LAND FOR WILDLIFE

voluntary wildlife conservation

Newsletter of The Land For Wildlife Program Summer, Vol. 10 No. 2 2014

(Link to Autumn Edition Vol 10, No.1, 2014.)

INSIDE

Department of Environment, Land, Water & Planning, Victoria, Australia

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DELWP Customer Service
Phone the free-call number below if you have any questions relating to natural resources, wildlife and the environment.
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Letter from the Editor

Welcome to the second Online Edition of the LFW Newsletter for 2014!

Approximately 30% of members subscribed in response to a letter sent in mid 2014, inviting them to subscribe online to receive the newsletter. If you know of anyone who has not subscribed, please urge them to do so as it is currently the only way to stay in touch. Unsubscribed Members will need to click here to sign-up while Friends of LFW (ie anyone without a LFW property) may subscribe as a Friend of Land for Wildlife from this link. If someone has sent you a copy of this newsletter, and you would like to subscribe, please complete the web-form by clicking here. Please share the newsletter with anyone you think may benefit.

This newsletter has several articles based on responses to the question in the subscription form; "What information would you like in the LFW newsletter?" Many members want to know more about managing pest plants and animals, others want to know more about revegetation and habitat restoration. Stories about what people are doing on their properties was another popular suggestion. In this newsletter, you will find a few articles based on the experiences of other LFW members. Invertebrates was another request, so I have included a fascinating article from Steve Williams on the moths he has studied on his LFW property.

Many members have indicated how happy they were to see the newsletter going online. However, I acknowledge that this has not suited everyone. If you know of members who have not subscribed, and who may be uncertain about it, they can either contact myself or go online at any time using the links above.

Please send me anything you would like to share with readers – the newsletter is here for members and friends alike to stay in touch and share experiences with others in the Land For Wildlife community.

All the best,

Peter Johnson
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Land for Wildlife Property Statistics, December 2014

LFW Membership	Total Property Area	Habitat Being Retained	Habitat Under Restoration	Total Retained and Restored Habitat
5,488	524,503 ha	139,571 ha	22,186 ha	161,757 ha

Cover Image: Nankeen Kestrel Chicks in hollow of a large old dead tree. Courtesy of Geoff Park. You can read more about Geoff's Nankeen Kestrels on his blog: Natural Newstead. See article on next page.

SNAKES IN THE GRASS

By Ian,Vicki and Brett Hansen, Healesville. LFW'ers since 1998

We have shared our 4 acres of land with many species of reptiles over the last fourteen years. The most abundant by far are of course, skinks. Our favourites though are the snakes. So far we have identified five species – the most numerous being Lowland Copperheads followed by Eastern Browns, Tigers, Red Bellied Blacks and a most attractive specimen of a Small Eyed Snake.

Our land is covered in native grasses, reaching about 1.5 metres tall in places, and once snakes discover it, they tend to stay for many years. The visitor spending the most time here so far is a one metre Copperhead. It appears to have a mental map of the land and frequently travels around the house when hunting, visiting the neighbour's dam, and returning. At first we thought it lay a scent trail, but we have seen it find its way after rain, which may wash away scent.

This snake is very tolerant of our movements. On one occasion it decided to cross a path at the same time as we were walking along, and simply stopped until we passed. It was full length across the path and we had only 30 centimetres to pass. It slowly turned its head away from observing us and continued! Our heart rates took considerable time to settle.

Last summer, the "resident" Copperhead slithered along a path close to us, stopped, raised the rear fifteen or so centimetres of its body, and deposited a one centimetre thick, sausage-shaped, bright yellow excreta on the path. That deposit blew away almost immediately – zero water content.

It's quite likely to come across Copperheads daily, especially in summer but also spring and autumn. They love sun-baking and we usually know their whereabouts, but sometimes when they're hunting we meet unexpectedly. Only once has one big male shown alarm when nearly trodden on. Usually they turn and avoid contact. We have witnessed mating behaviour and it can be quite aggressive, especially with two suitors.

One Tiger snake lived with us for two years, under the lip of a fibreglass pond where the dirt had dropped away. We didn't know for a long time it was there, and often removed weeds from the water whilst resting one knee on the lip! On its way back from the neighbour's dam it paused in the long grass, lifted its head quite high, got its bearings and returned to the pond. It has never shown the slightest aggression toward us.

Red bellies are infrequent visitors. We have seen only five in the years we have been here. Again they have never felt threatened even when we were very close. They are quite simply beautiful to look at in full sunlight with bright red flanks under a glistening black back.

One visit from a forty centimetre long, nocturnal Small Eyed snake resulted in tragedy. It was also beautiful with a full cream underside and black back, but a cat crossed its path. The snake's head was neatly dropped alongside the body. One sighting in fourteen years!

For us, sharing with native animals is what Land for Wildlife is all about. Snakes are an important part of that environment and we have done everything possible to encourage them to reside with us, even very close to the house.

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Saving The Black Sheoak

Email letter from Margaret Moloney, Land For Wildlife Member, Mansfield

Hi Peter, Thank you for my newsletter which I was able to access and read easily, and I am no technology expert! So you did well. I was thinking if you are ever looking for another story about a "citizen scientist", I have a covenanted 30 acres which has the rare Black Sheoak (*Allocasuarina littoralis*) growing amongst the rocky climb up to the Blue Range escarpment, 8 km out from Mansfield, which has public land up on top. My Land For Wildlife provides a safe passage for wildlife down to dams and water holes.

I collected seed from my sheoaks with my grandchildren. Then we put the nuts (not sure what you call them) on a white plate above the heater. In a week the seeds had come out. I planted these in tubes, watered them in Summer and they grew. I was surprised that the little shoots were young sheoaks, as I have never done anything like this before. In late Autumn I made strong tree guards, as we have many deer and kangaroos in the bush, and planted 18 small sheoak trees out in the "Land for Wildlife" bush. It is nearly spring now and the young trees look healthy and ready to take their place in my bush.

I hope you received my notes and photos of my efforts to increase the rare Black Sheoak on my 30 acres of bush.

I have built a "hide" in the bush and it is so good to see the native animals going past paying no attention to the hut.

Also I'll send you a photo of the view from my bush. One is early morning and the other is of Mt Buller from my place. Very special to me.

Editor's Note: Seeds from Casuarina and Allocasuarina seed pods (or fruit) can also be extracted by putting them in a paper bag and allowing them to dry on a window sill in the sun. Below are seed pods from Margaret's collection, with the extracted seed in the image below left.

For more information about growing native plants, visit The Australian Plant Society Victoria website.

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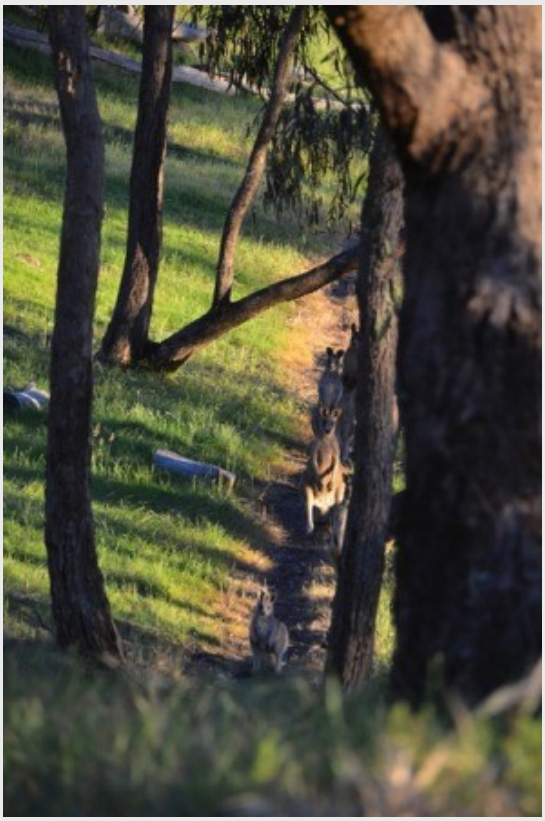
When my 30 acres was put under a Conservation Covenant, I was given permission to construct one cabin in the bush. I decided on a cattlemen's hut in keeping with the High Country, where I live. The front windows are old, recycled to fit in with the theme, but the side windows are big and open and it is amazing what you see. I do have a fireplace and beds up there.

At night it is never silent. The first night I took my 6 year old grandson up there for a sleep-over. We saw kangaroos, a wallaby, many varieties of birds. So much to talk about with him. He wondered why the kangaroos were in mobs, yet the wallaby was alone. He wondered why the magpies were the first to call in the morning, followed by the kookaburras. Such a beautiful time together. *Regards, Marg*



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The Victorian Biodiversity Atlas

What is the Victorian Biodiversity Atlas or VBA?

The Victorian Biodiversity Atlas (VBA) is a web-based information system managed by the Department of Environment, Land, Water and Planning (DELWP) and is designed to manage information about flora and fauna in Victoria. The system includes species information, including origin and conservation status, along with more than six million records of species distribution and abundance from long-term surveys and general observations. The VBA replaces several of the Department's older systems, including the Flora Information System, the Atlas of Victorian Wildlife, the Aquatic Fauna Database and the VROTPop system.

The VBA is now available for the public to share information about the distribution and abundance of species in Victoria. All data collected feeds into habitat models. It assists in managing the large volume of species records collected as well as allowing contributors to manage their own records. The VBA also includes automatic processes to verify the accuracy of the data and apply new taxonomic updates.

Which species are included?

The VBA encompasses vertebrate and invertebrate animals, fungi, vascular and non-vascular plants from terrestrial and aquatic environments, including marine waters to the three nautical mile statutory limit. It includes both native and naturalised exotic species (including weeds and pests) but is not intended to hold data on cultivated or domesticated species.

How do I get access?

The VBA is available now and can be accessed via your web browser. No local software installation is required. Several levels of access will be available: the general public will have access to basic information; registered users will include view only users and data contributors. Click here to access VBA. (You can "test" the system by logging in as a Guest.)

Can I see all the data?

VBA restricts access to some species location data in order to prevent illegal taking or destruction. Examples of restricted data include breeding sites for some parrots, which might be targeted by egg collectors. These data are however made available to decision makers to ensure that these sites are protected as far as possible from inappropriate land use or development.

Adding Species Records

Central to the VBA is the database of the distribution and abundance information on the native and introduced species of both flora and fauna in Victoria. This has mandatory fields which are required to ensure the records can be collated into the one system.

Image:

Margaret Moloney, Mansfield

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Searching and Reporting

Anyone can query the VBA. As a Guest you can see summary species lists for any area of interest. Registered users can also access the detailed reports with full record information for everything published in the VBA except the restricted taxa, for which permission is needed.

Correcting Data Errors

The data in the VBA comes from many different sources and this will often be the first time that a contributor will be able to see and query all their records previously submitted, making this is a great opportunity to check all your information. The commonest errors occur due to transcription mistakes, when a digit has been missed out or entered incorrectly, resulting in the wrong location or taxon ID being used.

The VBA is not an identification tool

There are currently no images or species descriptions in the VBA. Websites such as the Museum of Victoria the Australian Museum and the Atlas of Living Australia all have many flora & fauna images. In addition, there are some informative websites such as Birdlife Australia's Birds in Backyards, and Viridans Biological Databases has a comprehensive collection of flora and fauna information products covering Victoria.

The importance of plant and animal records

In order to have an understanding of plants and animals and their requirements, we must firstly know how many (abundance) and where they are usually found (location). Other information needed includes date, time, type of habitat and landscape, and if possible any other species observed at the same time. This is important for all common species as much as it is for rare species. If a common species was to become rare for some reason then we need to have historical records (natural history) in order to understand its requirements. This then helps with species recovery efforts.

Who records species abundance and distribution? Field Naturalist Clubs exist and are one of the main contributors to our understanding of plants and animals, especially at a regional level. Another group of people who make daily observations of plants and animals, and who have a close association with the landscape on a daily basis, is farmers. Of course, many urban residents are also very observant and may notice different plants and animals while out and about.

Our understanding of species distribution and their management relies upon the observant eyes and ears of farmers, field naturalists and any other observant person. Keep an eye open for plants, birds and other animals and if possible make a note of the species, the date and time you made the observation.

Do this on a seasonal basis and you will build up a picture of changes over time. Eventually, you will have a living record of natural history in your region. This can then be a useful monitoring tool for Farmers, Landcare Groups, Schools, and Landscape Planners to design conservation programs such as Habitat Restoration Works, Whole Farm Plans, or tree planting projects.

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Invertebrates-The Other 99%

Invertebrates are the 99% of fauna which we notice least often and are perhaps the most important. Invertebrates are animals without backbones. That is, they do not have an internal skeleton but instead wear their skeleton on the outside. Regular shedding of their exoskeleton means they can grow as they out-live their old one. Invertebrates include the more popular species like butterflies, dragonflies, honeybees, beetles, crayfish and worms. But many invertebrates, such as spiders, flies, termites, ticks, scorpions, slugs, snails, fleas, and lice trigger negative feelings of dread or aversion. Yet, less than 1% are economic pests capable of causing damage to crops or medical problems to humans.

Ecological Functions

The various roles of invertebrates are reflected in the multitude of ecological functions in which they participate. About two thirds (65%) of all plants depend on insects for pollination, with this figure rising to 80% for plant species cultivated for fruit, vegetables, or other off-farm products.

The general importance of invertebrates to provide "biodiversity services" such as pollination, are generally overlooked. This is primarily due to their small body sizes and lack of information about most species. Many groups of invertebrates play vital roles in the control of populations of insects and other invertebrates. Some invertebrates are predators, actively hunting and feeding on their prey. Others, especially wasps and some flies, limit numbers of various pest invertebrates by laying eggs in the immature stages of their hosts. The larvae of these parasites develop by feeding on the host and then emerge as adults to seek other hosts.

Conservation of Invertebrates

Try becoming more aware of the invertebrates around you. Many ground dwelling invertebrates rely on a diverse leaf and twig litter layer for shelter or survival. Minimising disturbance to remnant native vegetation, such as farm woodlands or grasslands and leaving fallen timber, will assist in maintaining invertebrate populations and the functions and services they provide. Click on the following link to see a useful identification website for Australian insect families titled What bug is that?, by CSIRO.

Wildlife Health Surveillance Victoria

Dear Land for Wildlife Members,

I'm keen to talk with regional community groups about Wildlife Health Surveillance Victoria as LFW members are important in observing and informing us about wildlife mortality and disease events. We have very limited baseline knowledge of the diseases that affect wildlife species. This is because very few wildlife mortality (death) or morbidity (sickness) events have been reported and investigated.

Please let regional groups know I'm happy to talk and they are welcome to contact me. Information is available from our website — click here to access (please forward to anyone you think may be interested).

Thanks for your help, my best wishes, Pam Whiteley

Wildlife Health Surveillance Victoria, Faculty of Veterinary Science, University of Melbourne.

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Know Your Habitats

Below is a convenient table I have done for LFW members & friends to help in recognising the types of habitat used by both land and freshwater wildlife. Hopefully, it is useful in understanding where wildlife live and in developing your habitat restoration plans. Hope it is useful, Peter Johnson.

	Habitat Component									
Fauna Group	**Ht**	**Hg**	**Dt**	**Lb**	**Ds**	**Sb**	**Ro**	**Cl**	**Av**	**Ah**
***Mammals*:**										
Small terrestrial (<2kg)	X	X	X	X	X	X	X	X	X (1)	X (1)
Large terrestrial (>2kg)				X	X		X			
Bats	X		X						X (2)	
Arboreal (e.g., tuan, gliders)	X	X	X	X	X					
***Birds*:**										
Terrestrial (includes raptors)	X	X	X	X	X	X	X	X	X (3)	X (3)
Aquatic	X		X						X	X
Nocturnal	X		X		X					
***Reptiles*:**										
Terrestrial	X	X	X	X		X	X	X	X (4)	X (4)
Aquatic (ie. tortoises)									X	X
***Frogs*:**										
Adults	X (5)	X	X (5)	X	X	X	X		X	X
Tadpoles	X (5)		X (5)						X	X
Inland Fish (includes eels)									X	X
***Invertebrates*:**										
Terrestrial (incl. aerial spp.)	X	X	X	X	X	X	X	X	X (6)	X (6)
Aquatic									X	X

Examples of Habitat Components		**Supports wildlife such as:**
Ht	Hollows in live trees	Tuan, bats, birds, possums, gliders
Hg	Hollow logs on ground	Antechinus, reptiles, echidna, invertebrates
Dt	Dead standing trees with hollows	Reptiles, bats, birds, invertebrates., tuan, possums
Lb	Litter, fallen bark and tree debris	Invertebrates., tuan, reptiles, Antechinus, echidna
Ds	Dense shrubs and ground plants	Possums, gliders, small birds, invertebrates
Sb	Sandy soils with bare patches	Mammals, reptiles, burrowing frogs, invertebrates
Ro	Rocky outcrops/sheets/piles	Reptiles, frogs, invertebrates
Cl	Cliffs with ledges, cracks and holes	Raptors, reptiles, swallows, invertebrates
Av	Submerged /emergent live plants	Frogs, waterfowl, fish, invertebrates
Ah	Submerged snags/fallen trees/rocks	Fish, cormorants, inverts., tortoises, frogs

Notes:
1. Water-rats shelter or hunt for food items in reeds, on mud flats and submerged logs.
2. Several species of bat forage and drink from water bodies.
3. Many raptors hunt over water and some small birds such as reed warblers utilise thick reed beds.
4. Several species of snake and lizard hunt or shelter in or around water bodies.
5. Many species of tree frog deposit their eggs in hollows filled with water.
6. Many types of terrestrial invertebrates have an aquatic life stage.

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Preparing for Fire

By Jim Kerr, Land For Wildlife and Volunteer CFA Member, Sarsfield

As LFWL'ers, we try to do our best to guide and improve our properties to achieve an original environment. However the bushfire events of the last decade have shown the weaknesses of some of the best intentioned efforts: fires have tended to become so much hotter, faster and more destructive that areas of significant environmental changes have resulted – probably permanently. The lesson from this is that the establishment of what is hoped to be, or eventually become, a satisfying result, can all be as ashes unless simple precautions are included in the plan, or remedial action taken.

And of course, your personal property/responsibilities – house, family, animals, sheds etc. are an integral part of the picture. In the management of your property a fire of any sort is always possibility which must be planned for. You can't run and you can't hide. So what to do?

The Country Fire Authority (CFA) is the best place for you to go to find out "What To Do" and "How To Do It". With summer fast approaching a prompt effort will obviously be to your benefit. Your local Fire Brigade Officers will be pleased to help – keep an eye out for their Open Day if they have one in your area or make personal contact. Your local CFA District Office can also help.

The CFA website is a great place to access a wealth of important information, with the 'Plan & Prepare' section (cfa.vic.gov.au/bushfire) full of helpful information. If you want to download any of the helpful publications developed by CFA, the 'Publications' area of the website (cfa.vic.gov.au/publications) will give you access to a whole range of publications; which ones are specific to your case, you decide. Some are a must – "CAN I - CAN'T I" "KNOW YOUR TOTAL FIRE BAN DISTRICT" and "FIRE DANGER RATINGS" should be understood by all the family. No web access? Contact your local CFA District office. Or call the Victorian Bushfire Information Line (VBIL) on 1800 240 667 and they will send some out to you.

Jim Kerr

CFA has a wide range of publications to help you plan and prepare for fires ALL year round.

http://www.cfa.vic.gov.au/about/publications/

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The Impossible Dream

By Geoff Newton, Land For Wildlife Member, Kyneton.

27 years ago I received a $10,000 property settlement, I wanted to invest in land and not blow my money, after looking in the newspaper, I found this block of land for $19,000 it was the cheapest on the estate zoned for Rural Living, the land was completely void of any vegetation, apart from the natural grasses and weeds, for the length of the land there was a damp patch with some reeds growing either side along the centre of the land in a slight gully. I spoke to State Rivers and EPA about the possibility of constructing a dam towards the front of the land, and we met on site, neither had an issue. I then had a dam constructed, I wanted a fairly large body of water as I loved the water concept and the idea of attracting wildlife.

In the summertime the dam was completed, and every Saturday I would come to the dam and watch a little puddle of water increase in the bottom of the dam from underground springs. I wondered how big this dam would be once it was completed, as I wanted something substantial, one Saturday I arrived at the site not long after a storm developed, I went into the main Township and had a coffee (cappuccino's were not in vogue at that time) when I came back to the site the dam was filled and I got the shock of my life as the water extended from the front to the back of the land, I didn't realize it was going to be so big.

I started planting native vegetation including trees, as the trees and vegetation grew, the wildlife was attracted, all types of birds, including ducks and other water birds came in, for the first time two parent swans came in with three cygnets they all then played their part in dropping aquatic vegetation and fish eggs, all starting developing and growing.

A freeway was then constructed at the rear of my property, I was concerned about pollution from vehicle engines as the water from the freeway was directed through my property, I build a biological filter which oxygenated the water and trapped all sorts of waste dropped from vehicles; I built another filter at the exit from the dam.

I had the water tested and found that the water from my rain tank, the dam and a bore were of a similar quality. I suspected the dam/lake was of good quality because of the amount of fish breeding in the water the aquatic vegetation and the ducks breeding every year.

I watched as the years quickly went by, watching the development of the land, from nothing, to what can been seen in the photographs, something I am very proud of, and, became my impossible dream.

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Box-Ironbark "Mothymatics"

This fascinating article was provided by Stephen Williams. Stephen has been studying moths in central Victoria (mostly on his Land for Wildlife property), for the last 5 or more years. It's a lengthy read but worth it!

Winter is a time to curl up with a book in front of a fire but this comfortable state is not shared by some of our wildlife! Indeed now is the time when some of our native moths come into their own. In particular there is a group in the sub family Ennominae that have been waiting as pupae from late spring, through all the heat of summer and early part of autumn to finally emerge and mate.

For us, the wait is worthwhile because among these are some particularly beautiful and clever things like the Satin Moths (see figure 1).

To avoid the searing heat of summer they pupate in spring and bury themselves in the litter or upper layer of the soil, providing insulation. They emerge to lay eggs in winter and grow during spring before repeating the cycle. Not all of the pupae will emerge in the first autumn or winter and some stay in the litter and soil for a number of years. This likely explains when conditions are ideal when some species emerge in large numbers.

Figure 1.
***Thalaina angulosa* – Satin moth (female)**

Figure 2. *Amphiclasta lygaea* mature moth

Figure 3. Red Box bark showing sap and eggs

Within the bounds of this broad pattern each species has its own idiosyncrasies that confer various forms of competitive advantage, whether this be for protection or adaption to the biology of its host. A good example is the moth *Amphiclasta lygaea* (see figure 2).

This moth emerges in July and August and flies for several weeks. After it mates the mother hides its eggs in the micro-cracks in the flaky bark of its host the Red Box (Eucalyptus polyanthemos). The eggs are initially a pale lemon colour but over the first few days this deepens transitioning through orange to deep red. After about three weeks the eggs become dark purple just before the larvae hatch. Interestingly these colour changes largely mirror those that occur in the tree sap that can infiltrate the same cracks in the bark that the moth exploits (see figure 3). So even in the egg phase this animal is supremely adapted to the host.

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By flying in the middle of winter this ensures the eggs hatch and they have the greatest chance of coinciding with the first spring flush of new growth in the host. Because eggs are laid in the rough bark that occurs on the trunk and main branches further down the tree when the larvae hatch they are very active, highly dispersive and will only climb upwards.

This behaviour is programmed into the larva so that they climb to the top and extremities of the tree to feed only on the young growth. Early growth of Eucalyptus usually has higher concentrations of poisonous compounds so only larvae that are well adapted to cope with these can survive on this fare. A. lygaea larvae consume the young growth through all phases of their development. Consequently it is likely that they remain at the extremities of branches until they are ready to climb down to the ground to pupate.

As the rough bark preferred by the mother is usually found on larger mature trees presumably these are colonized over small regrowth. Both factors undoubtedly contribute to the reason that there have been no recorded sightings of the larvae in the wild (ie being located high in the canopy on larger trees puts them out of casual reach). On the juicy new growth the larvae grow extremely rapidly and reach about 50mm in around 1 month. Their early stages resemble small brown dead leaf stalks or twigs but as they grow they become a mottled green, grey and brown that exactly mimics small living twigs and branches.

Figure 4. *Amphiclasta lygaea* larvae colour forms

When the time comes to pupate many of the mature larvae may change colour to a dark purple and presumably this matches better with the ground layer where it will pupate. However not all undergo this change and some remain green (see figure 4 above).

The two colour forms potentially enables at least some larvae to initially match the ground whether it has green plant cover or dead leaves. By October all of the larvae will have pupated and be safely burrowed under the leaf and litter layer where they will be protected. The litter under larger old growth trees is significantly deeper than under newer re-growth forests so being adapted to colonize large mature trees would advantage the moth. However regenerating forest is probably less suitable and may explain the moth's current relative rarity (in the Box Ironbark Forests). The pupa remain in the litter for at least 8 months but can stay this way for a number of years. This moth usually occurs in low numbers but in the winter of 2010 flew in significantly larger numbers at a range of locations across the state. Presumably pupae that had accumulated in the litter over a number of years responded en masse to climatic triggers (this was the year the Victorian drought broke).

Moths are an extremely important food source for a range of insectivores, particularly bats and other insects. There are only a few predatory moth species while most eat plant material, lichens, fungi and discarded animal hair, feathers and scats. In the ecosystem and from a predator's point of view their major function is to convert these materials into animal protein. Unlike many of the other insect orders there are always some moth species at every stage of development at every time of year. So a good diversity of moths ensures some are always flying around for nocturnal predators who prefer to take prey on the wing like bats.

What was astounding when I first began to seriously study these creatures around five years ago was how little was known about their biology. There are priceless collections of mainly adults in insect collections such as the Australian National Insect Collection (ANIC) in Canberra and State museums. These are invaluable references for the systematic description of the moth species but give more limited insight into their biology.

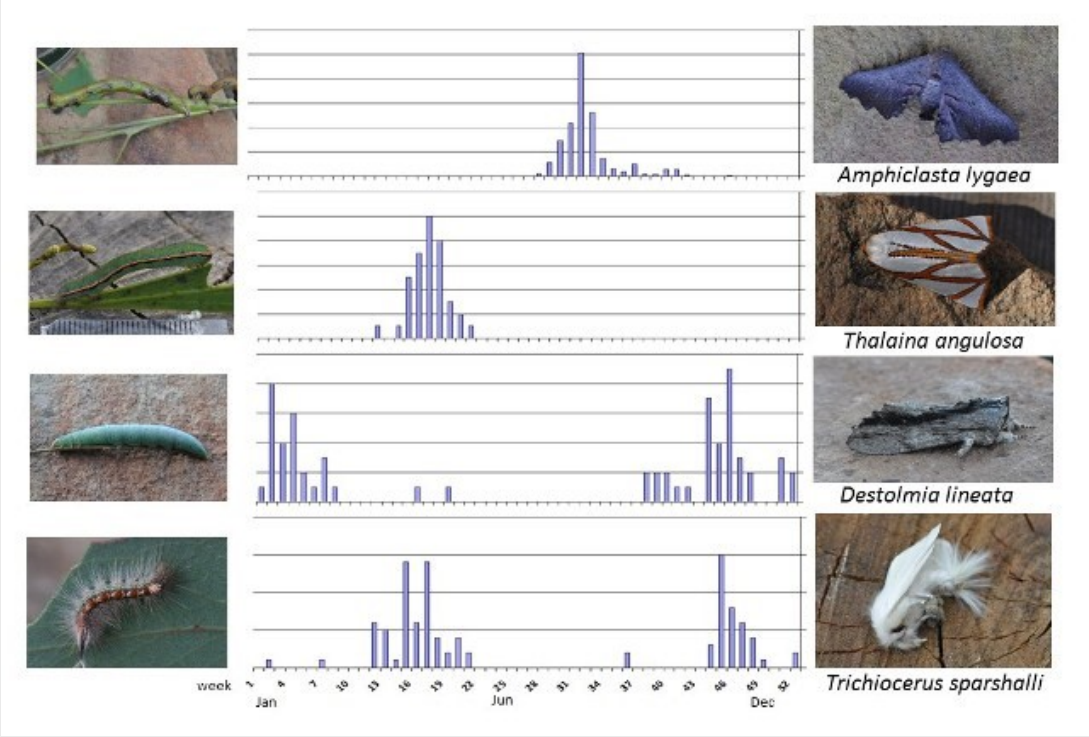

Figure 5. Examples of the variability in adult flight activity for a selection of moth species.

There are still large gaps in our knowledge of what larvae eat and where and when the various stages in the life-cycle are in our native remnants throughout the year. This represents a fundamental knowledge gap for the bulk of our native invertebrates but most particularly for moths as most stages, except the adults, are extremely well hidden. Consequently the more usual form of research that is based on limited surveys often fails to find the moths in their early life stages.

This is where citizen science comes to the fore. For the last five years we have been monitoring the moths associated with a large adjacent box-ironbark remnant. This is only possible because we live essentially in-situ with the remnant. The result is we now have nightly and daily data on the annual activity patterns for the adults of over 600 species of moth (some sightings are new species or represent the first record of the species in Victoria). This data shows that each species can have quite different and often specific periods of adult activity (see Figure 5 above).

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There are a number of very interesting findings and insights emerging. Firstly it is becoming apparent that every plant (living or dead) or lichen and many fungi in our native remnants is likely to have at least one moth that is adapted to utilise it as food. The implication is that increasing plant diversity in remnants will almost certainly help promote moth diversity and consequently will better support insectivores. Additionally, it is expected that more mobile insectivores such as woodland birds would prefer areas at the margins of degraded re-growth remnants particularly where re-vegetation is occurring, because these areas usually have higher floristic diversity and hence more diverse and sustained invertebrate populations.

Figure 6. Idaea pseliota & Idaea inversata are both now known to eat living, dead and decaying gum leaves

Another finding is that the great majority of moth species utilize the shrub and/or litter layers for significant periods during their life-cycles. Even those species feeding on the foliage of large gums and wattles will more often than not pupate for the greater period of their life-cycle down in the litter layer. Additionally, a large number of moths actually live and feed in the litter layer on dead leaves (usually eucalypt) and the rearing studies have newly identified species that are now known to be at least partial if not full detritivores (see figure 6 above).

Figure 7. *Cymatoplex sp.* The rare and stunning Emerald Moth appears to be largely restricted to Central Victoria where it spends its whole life cycle (except when flying) on its host drooping cassinia (*Cassinia arcuta*). Click here to read more about searching for the elusive *Cymatoplex* moth.

While some species will live their whole lives in the shrub layer (see figure 7above), a substantial number of others feed on herbs and grasses, particularly in spring when these tend to be growing actively, and then pupate in the litter before the heat of summer.

Stephen has made a significant contribution to our understanding of moths. In “Moths of Victoria, Part 5—Satin Moths & Allies”, Stephen has provided a substantial amount of knowledge. Copies are available from the Entomological Society of Victoria.

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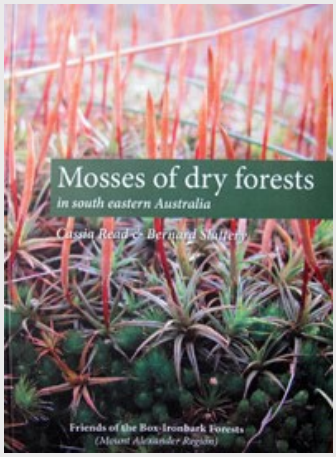
Recent Publications



Moses of Dry Forests in South Eastern Australia, is a guide for students and absolute beginners – technically accurate, but free of technical language – this is an attempt to present a little known part of the plant kingdom to a new audience.

There are dozens of species described, most with multiple illustrations. See sample page below.

The guide contains an introduction explaining the life cycle of mosses and their importance in the ecosystem; tips on how to approach identification; detailed descriptions of common, striking species; and appendices carefully distinguishing mosses from liverworts and lichens.

Available from Friends of the Box Ironbark Forests. Click here for more information. Or copy and paste the following url into your internet browser: http://www.fobif.org.au/mosses-of-dry-forests-book/

Wildflowers of the Brisbane Ranges contains magnificent photographs of more than 400 species, many of them orchids, including rare and vulnerable species such as the Naked Sun Orchid (*Thelymitra circumsepta*) and the Hyacinth Orchid (*Dipodium pardalinum*).

The Brisbane Ranges area, situated 80 km west of Melbourne and 30 km north-west of Geelong, is extraordinarily rich in diversity. With basalt grasslands, heathy woodland, alluvial soils, buckshot gravel and granite rocks, it boasts more than 430 species of native plants.

This full colour guide is the culmination of more than a decade of painstaking observation. It will help both the casual visitor and the keen naturalist to locate and identify an extensive range of wildflowers from this exceptional part of Victoria.

Available from CSIRO Publishing. Click here for more information. Or copy and paste the following website address into your internet browser: http://www.publish.csiro.au/pid/2532.htm

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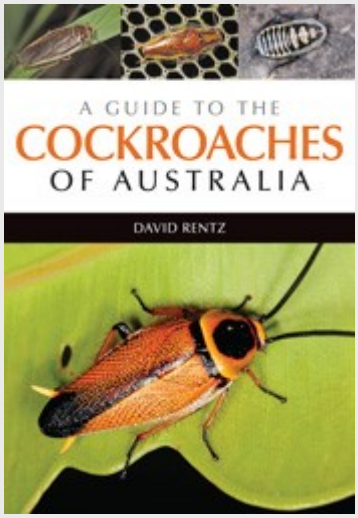
Recent Publications



Cockroaches! Even a mere mention of the word causes many people to recoil in horror. However, of the hundreds of species of cockroaches (or blattodeans as they are known) found in Australia, only a small number of them give the group a bad name.

A Guide to the Cockroaches of Australia is a comprehensive account of most of the 550 described species found in Australia. The book reveals their diversity and beauty, it looks in detail at their morphology, habitats and ecology. Importantly, it will allow pest controllers, students and researchers to reliably identify most of the common pest species as well as the non-pest cockroaches.

2014 Whitley Award Commendation for Field Guide

Available from CSIRO Publishing. Click here for more information. Or copy and paste the following website address into your internet browser: http://www.publish.csiro.au/pid/6710.htm

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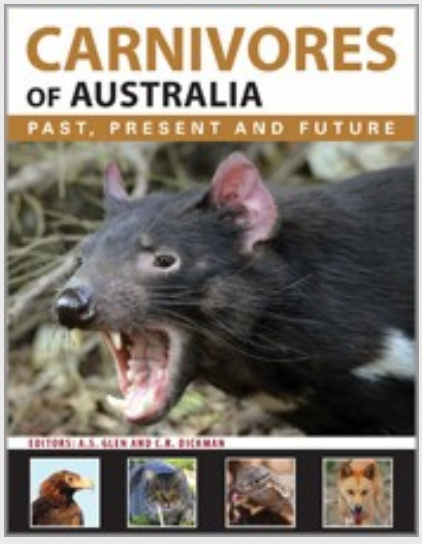
Carnivores of Australia: Past, Present and Future explores Australia's unique predator communities from pre-historic, historic and current perspectives. It covers mammalian, reptilian and avian carnivores, both native and introduced to Australia. It also examines the debate surrounding how best to manage predators to protect livestock and native biodiversity.

The Australian continent provides a unique perspective on the evolution and ecology of carnivorous animals. Since European settlement, Australia has seen the extinction of one large marsupial predator (the thylacine), another (the Tasmanian devil) is in danger of imminent extinction, and still others have suffered dramatic declines. By contrast, the fox and cat have had devastating impacts on the Australian fauna.



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LFW Properties For Sale

312 Alternative Calder Highway, Lockwood South

We have decided to downsize and so our lovely property is on the market.

The house (western red cedar, verandas all round) is situated on approx. 38 acres. There are 8 paddocks, two of which have 6 foot fences. One paddock is planted with Iron Barks and another designed to mimic a grassy woodland. The Bullock Creek frontage has many superb old red gums.

There are three dams, hay shed, workshop and two garages. Water supply includes 20,000 gallons of tank water, and a 3.9 Mega-litre entitlement.

Home features 2 very large living/dining spaces, 4 bedrooms with robes, 2 bathrooms, plus walk-in robe. Floor area approx.182 sqm.

There is a 1.5 Kw solar power and a solar hot water system. Gardens include an orchard, large vegetable patch, paved outdoor areas and set among a large range of native shrubs.

There is abundant bird life and beautiful views from all directions.

Asking price : $689,000

Click here to contact the owners by email for more information
Or phone: (03) 54353372

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LFW Properties For Sale

30 Mountain Avenue, Frankston South

Reminiscent of a magical mountainside chalet, this 4 bedroom A-frame home is truly one of a kind. Set among 2710sqm (approx) of natural habitat lovingly preserved under Land For Wildlife guidelines, the home's dramatic design and fabulous elevation takes full advantage of tranquil views through the treetops to the distant bay, while the incredibly solid coach brick and timber build combines a wonderfully rustic feel with an indisputable hand-built charm. Features include split-level formal lounge and dining, updated timber kitchen/meals with walk-in pantry, mezzanine master retreat, built-in beds to family bedrooms, GDH, OFP, split-system heating/cooling, double carport & double garage.

Posted by :

Deb Ketting-Olivier
Community Real Estate Pty Ltd
Mt Eliza

Price Guide : $530,000 - $580,000

Contact : John Young 0412 766 804

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Resources & Events

Statewide Integrated Flora and Fauna Teams (SWIFFT)

SWIFFT aims to maintain and develop knowledge and skills in relation to the protection of threatened species and biodiversity across Victoria.

How to Participate:
You can attend quarterly SWIFFT video conferences held around Victoria. Contact your local LFW Extension Officer for your nearest centre to participate. Book early as seating is limited.

Meet the Maremmas on Middle Island, Warrnambool to the end of Jan. 2015 - various dates/times.
Get up close to the Middle Island Penguin protectors - the Maremmas. Cost: $12 Adult, $10 Concession, $6 Child, $30 Family

Information: 1800 556 111 http://www.flagstaffhill.com

Friends of Box Ironbark Forests Bushwalks 2015
(go to http://www.fobif.org.au/walks/)

Third Sunday of the Month Walks
We meet at 9:30am outside 30 Templeton St, Castlemaine and carpool to the start of the walk. Bring water, morning tea and lunch for all walks. Walks normally finish mid afternoon. Non-members welcome. No cost.

City of Manningham Environmental Seminars and Field Trips, 2015

Many of these seminars are complemented with field sessions to facilitate broader education on the topics. Bookings are open now.
Seminar Venue located at Warrandyte.
Time: 7.30 pm
Information: Lyn Meredith on 9840 9326.
Bookings: Natalie on 9840 9124.

Phone the Department of Environment, Land, Water & Planning on the following freecall number if you have any questions relating to natural resources and the environment: **136 186**

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