passes over me as I have my head down slaving over a hot pile of mud bricks. As I look up I know what to expect as the alarm calls of the other birds tell me the eagles are about. There they are, all three of them just above our abode. How wonderful to be able to fly like them. As they turn and head for Mt. Lofty I see clutched in the claws of the leading adult bird a little white tipped curly tail. A poor little ringtail possum's first and last look at the world from the heights of where eagles fly.

## BEWARE THE DREADED BEAST!

In the days when botanical names were not bandied about quite so freely as they are now, a humorist put "Beware the Agapanthus" on his gate. Perhaps this could be emulated in some areas of Victoria where this "beast" is escaping into the bush.

(TAKEN FROM THE UNDERSTOREY OCT. /NOV. '99)



## IT'S SAD, BUT BURGAN IS BAD

Dianne Simmons

*Dianne is Captain of the Christmas Hills Fire Brigade and a long time supporter of BICA. She is a botanist by profession and has a wide knowledge of plant ecology and fire behaviour.*

Shrubby vegetation (or elevated fuel) results in extreme fire behaviour even on days of moderate summer weather. Over the last few years, Burgan (*Kunzea ericoides*) seems to have become more common, in the Bend of Islands. I am concerned that in many areas with dense Burgan, there is an increasing fire risk, both to individual houses, and to vehicles (such as fire trucks) on the roads. There is dense Burgan in certain areas around Catani Boulevard, Ironbark, Gongflers, Oxley and even Skyline Road which would pose a considerable threat in a fire. If your driveway or house is close to Burgan...our advice is get rid of it !!

### How far is far enough ?

That is a hard question, but at least we can give some upper and lower limits to the clearance distances required. No one should have much shrubby vegetation within 30m of a house (don't worry about the trees). Information from the Hobart fires suggests that no defended houses burned down in Hobart that were more than 100m from the forest edge. So it seems that somewhere between 30 and 100m clearance is required for house survival. If you want to survive a bushfire, then around 50m or so would seem to me to be a bare minimum, given the fire intensities likely to be generated from the dense Burgan elevated fuels. Even green Burgan burns readily.

If you don't want to clear this sort of distance, you need to be aware that you are exposing your house to considerable risk, and it may not be safe to use your house as a refuge during a fire. This is a hard decision, but I think we need to come to grips with the extreme hazard that Burgan poses in many parts of our area.

### How do we get rid of it ?

The answer is simple...with great difficulty ! Once-off clearance is likely to result in rapid recolonization, and long term removal is going to be a difficult task.

It seems that other structurally similar species like Tea-Tree (*Leptospermum* spp) have a very different ecology to Burgan. For example, Tea-Tree is a good colonizer of bare ground (like Burgan), and then over a few decades reaches the end of its life-span, and dies back, often to be replaced with other species, and even perhaps an opening up of the vegetation. However, it seems that Burgan does not respond in this way. Once you have it, it just gets thicker. It can invade open areas as a colonizer, and also regenerate

under a thick canopy of existing plants. It may be extremely difficult to replace Burgan with other more desirable species in the long run.

The best advice is to get rid of single plants to ensure that Burgan does not manage to expand to dominate and exclude other species.

There are some recent references about the ecology of these species if you are interested in them.

Burrell, J.P. (1981) **Invasion of coastal heaths of Victoria by *Leptospermum laevigatum* (J.Gaertn.) F.Muell.** Australian Journal of Botany 29, 747-64.

Singer, R.J. and Burgman, M.A. (1999) **The regeneration ecology of *Kunzea ericoides* (A.Rich.) J.Thompson** at Coranderk Reserve, Healesville. Australian Journal of Ecology 24,18-24.

Kirschbaum, S.B. and Williams, D.G. (1991) **Colonization of pasture by *Kunzea ericoides* in the Tidbinbilla Valley, ACT, Australia.** Australian Journal of Ecology 16, 79-90.

## FIRE SEASON PREPARATIONS

Because of the unusually dry periods that we have had this year it is likely that fire restrictions will come in a bit early. Watch for information about this on the notice board or on the Fire Brigade web site. Make your preparations early.

There have been some recent updates to the brigade web site that should interest people living in urban fringe areas such as the Bend of Islands. In an article in Wildfire magazine (USA) J B Gledhill of the Tasmanian Fire Service notes that only a handful of houses were lost and no serious injuries sustained in the 1998 Hobart bushfires. The Tasmanian Fire Service is pursuing an active policy of advising householders to prepare to stay and defend their homes. The outcome of the Hobart fires seem to vindicate this standpoint which is a stronger line than the 'stay or go but make up your mind early' line taken to date by the CFA

Talk to Brigade officers, use the website, read the literature and prepare for the fire season. The address for the Christmas Hills Fire Brigade site is

<http://home.vicnet.net.au/~chfb/welcome.html>



## BEETLEMANIA

Steve Craig

Fed up with the daily ritual of sweeping small, black caterpillars from your house over the past 3 or 4 months? Wondering what the hell they are, why they're in such large numbers, if they will demolish your house or ever go away and leave you in peace? Then read on.

I first became aware of the presence of these little critters in the spring of 1997 when they appeared on the ground around my house following a couple of days of strong winds. I assumed they had been happily munching away on the tree leaves and had been dislodged during the windstorms. I also thought they probably wouldn't survive long on the ground. How wrong I was.

I was surprised to observe that not only did they survive in large numbers but seemed quite content to remain out in the open, clustered together feeding on dead and drying eucalypt leaves in the ground litter and on recently fallen branches of leaves. I soon became aware that these caterpillars were responsible for the skeletonised leaf sculptures I had seen scattered throughout the bush wherever I walked.

Choughs and insectivorous ground feeding birds appear to be quite uninterested in this abundant food resource. I don't know why.

Small numbers of caterpillars were present again during spring 1998, but this year has seen a dramatic increase in their numbers throughout the Box-Stringybark Woodland on the Co-op. From the reports I have received from other residents in the ELZ they are not uniformly distributed throughout the area but appear to be concentrated more along ridge tops and north and west facing slopes.

Long-time residents I have spoken to cannot recall experiencing this phenomenon before. I can't explain why these caterpillars are present in such large numbers or why their numbers decline the longer we go without rain but rapidly increase again immediately following rain. I understand that the past three years have been the driest period on record and this may be why we are seeing an increase in insect numbers. I have also observed an increase in the defoliation of Silver Wattles by Fireblight Beetle larvae throughout this area and other parts of the Port Phillip Region over the past three years, which could also be related to the dry conditions.

Prompted by a number of inquiries from concerned residents and also to satisfy my own curiosity, I sent some caterpillars for identification to Ken Walker, an Entomologist at the National Museum Annex in Abbotsford. Ken reported back that they are the larvae of a Dermestid Beetle of which there are a number of different species in Australia.

The Dermestid Beetle family includes species that are known to feed on dried animal material of high protein content including dried carcasses. The family includes pests of stored products and they attack hides, furs and skins as well as foodstuffs such as bacon and cheese. There are other species that prefer cellulose that are a pest of grain and cereal products and others that can be troublesome household pests because of their liking of carpets and blankets and other woollen fabrics. Cultures of the larvae of *D. maculatus* are often kept in museums for cleaning the skeletons of small vertebrates.

The Dermestid Beetle larvae currently present in the ELZ appear to be quite happy living in the bush feeding on dead leaves and are doing a fantastic job of reducing the fuel load prior to summer fire season. Although some do find their way inside our houses, as far as I'm aware they present no more of a problem than other household insects like clothes moths and silverfish. Rest assured they will eventually burrow into the soil to pupate and complete their life cycle, but I for one will be observing their behaviour with a great deal of interest over the coming seasons.

## BEND OF ISLANDS HANDBOOK

Teri O'Brien

I want to propose a slightly ambitious project, that we produce a multi-author book which would cover the social and natural history of the Bend of Islands Environmental Living Zone. I would be prepared to be the senior editor of such a project.

I think such a work is timely since we are the only residential conservation group in such a zone so close to a large city anywhere in Australia and I wonder if we are the only successful one anywhere in the country! I think it would make an ideal Millennium-year project, aiming to have it out in 2001.

I would see the work covering several aspects including

- the distant past (geology, geography and indigenous occupation/use of the area)
- the immediate past and present (the region under white settlement, BICA, ELZ)
- the present natural history (water, geology, soils, flora and fauna)
- the future and management issues (pest control, fire management, the ELZ as a teaching and research resource)

I see it as something of a handbook for establishment of other such systems elsewhere in Australia and even overseas, as well as a resource for local people to help understand the special area in which they live.

I look forward to expressions of interest in or other comment on this venture

# RATS!

John McCallum

Feral rats (black rat, *Rattus rattus*) are alive and well in the Bend of Islands and have been for a long time. They have been well established in the Australian bush since not long after they came with the first European settlers over two hundred years ago. Rats are omnivorous in their habits and when in closer contact with humans they eat just about anything that we or our domestic animals eat. Any food left out is likely to attract rats. Using food scraps for compost is to set up a rat smorgasbord.

## Pumpkin Pirates

For years we used to use a compost heap and just pile up the food scraps and the garden weeds. Much of each was eaten by animals, feral and local. In more recent times we have been burying the food scraps in the garden, working our way along the beds and keeping the trench covered at all times. At certain times of the year, however, the material would be uncovered by hungry animals, either feral rats or mice. Raw vegetables such as pumpkin peel and broccoli stalks seemed to be a favourite target for these depredations.

In September this year I had identified one of the spots that I thought was a rat flat in our enclosed vegie garden and was about to set about trying to catch the culprits when one morning a sight for sore eyes appeared just outside their front door. Just by the hole under the huge rock in the garden was a rat backbone with tail attached, freshly picked clean of almost all of the flesh. This was unmistakably the remains of a phascogale supper. No larger predator could have got in to the garden. The prey animal had been about half grown when it was killed.

No further carcasses appeared over the next couple of weeks but the large tunnels into the freshly buried food scraps continued to appear. Maybe the phascogale ended up as owl supper or goshawk lunch. Finally I set some snap-back traps of tried and tested design, baited with pieces of raw pumpkin. I thought that at least this would save them from digging for their (last?) supper! Sure enough, on the first night a large female was caught. Trapping over a couple of successive nights didn't yield any more rats so I suspended the operation. No more tunnels to the underground larder, no more corpses. Pumpkin was chosen for bait as being less likely to attract 'non-target' species than some other materials such as cheese or bacon. Possums are locked out.

## Native Rats

That rats are pretty adaptable creatures is attested to by the fact that they were very quick to become established in all of coastal Australia and many other parts of the 'New World' where Europeans settled. However they are also good travellers on their

own, without the help of humans. They survive quite well, for example, in rafts of floating vegetation that are swept out to sea from flooded rivers and can colonise areas where the rafts fetch up.

The genus *Rattus* is represented by at least half a dozen species that were here when European settlers arrived. Our local representative is *R. fuscipes*, the bush rat. Other native *Rattus* species include the Cape York rat and the canefield rat. Swamp rats (*R. lutreolus*) are also native to Victoria and would be found in suitable habitat near here.

Native *Rattus* species are sometimes referred to as the 'New Endemic' rodents. A much earlier (15 million years BP) invasion of rodents occurred and gave rise to the 'Old Endemics'. There are water rats, hopping mice, stick-nest rats, desert mice, mosaic-tailed rats, tree rats, rabbit rats, rock rats and many more. They are not 'marsupial mice'. This is an incorrect and confusing name usually applied to small dasyurid marsupials such as *Antechinus* or *Sminthopsis* species. There are four or five dozen species of old endemic rodents and they vary in size from tiny mice to the large water rats that were hunted for their beautiful pelts. Water rats (*Hydromys chrysogaster*) survive in the Yarra near here where their left overs, either yabbie or mussel shells, can be seen on rocks near the water's edge. When European settlers arrived they altered their environment by introducing competitors and destroying food resources so that seven species of old endemics became extinct and many more are currently under threat.

# SHELL GRASS

John McCallum

Weeds are plants where we don't want them. Environmental weeds are plants that invade native bushland and compete successfully with indigenous species. Some environmental weeds need to have some kind of alteration to the environment before they can invade. Others seem to need little encouragement.

Shell grass (*Briza maxima*) is one such. It tends to grow along tracks and roadsides but also spreads down gully lines and becomes established in relatively undisturbed areas. Shell grass is an annual plant; once it has set seed it dies and the species survives from one season to another as seed.

This allows for a fairly straightforward, if labour intensive, method of control. All you have to do is destroy the flowers before the seeds ripen. Easy! No, but it can be done as some people in the Bend of Islands have demonstrated. Hand picking, followed by destruction of the seed heads works. Some people have tried gas powered blow torches. Whatever method you employ, now is the time to do it. Shell grass is out there and flowering now.

