

El Niño & La Niña, drought and flooding rains, we've had it all recently and it has been facinating to watch the landscape change with the water, as it heads inexorably towards the sea. Many creeks and rivers rising in the Wombat have not had decent flows during the last decade but fortunately that has been remedied for now and wetlands that have been dry for so long are brimming with life. See the changes for yourself, the forest, the rivers and creeks await you... Tibor Hegedis (editor)

The real world of the Wombat Forest Why the Wombat Forest matters even more in the International Year of Forests

By Alison Pouliot

I camped out in the Wombat with a few mates this summer. After three days of waking to the most wondrous avian choir, playing in the creek and simply absorbing the magnificence of the forest, one of the group prepared to leave and commented, "Oh well, I better be getting back to the real world." A tad perplexed, I replied, "This is the real world." She looked at me as though I was trying to be funny. I was totally serious.

It may not be the Amazon, the Tongass, or the Bialowieza, but the Wombat Forest combined with the Lerderderg Forest represent the largest continual and most varied tract of forest in central Victoria. Although it has suffered the same barbaric treatment as many forests worldwide — intensive harvesting, mining, burning, poisoning, polluting, fragmenting and wanton disregard - it still provides both tangible and intangible benefits, to its biota, to us, and ultimately to all life on earth.



The Wombat Forest regenerates from the 2009 fires (photo © Alison Pouliot)

Forests are the great green lungs of the world. They make our planet hospitable to life. They are treasure troves of species and the source of delight and inspiration.

They are purifiers of air, makers of soil, wellsprings of water, consumers of carbon, managers of nutrients and regulators of weather systems. They support the livelihoods of hundreds of millions of the world's poorest people.

One doesn't need to be a scientist to realise that destroying them is mind-bogglingly stupid.

Take a deep breath. More than half of the world's forests have been destroyed in the last thirty years. While deforestation may have marginally slowed compared to the previous decade, the statistics still defy comprehension. About 4 billion hectares of forest or just over thirty percent of the Earth's land surface remain, according to the United Nation's Food and Agriculture Organisation (FAO). But of this, only a third is primary forest and much of the rest is seriously degraded. Despite our understanding of the devastating impacts of such short-sighted thinking, our forests are still being chopped down - at a rate of 40,000 square kilometres per year. So what are we doing about it?

IYB and **IYF**

The United Nations (UN) has declared 2011 the Year of Forests (IYF) – to celebrate their beauty and value, to raise awareness of conservation and to establish actions for sustainable forest management. This follows on from International Year of Biodiversity (IYB). At the close of 2010 one might ask what did Australia achieve in IYB? Did IYB have any real impact? What was the barometer for success? Have we lessened the rate of species extinction? Increased awareness? Increased protection? Or perhaps a more critical question is why did Australia fail to meet the Johannesburg Biodiversity Target

to significantly reduce the rate of biodiversity loss by 2010? Why did so many countries fail to meet this target?

More than half of the world's forests have been destroyed in the last thirty years.

Ecological thinking in Australia was born long before the word 'ecology' entered the vernacular and was accepted as a discipline. Australia has produced pioneering ecological thinkers and practitioners who have had significant international influence disproportionate to our population and global economic importance (Mulligan and Hill 2001). We hold many 'firsts' in conservation such as the world's first green political party. The world's first conservation organisation is believed to have formed in Bendigo in 1888 (Bonyhardy 2000). Melbourne was a hub of conservation work as early as the 1860's. Royal National Park near Sydney, proclaimed in 1879, was the world's second national park.

Australia also has one of the world's most systematically designed processes for habitat protection (Fuller 2010) focused specifically on conserving representative samples of all species and ecosystems (Watson 2009). We are also one of the most affluent and educated countries in the world. So why do we still hold this terrible record of having one of the world's highest rates of species extinction? The answer is complex and elusive but a starting point may be to take a closer look at our attitudes toward 'natural' environments, both today and historically. This will be the focus of a piece in the next newsletter. Several prominent scientists have cautioned that if we don't respond quickly to the consequences of this collective failure to meet the 2010 biodiversity targets, the impacts may be irreversible. The 2010 Global Biodiversity Outlook states that the fate of biodiversity for millennia to come will be determined by our action or inaction over the next decade or two.

Despite these failings some positive outcomes occurred in IYB. The 2010 biodiversity target inspired many countries to increase their national and international actions to support biodiversity. New areas of land have been set aside for protection while some existing protected areas have been expanded. More funds have been secured for implementing the Convention on Biological Diversity. Some 170 countries now have national biodiversity strategies (although notably, many of them fail to incorporate the third major kingdom, fungi).

Australia did have one very substantial win in September 2010 when the main destroyer of Tasmanian native forest, Gunns Limited, announced an end to

old growth logging and a move to plantation timber. This was the result of decades of pressure and action in the forests, in the courts, on the streets and in the press from predominantly Tasmanian environment and political groups and individuals.

The Tasmanian Forest Statement of Principles has been delivered to the State Government and sets out a framework that includes a moratorium to end logging in the 'most precious forests'. While the agreement is unlikely to put an end to the forest debate, it still represents a significant win for Tasmania's forests.

Closer to home, Wombat Forestcare's campaign to upgrade the protection and management of the Wombat by lifting its status to a State Park is also making terrific progress. To witness almost a hundred community members representatives and of conservation organisations attending the recent community forum is a positive sign of support for the proposal. The launch of the new campaign brochure adds to the VNPA's 'Better



Protection for Special Places' report which identifies the Wombat as needing better management and protection.

Repairing the broken link

Perhaps we can achieve in IYF what we failed to achieve in IYB. The UN's focus with IYF appears to be very much about engaging people. The challenge will be to achieve harmonious coexistence between forests and people; find a balance between use and protection and manage collaborative partnerships on forest protection.

Russian writer, Leo Tolstoy, said that "One of the first conditions of happiness is that the link between man and nature shall not be broken." It is this broken link that we must repair if we are to save our remaining forests.

We need to also find a way to celebrate forests, to encourage engagement. The only way to truly engage and appreciate our forests is to experience them first hand, to develop an affiliation, an ecological empathy, to repair the broken link.

This is the International Year of Forests. Our local forest, the Wombat, is invaluable.

Every effort must go toward maintaining its ecological integrity. It's the year to discover The Wombat - to explore it, to celebrate it.

Blooming understorey (photo © Alison Pouliot)

To let it touch your imagination. To rediscover the Real World. But don't believe me, find out for yourself. I'm betting that it might just inspire your heart, soothe your soul and enrich your life.

References

Bonyhady, T (2000). The Colonial Earth. Melbourne University Press. Melbourne

Fuller R.A., McDonald-Madden E., Wilson, K.A., Carwardine J., Grantham H.S., Watson, J.E., Klein, C.J., Green, D. C. & Possingham, H.P. (2010). Replacing underperforming protected areas achieves better conservation outcomes. Nature, Vol. 466: 365-367

Mulligan, M and Hill, S (2001) Ecological Pioneers: A social history of Australian ecological thought and action. Cambridge University Press, Cambridge UK

Watson, J.E., Fuller R.A., Watson, A.W., Mackey, B.G., Wilson, K.A., Grantham, H.S., Turner, M., Klein, C.J., Carwardine, J., Joseph L.N., & Possingham, H.P. (2009). Wilderness and future conservation priorities in Australia. Diversity and Distributions 15: 1028-1036. ■

A New Species

By Gayle Osborne

Recent research has found that the Mountain Brushtail Possum, *Trichosurus caninus* or bobuck originally assumed to be one species is actually two distinct species. They inhabit the forests east of the Great Dividing Range from SE Queensland to southern Victoria. The westerly extent of its range is the Wombat State Forest with an outlier population at Mount Cole.

In the early 1990's research was being carried out on parasites in bobucks in the Central Highlands of Victoria by a team led by Prof David Lindenmayer. The research included taking measurements such as length of ear, head, tail etc. compared to weight and this research was later extended to several populations on the east coast of Australia.

At first it was thought that the species showed a 'cline' which is a gradual spatial variation. A cline would have shown a slight change in body dimensions as you moved up the east coast of Australia, e.g. the ears would become progressively shorter, or tail slightly longer.

After analysing the data it was found that the data for ear length, foot length and tail length occurred in two distinct groups which led to extracting DNA in order to examine genetic differences between the two groups. The results proved that the possums were definitely two separate species. As a result, the existing species, *Trichosurus caninus*, was renamed the Short-eared Possum, and the southern population was identified as a new species.

The new southern species became *Trichosurus* cunninghamii, named after Prof Ross Cunningham, the statistical scientist involved in the research. The southern species retains the common name Mountain Brushtail Possum or bobuck. This species has longer ears, shorter faces, tails and feet than the northern possum. The two species overlap near Kiola on the coast of NSW.

So can we assume the Wombat Forest bobucks are the same as those in the Central Highlands? Most likely, but we really lack any research into the bobuck in this forest.

Until recently it was also thought that the bobuck was found only in forests of the Great Dividing Range. Their thick coat and need for dens suggested this however lately it has been established that there are also populations in south east Gippsland where the habitat and climate is entirely different to the forests where they are historically found.



Mountain Brushtail Possum or Bobuck (Trichosurus cunninghamii) (photo © Murray Ralph)



A real "tree hugger" (photo © Murray Ralph)

The Mountain Brushtail Possum is closely related to the Common Brushtail Possum, just a little larger and can weigh up to 4.5 kg. They are distinguished by slightly smaller, rounded ears and usually a darker colour. Their under belly is whitish.

With their more specialised diet, the bobuck has not adapted to urban living. They feed on shrub leaves including silver wattle, fruits, bud, fungi and lichen and occasionally on bark, spending considerable time foraging on the ground.

As with many of our arboreal species the bobuck dens mainly in tree hollows. All possums are marsupials and therefore have a pouch in which they carry their offspring, with the young bobuck spending six months in the pouch suckling from the mother.

They are also long-lived, female lifespan is up to 17 years and males up to 12 years. Bobucks were thought to be monogamous, mating until one partner died but recent research in the Strathbogie Ranges indicates that this may be habitat dependant, with the males inhabiting roadside strips found to be polygamous.

Bobucks communicate with each other using smells, sounds and visuals.

The sounds include hisses, clicks, guttural coughs and screeching. They have an amazing eleven scent-producing glands with which to mark territory and leave messages about sexual status.

So how are the bobucks of the Wombat Forest faring? All we know is that they are still here but as the Wombat has been subject to natural and severe human-induced changes we cannot speculate on the viability of the populations. The way animal populations respond to environmental variation is important for conservation management and without the research we cannot know if the populations are secure.

References

Mammals of Australia, edited by Ronald Strahan ISBN: 1 876334 88 6

http://fennerschool-research.anu.edu.au/cle/personnel/rosspage.php

http://www.thylacoleo.com/bobuck_underground/bobucks_history.php

http://www.abc.net.au/science/news/stories/s1497231.htm ■

You, Me and Biodiversity Lecture Series: A Wombat Forestcare Initiative

The United Nations has declared 2011 as the International Year of Forests. This year's series will explore the 'Hidden Forest' and its fascinating role in providing a home for its inhabitants including flora, fauna and fungi. It will emphasise how we can become more connected with our environment. It is hoped that people will come away with practical knowledge, a heightened sense of empowerment and wonder at this complex, teaming environment we live in.

Speaker: Alison Pouliot

Topic: Fungi - the Hidden Forest

Time: Thursday 21st April 2011 - 7.30-8.30pm Where: Daylesford Neighbourhood House,

13 Camp Street, Daylesford.

Cost: \$10 attendance fee.

Contact: Daylesford Neighbourhood House

for bookings on 5348 3569.

More details contact Wombat Forestcare on info@wombatforestcare.org.au

Bio-indicators of stream condition

By Miriam Rotstein

Have you ever looked into a lake, dam or stream and imagined countless beasties lurking under the surface? Well you're not being paranoid, they are very likely there! At the edges of stream and still bodies of water there is the equivalent of a rockpool just waiting to be explored...

Creatures you may find include the familiar dragonflies, yabbies, waterboatmen, wrigglers, tadpoles, and maybe even a fish or two. Others you may not know were there include various tiny freshwater crustaceans, snails, freshwater sponges, beetles, bugs, aquatic caterpillars, and

various worms. Because the Wombat forest contains the headwaters of six major rivers and many more lovely upland streams there are probably also the nymphs of mayflies, stoneflies, and caddisflies.

But what has this got to do with telling what condition a waterway is in? Well, some

Damselfly nymph (photo © Miriam Rotstein)

creatures are very fussy about their water quality factors. Meanwhile, others are complete pigs and don't mind living in murky, glorified industrial gutters.

Now, to explore! Hopefully not in the gutters...

We get into the creek with a fine-mesh net (or kitchen strainer on a stick) and scoop around the bottom and edges of the stream, rocks, plants growing into the water and any other areas that could host beasties. Then, tip them out into a bucket, then onto a shallow tray (or ice cube tray-white is easiest to spot things against). Or, pick up some rocks until you find something. If you want to know the name of what you're looking at "The Waterbug Book" by Gooderham and Tsyrlin is a good reference.

You may be thinking "but what about all the testing probes you see scientists on telly putting into water?"

The probes measure the environmental factors like temperature, pH, salinity, aeration (dissolved oxygen), nutrient levels, and clarity. We can go out and measure these, however, the results we get are only true for that moment in time: who knows what was happening there last week?

The creatures act as monitors of the conditions or "indicators." Looking at which creatures are found at a site, and how many of them, tells us what the conditions have been like over a longer period of time, about any cumulative effect from multiple factors, or effects from factors like poisons or heavy metals that may not be routinely tested for.

Thankfully someone else has already made a list of macroinvertebrates ("creatures") and rated their living standards, it's called the SIGNAL index Inver-(Stream tebrate Grade Number - Average Level). SIGNAL scoring is an important tool used by waterwatchers. the EPA.

researchers and environmental consultancies.

The SIGNAL scores range from 1 to 10, with higher than 6 being graded "healthy habitat," 5-6 being "mild pollution," 4-5 being "moderate pollution," and less than 4 being "severe pollution."

So, let's get to know a few of these creatures:

Dragonflies (Order: Odonata, sub order Epiproctophora)

SIGNAL score of 3 through to 10 depending on family. Probably the most recognisable of aquatic macroinvertebrates, it is also one of the most primitive of flying insects. Now, watch the next dragonfly you see very closely until it lands: do its wings rest out horizontally? If so it's a dragonfly, but if they are folded up like a butterfly what you're seeing is a damselfly.

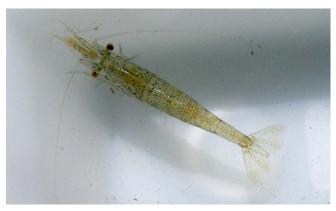
Caddisfly (Order: Trichoptera)

SIGNAL score of 8. The larvae of the caddis flies construct a fascinating range of shelters for themselves. The materials can include vegetation, hollow sticks, tiny pebbles or silk. They are also diverse in their eating habits ranging from highly predatory to algae munchers. Google "Hubert du Prat" to see what they can build when given gold and gems to work with!

Sideswimmers (Order: Amphipoda)
SIGNAL score of 3. Small crustacean (5-25mm) with variable colour. Their diet is mostly decaying vegetation, they prefer slow-moving or still water.

Freshwater shrimp (Family: Atyidae)

SIGNAL score of 3. Small translucent crustacean, fully grown at about 20-40mm. They will squirm vigorously when taken out of the water. They eat decaying plant matter and can be found at the edges amongst vegetation in slower moving water.



Freshwater shrimp (photo © Miriam Rotstein)

Bloodworms (Genus: Chironomus)

SIGNAL score of 3. The larvae are red as they produce a highly efficient blood pigment (similar to haemoglobin) that allows them to breathe dissolved oxygen from water where others may find the level too low to survive on.

Reference

The Waterbug Book, by Gooderham and Tsyrlin. ISBN 0 643 06668 3. ■

At long last the Lerdy flows again

By Alison Pouliot

Daybreak is a magical time to crawl through the damp undergrowth of the Lerderderg River. The first shafts of sunlight slice through the trees, illuminating unfurling fern fronds and a large native slug cruising the forest floor. This time a year ago the riverbed was parched and dusty, not a trickle of water in sight. Walking along it was slow progress, about a kilometre an hour, clambering over log jams and boulders crackling and crusted with dried lichens. But following the rains the river is

once again swollen and teeming with life. Spiders span the river with their webs and lie in wait for emerging insects. Kookaburras laugh in synchrony across the valley and inevitably put a smile on my face. I could think of worse ways to start one's morning.

This is the Lerderderg River, known locally as 'The Lerdy', rising in the Wombat Forest on the Great Dividing Range. It's a very special river. It's also one of Victoria's eighteen Heritage Rivers and



Intact riparian vegetation in the Lerderderg's upper reaches (photo © Alison Pouliot)

the only one of the six major rivers rising in the Wombat Forest with this designation. Heritage rivers are protected under the Heritage Rivers Act 1992 (Vic) for their high conservation, recreation or cultural values.

Part of the river is also classified as a Representative River due to its significant geomorphic and hydrologic features.



Sandstone cliffs at McKenzie's Flat in the Lerderderg's lower reaches (photo © Alison Pouliot)

From its source the Lerderderg flows through the Wombat Forest into the adjoining Lerderderg State Park and through the Lerderderg Gorge – a spectacular 300 metre deep gorge of sandstone and slate, reflecting its 500 million year geological history. The exposed rocks at the southern end of the gorge are of international significance as they show evidence of being covered by glaciers during the Permian, about 280 million years ago (Rosengren 1988).

Vegetation in the Park varies along a longitudinal rainfall gradient with damp messmate-peppermint gum forests in the north, drier stringybark-box forests near the gorge mouth and box-ironbark woodlands along the southern ridges. There are also riparian blue gum and manna gum communities of state significance. Together the Wombat and Lerderderg forests are critical habitat for a diversity of biota as they represent the largest and most varied of the remaining isolated forests scattered through north-central Victoria (Parks Victoria 1999).

Brilliant blue damselflies are already up and on the hunt, deftly hovering and darting just above the water surface. The waking forest resonates with buzzing insects and the splash of fish in pursuit. Six native fish species including mountain galaxias and blackfish live in the upper reaches. The quiet explorer may encounter all sorts of mammals including wombats, echidnas, eastern grey kangaroos, swamp wallabies, ringtail possums, bent-wing bats or perhaps even a greater glider.

The rocky ridges and patches of old growth provide important habitat for raptors including wedge-tailed eagles, Peregrine falcons, powerful owls and barking owls.

The Lerderderg's 63km journey ends on the basaltic plains of the Werribee Valley where it joins the Werribee River at Bacchus Marsh. Its short but significant journey is a reminder of the need for improved protection against the myriad of threats that could compromise this very special river's ecological integrity, especially in the headwaters in the Wombat Forest. As I

scramble across the river my old boots clamber for purchase on precariously slippery rocks. But if I fall in, what the heck. They've been a long time dusty.

References

Parks Victoria 1999 http://www.parkweb.vic.gov.au/resources07/07_0251.pdf

Rosengren, N.J. 1988 Sites of Geological and Geomorphological Significance in the Western Region of Melbourne, Department of Geography, University of Melbourne, Melbourne.

Book Review

By Gayle Osborne

"The Victorian Bush its 'original and natural' condition" by Ron Hateley.

ISBN: 9780977524075 (pbk)

This timely and stunningly researched book has recently been published and is based on diaries, letters, drawings and paintings of the early Europeans who traversed Victoria to afford a picture of the landscape and vegetation they encountered.

Ron Hateley was a lecturer in forest ecology at the Melbourne University School of Forestry, Creswick. As there was no prescribed text for the course Ron wrote the notes for his students but was troubled by many widely held views about the natural environment. On retirement he began researching this book to document the complexity of the Victorian landscape as first seen by Europeans.

Amongst the issues that concerned Ron Hateley were that "the pre-1788 forests and woodlands were in pristine condition", that aboriginal people frequently burnt the land and our reliance on pre-1788 modelling of ecological vegetation classes (EVCs) as a tool to restore the landscape. He emphasises that vegetation is dynamic and continuously changing over time.

The first half of the book is a descriptive travelogue of Victoria's landscape as encountered by Europeans with interpretations and explanations of these

descriptions. Ron Hateley goes on to explore specific topics including the extent of indigenous burning, the role of fauna and also the role of wind events in the natural ecological cycle.

We are given a picture of the variety of vegetation types from dense forests to open "park-like" woodlands so favoured by early squatters to nearly tree-less plains in the Western District.

The descriptions of large areas dominated by banksia, allocasuarina (she-oak) and wattle indicate the loss of these

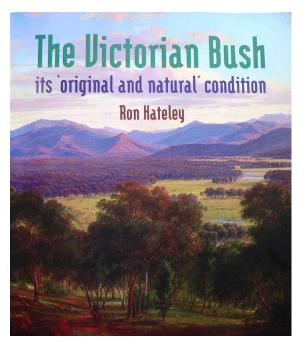
plants from our landscape. On the plains around Newstead and Smeeton it was noted that eucalypts covered the ranges, with a few in gullies and swamps. The principal trees were banksias and she-oaks "thinly scattered over the verdant plains".

Sheoaks were quickly harvested for their ability to be split easily for shingles, their "excellent fuelwood" and their "source of fodder". The bark of several wattle species was extensively harvested for the tannic acid used in tanning, a process which killed the trees, with nearly 10,000 tons being exported annually.

Ron Hateley provides a picture of the boxiron bark forests which shows them not to have been uniform in structure, generally consisting of lightly treed plains and densely timbered on the ridges and in the gullies. Some of the forests contained very thick scrub. He considers that it would be inappropriate to apply the recent ecological thinning to all box-iron bark forests.

There is a chapter on "Unhealthy, dead and damaged forests and woodlands" which provides records of forests and woodlands overrun by parasitical plants such as mistletoe and dodder laurel, considered unhealthy to European eyes but obviously part of a natural cycle and important ecologically.

Another chapter describes the abundance of native fauna and their horrific slaughter aptly named "The killing spree". We are now missing key constituents of our biodiversity, animals which grazed the vegetation, cultivated the soil and spread seed.



Ron Hateley questions whether we can "assume that Aboriginal burning practices were uniform across the continent" and believes that we cannot due to the "differences in cultural tradition and ecological variation across the country".

Looking at early descriptions of Aboriginal burning in Victoria, he found no evidence of deliberate burning of forests, and points to lightning strikes as a common cause of forest fires. He considers that indigenous burning

may have been confined to relatively small areas for hunting and to "promote the growth of tuberous food plants" rather than the broad-scale burning we are led to believe occurred as evidence for fuel reduction burns in forests.

Wind events have long been overlooked in our consideration of ecological processes. Ron Hateley draws on a number of early descriptions of tornadoes which describe them passing in a narrow belt, levelling thousands of trees, many torn up by the roots and others snapped in two. A strong series of tornados swept through Western Victoria in 1897 tearing huge trees up by their roots and demolishing buildings. These occurrences allow for natural revegetation and a range of age classes within our forests.

One of the fascinating examples of how drastically we have changed our landscape is Swan Hill, once a floodplain the area provided many challenges for the paddle steamers. Levee banks were constructed on which river red gums later grew.

Major Mitchell described the area, "Light appeared at length through the wood before us, which soon terminated on a sea of reeds, bounded only by the horizon..." He notes that two miles further on trees were again plentiful.

Ron Hateley describes the massive changes in the landscape in areas such as the goldfields and queries whether having permanently altered the soil profiles, that attempting restoration of the original vegetation communities may not be possible.

In just 200 years we have radically altered the Victoria natural environment and the author points to the need to consider whether attempting to restore to a pre-1788 landscape is realistic. We need to remember that a landscape is always naturally evolving and up to 200 years have passed since these records.

However "The Victorian Bush" is not a guide for restoration rather it contains the message that we should not rely on common assumptions and provides a background to consider.

The presentation of these glimpses of our original landscape and Ron Hateley's interpretations is a fascinating journey for the reader.

Autumn fungi forays in the Wombat

The rains may have caused all kinds of havoc for Homo sapiens across the country but one thing's for sure – our forests, including the Wombat have had a welcome and long-awaited drink.

This year is International Year of Forests and the perfect time to discover some of the Wombat's lesser known creatures including those in the kingdom Fungi. Following last year's bumper fruiting, the damp forest conditions are likely to produce an impressive display of fungi again this season.

If you're keen to hear more about this mysterious kingdom and fancy a foray deep into the Wombat, the Central Victorian Fungal Ecology Workshop Series will be running again this autumn.

Full details are posted at www.alisonpouliot.com or you can email Alison directly at alison@ alisonpouliot.com

The following images by Alison beautifully show the splendour of fungi in the forest.

Not to be missed... ■



Mycena viscidocrudenta (photo © Alison Pouliot)



Heterotextus miltinis (photo © Alison Pouliot)

Wombat Forestcare (Inc.) Membership

Wombat Forestcare Inc. is dedicated to preserving the biodiversity and amenity of the Wombat State Forest by utilising the skills and resources of the community. It will monitor activities affecting the forest and will work with government departments and their officers to improve or correct procedures which may impact on it. By becoming a member you will have input into our activities and projects, and give support to caring for our forests. For memberships and further information contact Gayle Osborne, phone: 03 5348 7558 or email: info@wombatforestcare.org.au - Membership Fees are only \$10 Single and \$15 Family.