

# New s l e t t e r

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## 2014-15 City of Melbourne Urban Bioblitz – a summary

During October and November 2014, the City of Melbourne conducted its first Bioblitz in partnership with the Entomological Society of Victoria (ESV), Museum Victoria, RMIT, the Royal Botanic Gardens, Australian Centre for Urban Ecology, and the University of Melbourne. The Melbourne Bioblitz was a citizen science project using social media and other means to produce a species inventory of the city.

The objectives were to:

- Raise awareness of the biodiversity within Melbourne and educate the community about its value;
- Attract a high level of community participation;
- Produce a species list for Melbourne that can assist with the development of the Urban Ecology and Biodiversity Strategy;
- Encourage community members to contribute to the development of the Urban Ecology and Biodiversity Strategy; and
- Establish relationships with a diverse range of biodiversity experts and interest groups to verify sightings.



Members of the public viewing the light sheet at Fitzroy Gardens

Previously, 500 animal species had been identified in the entire greater Melbourne area, and the 2014 Bioblitz added 285 new taxa, including 92 new arthropod species. Of these arthropods, 37% were Lepidopterans, 22% Hymenopterans, 20% Coleopterans and 4% spiders.

The fifteen days of events commenced with a launch at Fitzroy Gardens and media during the campaign reached an audience of 1,170,805 people. Sightings were also posted on Twitter and Instagram, with the hashtag #bioblitzmelb. The events focussed on Royal Park, the Royal Botanic Gardens, Fitzroy Gardens, Treasury Gardens, Birrarung Marr, Flemington Racecourse and Westgate Park. Over half the records were contributed during days when official events were held, suggesting



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these were an excellent way of pairing the general public with experts, and encouraging record-gathering.

Bowerbird, Museum Victoria's dedicated portal, allowed all participants to upload data and for the data to be verified by experts and knowledgeable community members. Of the 3,000 sightings uploaded, 1,566 included species names and location data, and 750 have been verified to the level where they have been further uploaded to ALA (the Atlas of Living Australia). Sightings were made by partner organisations, a range of experts, members of the general public and City of Melbourne staff – of those made by experts, the great majority were resolved to species or subspecies level, a proportion much higher than those made by the public.



A Eucalyptus Longicorn (*Phoracantha* species) from under bark at Westgate Park.

Over 50 guided walks were conducted during the Bioblitz, including two nights of light sheeting by ESV members in Fitzroy Gardens and Royal Park. The arthropod records (insects, spiders, millipedes and centipedes) represented 23% of all entries, and other than the butterfly records, all these sightings were new to the City of Melbourne. The dominant orders sighted during the Bioblitz were Lepidoptera and Diptera, far more dominant than other animal groups, including birds. This was perhaps due to the large number of species of moths and flies recorded at the light sheets – at Fitzroy Gardens, for example, the sheets close to the creek were almost black with adult chironomids. Overall, the public sightings focussed on the higher profile groups, such as birds, butterflies, moths and bees.



Gumleaf Skeletonisers (*Uraba lugens*), common in the gum trees in the Australian Garden at Royal Park

The greatest concentration of sightings across the City of Melbourne area was in Royal Park. This area is perhaps the 'wildest' area close to the CBD – in addition to the hectares of recreational lawn, there are lakes, swampland, stands of eucalypts, patches of untended bush, and the diverse Australian Garden. The ESV light sheets attracted not only moths and flies, but beetles, bugs (Hemiptera), caddisflies, lacewings, wasps (mostly *Netelia* species), mantids, and even the odd katydid. The species voted the most interesting find across the entire Bioblitz was a Lantern Fly (*Rentinus dilatatus*) from Ken Harris' light sheet at Royal Park. Forty one species of insects from Royal Park alone had not been recorded in the City of Melbourne previously. Somewhat reassuringly, the great majority of arthropod species recorded during the two-week period were native to the Melbourne area.

From the perspective of species records and diversity, the Melbourne Bioblitz generated



The Lantern Fly (*Rentinus dilatatus*) from Ken Harris' light sheet, vote the most unusual find from the 2014-15 Urban Bioblitz



Wendy, Peter and friends at Fitzroy Gardens. Several dozen members of the public filed past through the evening to view the array of insects attracted by the light sheets

important new information about the species present across the municipality, particularly at sites where no information had previously been collected. The Bioblitz also produced a number of benefits regarding public participation:

- Exposing the community to the biodiversity that provides them with ecosystem services;
- Creating and affirming an intrinsic value for nature through involvement and engagement personally with nature in the local surroundings. Creating a sense of place and ownership of the value of biodiversity within the participant's community space;
- Providing an opportunity for the community to utilise their skills and knowledge by enabling participative surveying and lead the way to decision making to conserve and enhance the biodiversity and habitat opportunities within the municipality.



A Sac Spider (*Clubiona robusta*) from under bark at Westgate Park

Based on the success of the 2014 event, the

City of Melbourne is gearing up for the next iteration in March 2015. An intensive 24 hour BioBlitz event will be taking place at locations across the city on the 4th and 5th March 2016. The ESV has again been asked to participate, so watch this space for further details.

*Adapted from:*

*Dr Amy Hahs, June 2015, Bioblitz 2014 Data Analysis and Mapping Report, Australian Research Centre for Urban Ecology and Royal Botanic Gardens Victoria Melbourne BioBlitz 2014 (for Urban Nature Strategy Chapter)*

This years' events will follow the same format as the previous Bioblitz, with daytime surveys and evening light sheets in a range of parks around Melbourne. Once again the CoM is asking for help from ESV members – if you'd like to participate please contact Patrick Honan, ESV President, at [president@entsocvic.org.au](mailto:president@entsocvic.org.au), and keep an eye out for email notices.

### *ESV Calendar 2016*

#### **Tuesday 18 February 2016**

Members' Night

#### **Tuesday 15 March, 2016**

Council meeting, Melbourne Museum

#### **Tuesday 19 April 2016**

AGM and presentation by Peter Nearhos, Firefly Films, award-winning wildlife cinematographer

#### **Tuesday 17 May, 2016**

Council meeting, Melbourne Museum

#### **Tuesday 21 June 2016**

Martin Lagerwey, Leaf Beetles (Chrysomelidae)

#### **Tuesday 19 July, 2016**

Council meeting, Melbourne Museum

#### **Tuesday 16 August 2016**

Mid-year excursion

#### **Tuesday 20 September, 2016**

Council meeting, Melbourne Museum

#### **Tuesday 18 October**

Members' Night

#### **Tuesday 15 November, 2016**

Council meeting, Melbourne Museum

#### **December 2016**

Christmas excursion – Braeside Metropolitan Park

## From the archives

Wings and Stings  
Journal of the Victorian Entomological Society  
Volume 1, No.2  
February 1966

### Entomologist Once

*By Nancye Kent Perry*

This entomologist underwent compulsory retirement on marriage, and thereupon entered into an environment surrounded by books and people of a completely non-entomological character.

It was an act not far short of self-defence which motivated this solitary entomologist to being a book collection on her own account. The time previously spent in haunting second-hand bookshops in search of military books for her husband is now transformed to a source of interest and delight with the always present possibility of finding some rare Australian item. The thrill of chancing upon a scarce edition of some early Australian book carries one on from junk shop to jumble sale, from Opportunity Shop to Spring fete.

Only last week, whilst rooting in extreme discomfort through tumbled cartons beneath a laden trestle in a humid tent at a local garden fete, a discovery occurred which made the day worth while. This find consisted of two volumes, in good condition, of "Across Australia" by Baldwin Spencer and F. Gillen published in 1912 and priced at this fete at 1/- per volume.

The same books brought £12. at a recent Melbourne book auction and were quote at £22-10. in a Sydney catalogue in November. Another source of possible "gold" for the book collector of modest means or for one to whom the thrill of the chase is paramount, is the Book-Fair. Book fairs take place at irregular intervals throughout Melbourne and its suburbs and are usually located by watching the local papers and by the book collectors' grape-vine.

For the wealthy collector or for one with neither the time nor the inclination for lengthy

searching, book dealers' catalogues and book auctions provide the answer. The following list of prices asked in a dealers catalogue and paid at the F.G. Coles Australiana Auction in July 1965 for certain Natural History publications should be of interest to members of this Society.

Donovan, E., An epitome of the natural history of the insects of New Holland, New Zealand and New Guinea, 1805, £200

Cox, J.C., A monograph of Australian land shells, Sydney, 1868, £75

French, C., Handbook of the destructive insects of Victoria, Parts 1 to 5, Melbourne, £15

Frogatt, W.W., Australian Insects, Sydney, 1907, £21

Memoirs of the National Museum, Melbourne, no.s 1-22, 1906-1957, £50

Mosely, M.E. and Kimmins, D.E., The Trichoptera of Australia and New Zealand, London, 1953, £10-10.

Rehn, J.A.G., The grasshoppers and locusts (Acridoidea) of Australia, 3 vols., Melbourne, 1952-1957, £12-10.

Tillyard, R.J., The insects of Australia and New Zealand, Sydney, 1926, £42

Waterhouse, G.A., What butterfly is that? Sydney, 1932, £31-10.

Rainbow, W.J., A guide to the study of Australian butterflies, Melbourne, 1907, £3-10.

Waterhouse, G.A. and Lyell, G., The butterflies of Australia, Sydney, 1914, £32-10.

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Wings and Stings  
Journal of the Victorian Entomological Society  
Volume 1, No.2  
February 1966

### Progress?

*By R. Bell*

In the August issue of "Wings and Stings" a most interesting article on butterflies appeared,

written by David Crosby. This article is very informative because it tells where various species may be taken and more important, when. Most of the places were considerably distant and a collector would need the use of a car to visit the various localities.

I remember a time when I boarded a train – not having a car in those days – and within an hours' travelling I was in the bush collecting many of the species David Crosby mentions.

Until quite recently, areas in the foothills of the Dandenongs were well known for the many and varied species of butterflies to be found there, providing one knew exactly what month to go and this was only learnt, as in my case, by trial and error. Sometimes I came home with a box full of specimens but other times I could not find a single specimen of interest, simply because I went in the wrong month.

Within the Ringwood, Croydon and Bayswater area I have taken as many as eighteen different species over a season's collecting. Before one particular area "progressed" I would start off in October by taking *Argynnis hobartia cyrila* followed by the first of the "skippers" in November *Trapezites phiglia* while in the same month I have in the same locality taken *T.phigalioides*, *Dispar compacta*, *Signeta flammeata*, *Hesperilla donnysa patmos* and *H.ornata*.

In December I would return again where many of the "skippers" were still on the wing, but getting tattered by now and I would be sure of seeing various members of the Pieridae family, *Delia aganippe*, *D.harpalyce* and usually *Anaphaeis java teutonia*.

On the wing in January were the "browns" Satyrinae, *Heteronympha merope*, *Geitoneura klugi* and *G.acantha*.

In February I have taken *Trapezites symmopus soma* and in March *H.banksi*, *Oreixenica lathoniella herceus* and *O.kershawi kershawi*, this only leaving April when I was sure of finding females of *H.banksi* and odd specimens of *Tisiphona abeone albifascia*, *Pieris rapae* and of course the common grass-blue *Zizieria otis labradus*. When one considers that all these came from the same small area of roughly one

acre, within twenty miles of the G.P.O. it is all the more remarkable.

Within this distance of Melbourne I have also taken *Paralucia aurifer*, the other beautiful "copper" *Lucia limbaria* and the fringed blue *Neolucia agricola agricola* all in the same place in favourable years.

At Heidelberg I have collected *Danais plexippus*, *Z.labradus*, *D.chrysippus petelia*, *Precis villida calybe*, *D.compacta*, *Vanessa cardui kershawi*, *V.itea*, *Lampides boeticus* and the common migrant *Catopsilia pyranthe*. On one occasion I saw *Papilio anactus* feeding on the Buddleia, but due to my surprise at such a visitor, I was too excited to strike accurately and saw it fly gaily up and over the fence, gone forever.

In all these areas I have seen "progress" come and the butterflies have gone. One of my delights when in 1954 I came to Heidelberg was on a warm summer evening, to watch *Heteronympha merope merope* jostling for a place to feed on my shrubs, but over the years even this common butterfly has steadily decreased and only the odd specimen visits me now. So much for progress. In 1962 I took four *Eurema smilax* within a few weeks, truly a good year for this species.

Whilst I agree that a collector is likely to take more specimens by travelling afield, he may find it worth while to stay "in his own backyard". In this day of progress our near bush areas are fast disappearing but collectors may be rewarded as I have been with a series of the more common species of butterflies.

### ESV Council

President	Patrick Honan
Vice President & Excursion Secretary	Peter Carwardine
Hon Secretary	Vacant
Hon Treasurer	Joshua Grubb
Hon Editor	Linda Rogan
Past President	Peter Marriott
Webmaster and Facebook	Steve Curle
	Vivienne Curle
Councillors	Peter Lillywhite
	Maik Fiedel
	Steve Curle
	Ray Besserdin

## Meet your ESV Council

**Peter Lillywhite**  
Council member, ESV



Peter Lillywhite examines amblypygids, part of an extensive collection donated to the Museum Victoria Entomology Department by ESV member Laurie Cookson.

### **What's your earliest entomological memory?**

I made my first butterfly net at age five from a coat hanger and one of mum's old stockings. Probably caught cabbage whites feeding on capeweed in the backyard at Mt Waverley. In those days there was still a lot of bush and many people had native plants in their gardens.

I started building my own insect collection at 9 or 10 years of age, using shirt boxes and leftover polystyrene foam from the aluminium siding added to the side of the house that year, pinning them with mum's dressmaker pins. I bought Bernard D'abrera's 'Butterflies of the Australasian Region' at Charles Dickens bookshop in the city. It took me a year to pay it off – 5c or 10c per week. Coincidentally D'abrera is a regular visitor to the insect collection at Melbourne Museum, and visited the collection just last week.

### **When did you join the Entomological Society of Victoria?**

I joined the ESV as an 11 year old in form 1 at Syndal Tech. My science teacher found out about the society and put me in touch with Sue Beattie, who secretary at the time. This was also the year that the 'Wings and Stings' was replaced by 'The Victorian entomologist' (the cicada cover motive of which was designed by the newly elected society President, Charles McCubbin). I stopped going to meetings when I started working at the Museum, as, by this time, I also doing night school and other activities. My collecting dropped off for a while due to lack of time as well. The Museum also has a rule that staff can't have private collections at home if they are the same type as at the Museum, to avoid any conflicts of interest. I re-joined the ESV in 2004 and became a Council Member when asked by Peter Marriott about 11 years ago.

### **How did your entomological career pan out?**

When I was at school I decided I wanted to be in the Forest Commission and on 'Forest Day' each year, Commission staff would take two students from each school to Powelltown for a day in the bush. I managed to get on one of the outings and decided I didn't want to be a forester anymore, as they appeared to be basically tree farmers and not at all like the forest rangers portrayed on television.

I did biology at RMIT and was part-time in 1978 when I got a job there as a Lab Tech for the first year students. We were sampling freshwater bugs in the ponds at Exhibition Gardens (now Carlton Gardens) and I asked my boss where I could get a job doing this all day. That led to an interview with John Blythe at the head of the Survey dept. at the National Museum of Victoria, and after interviewing him for an hour, was offered one of two jobs. I started at the Museum on 26 February 1979 contracted to the Thompson River project. This looked at the effect of dam building on the freshwater invertebrates in the river. We had sites upstream and downstream of the dam site and I worked there for three and a half years during the dam construction.

In 1981 around the time Dr Alan Yen started at the Museum a permanent technical assistant position was advertised. I became a permanent member of the NMV as Alan's technician while still working on the Thompson Dam. Alan and I initially did terrestrial surveys on the Erinunderra Plateau and at Reefton. These projects grew and in 1985 we took on our biggest survey as part of the Land Conservation Council's study into the Victorian Mallee. We had 122 sites across North-west Victoria and we sampled them once every season for two and a half years. My role was to sort and identify invertebrate groups, to assist other staff with project design and dig holes. Charles McCubbin coincidentally, was also employed for a time in the survey department but had left before I arrived.

In the late 1990s, the now Museum Victoria was restructured again and I worked much of the time on the design of the new building and galleries. I was appointed as Laboratory Manager for this time overseeing the building of the Natural History laboratories at the new Museum. I was transferred to the Entomology Department in 2001, where I'm still today, now senior collection manager. It is hard to believe that it has been 36 years since I started at the Museum.

### **What was your best find?**

In April 1991 I rediscovered an extinct species – the Otway Stonefly (*Eusthenia nothofagi*) – but it was a short-lived event. One day I was taking my two young sons on a nature walk through Melba Gully in the Otways and was pointing out beetles, spiders etc as we walked along, then bent down and picked up a stonefly. Its wings opened and, to my great surprise, they were purple, a defining characteristic of this species. I found a matchbox to put it in, and rang Alan Yen to report the find, but was concerned that it was in a state park and I shouldn't be collecting it without a permit. Coincidentally, Alan was about to sit in on a meeting of the Scientific Advisory Committee to the Flora and Fauna Guarantee Act. At that next meeting the species was to be declared officially extinct because it hadn't been seen in 50 years. A retrospective permit was hastily arranged.

Afterwards, Julia Reid and Tim Doeg at the Flora and Fauna Branch of the Department of Conservation starting rearing what was thought to be *Eusthenia venosa* larvae collected from the Otways. They turned out to be *E.nothofagi*. The Otways Stone fly had been around the whole time but we had been misidentifying the larvae. It is now accepted that *E.venosa* does not occur in the Otway Range. Although *E.nothofagi* larvae are common in the streams, the adults are still rarely seen. *E.nothofagi* is now secure and can be found in many of the small rocky streams of the Otways.

### **What's your favourite collection item?**

The Castelnau collection in the Entomology Department at Melbourne Museum. It arrived at the National Museum of Victoria in about 1868 and I used to tell people it typified the traditional insect collector, someone who wants one of everything for their collection. Where Castelnau (not his real name, but he called himself the Count de Castelnau) didn't have the real specimen, he cut the pictures out of books and pinned them alongside the other specimens until a real one could replace it. Some of the drawers are on display on the mezzanine level of the Galleria at Melbourne Museum.

However, it later turned out that the collection at Melbourne Museum was his secondary one, his primary collection being broken up years before. So he may have had the full set of insects in his primary collection, and only pinned pictures of beetles in his secondary one to match real specimens he had in the first. I was talking to someone from the State Library at a Union rally once and we began talking about Castelnau. The librarian said they had Castelnau's personal books from the same period and thought someone had vandalised the books by cutting pictures out after the books had been received by the Library. I was able to tell them that "No, I had the pictures and that they weren't getting them back."

I don't have a single favourite collection item, although during tours I often point out the Chinese butterfly in our collection, the oldest non-fossil natural history specimen in an Australian institution, collected in 1742. I note that our job is to keep all our specimens looking as good 300 years from now as this one does

today. It's difficult to pin down a favourite item, as the variety is so amazing and every time you think you have a favourite something more impressive or interesting comes along.

### **What's your favourite group of insects?**

Probably Miturgids – although they're spiders rather than insects. They live in thick webs under logs, rocks and in grass tussocks, and if you turn one upside down they have beautifully-coloured iridescent foot pads. On the male palps the tibial apophyses are distinct for each species, and can be used to tell immediately who is who.

### **Are there any insect species you're still looking for?**

There is nothing out there that I'm hoping to find, because in the collection that I look after, there is so much new material yet to be discovered. Only taxonomic specialists can determine which species are undescribed so we have to wait for the collections to be sorted by visiting specialists before we know how many new species we have. We currently have a researcher working with us who is studying Oribatid mites, finding new species in material collected by Alan Yen and I in 1981. It's lucky I'm still around to interpret some of the old label data for her.

### **Any advice for the aspiring entomologist?**

Find a real job. But seriously, if pursuing an entomological career, learn to document everything thoroughly.

Dr, Mark Harvey when working at Museum Victoria made it clear to us that the way a lot of the Survey material in the collection had originally been labelled was done in a very short sighted way. Site codes were used instead of proper locations and, while these made sense to the people doing the survey and worked for their project, no thought was given to the fact that the specimens were to be housed in a museum, available for researchers to use for many, many years to come. If the label is not exactly accurate then the specimen is next to useless. One day he found a pseudoscorpion in a vial. The only label inside the vial said something like D7 S2. No one at the time could place the codes nor could we find anything in the old survey reports or maps

that would help us to decipher this. So, by way of demonstration, he threw it in the bin.

The key is to document everything in a way that someone who was never there can find the exact location that the specimen was collected, know who collected it, when they collected it and how they collected it. This is the best advice I have to offer after 36 years working with insect collections.

## *Correspondence*

### From Trudi Paton, Tastebugs

We are seeking an expression of interest from your society, or from one of your members to join our effort to create awareness and a market for farming and consumption of edible insects in Australia, for future food and feed security.

Chef Lillie Giang and I started TasteBugs in November 2015, following an overwhelmingly positive response from audiences at a sustainability festival in Melbourne where we introduced edible insects.

TasteBugs is a registered partner of the United Nations Sustainable Development Goals Agenda 2030 targeting Zero Hunger. To learn more about TasteBugs visit our website [www.tastebugs.net](http://www.tastebugs.net)

We look forward to hearing from you so that we can speak in more detail about our plans for this exciting initiative.

Kind regards,  
Trudi Paton, TasteBugs  
[info@tastebugs.net](mailto:info@tastebugs.net)

### From Robert Owen, ESV member

I am writing an article on the decline of pollinators and am including moths that pollinate plants. I have information on US moths such as the death hawk moth but would prefer to include Australian moths that act as pollinators. Are you able to name a few moth species that are in decline in Australia and are also important pollinators? If there is no evidence they are in decline that is OK, just some pollinating species would be good.

[robert@owen.org.au](mailto:robert@owen.org.au)

Excursion to Westgate Park

Christmas outing, December 2016



Photos by Ray Besserdin  
and Patrick Honan

## Articles of interest

### Discovery of stick-thin Lady Gaga thrills scientists

By Bridie Smith  
Science Editor, *The Age*  
January 2016

Scientists have for the first time been able to breed the largest stick insect to call Australia home - a monster measuring more than half a metre long.

The aptly named gargantuan insect hails from Queensland and was first described in 2006 using only male insects, which are winged and easier to spot.



The first generation of gargantuan stick insects bred in captivity come from one female: Lady Gaga. *Photo: Museum Victoria*

However, thrilled Museum Victoria scientists found a pregnant female in the humid forests outside Cairns in January 2014.

The long-limbed lass known as Lady Gagan-tuan, or Lady Gaga for short, has become the founding member of the only captive population which now includes seven adults and dozens of eggs. The third generation, making Lady Gaga grandma Gaga, is due to hatch in April.

Lady Gaga was spotted by Museum Victoria's Maik Fiedel, who had been hunting for one of the shy females for years.

Found six metres up a tree in a forested pocket of Queensland's Copperlode dam area, west of Cairns, Mr Fiedel "let out a series of loud yelps" when he saw her, according to Museum Victoria manager of live exhibits Patrick Honan.

Measuring an impressive 50 centimetres, there was no doubt the team had finally found their girl.

After flying to Melbourne secured in cabin baggage, she laid a dozen eggs in the fortnight before she died of what Mr Honan believes was natural causes. Seven eggs hatched and those individuals went on to lay another 40 eggs.

One of the female offspring has already outgrown her mother - measuring a record-breaking 56.5 centimetres long, making her Australia's longest stick insect.

The milestone has scientific significance, as little is known about the gargantuan stick insect *Ctenomorpha gargantua*.

"We now have a specimen that we didn't have before, so for the purposes of taxonomic research and all the things that museums traditionally do it's important," Mr Honan said. "But having a live population means we can also now collect data about their lifestyle."

The museum's live exhibits team started from scratch in learning about the gargantuan insect's life cycle, diet, breeding patterns and habitat from observing the behaviour of the mottled-brown insect.

Taking note of the conditions where Lady Gaga was found, the museum's live exhibit team recreated the insect's native environment, so temperatures were in excess of 25 degrees and about 70 per cent humidity.

When it came to diet, the keepers had only their knowledge of other stick insects to call on. While Lady Gaga had been found in the forest, she was unlikely to be clinging to a favourite plant. The females live high in the canopy and scientists believe she had been blown down to the six-metre mark by high winds.

"The more observations you do, the more you understand how they operate," Mr Honan said, adding they soon established peppermint gum and lilly pilly were favoured plants to eat.

He would like to introduce more individuals to boost the genetic diversity of the captive population, which will be on temporary display.

Although gargantuan stick insects are parthenogenetic, meaning females can reproduce without a male, broadening the gene pool would only benefit the health of the captive population.



Maik Fiedel shows off Australia's largest stick insect (photo: ABC News)

Mr Honan said females which reproduce without males had female offspring, which was not sustainable.

Genetic flaws, signalled by a lower proportion of eggs hatching, lower survival rate for those which do hatch and reduced size, could also creep in.

"The chances of finding another female aren't that good but finding another male is better," he said.

### **Rare stick insects hatch at Bristol Zoo**

*by BBC News, UK  
January 2016*

Eggs from a rare species of stick insect have hatched at Bristol Zoo.

Staff said 38 Lord Howe Island stick insect hatchlings had emerged during the past fortnight and more were due to hatch soon.

The critically endangered creature was thought to be extinct for almost 80 years until its rediscovery in 2001.

A batch of 300 eggs was sent from Melbourne Zoo in Australia in November as part of an international effort to save the species.

Mark Bushell, curator of invertebrates at the zoo, said: "To see these precious stick insect nymphs finally emerging from their tiny eggs is absolutely incredible, a real career highlight.

"Bristol Zoo is the only place in the whole of Europe where the species now exists.

"I have been studying phasmids for 20 years and have always wanted to see a live Lord Howe Island stick insect, so it is a dream come true to be part of the team responsible for raising and breeding them."

The species was wiped out on its native Lord Howe Island off the east coast of Australia after European rats ran aground from a stranded ship in 1918.

The eggs are all descended from a breeding pair known as Adam and Eve, which were rescued from Ball's Pyramid - a volcanic outcrop off Lord Howe Island - in 2003.



There are thought to be only about 40 individuals left there, in one small area.

Other eggs were sent to zoos in Toronto and San Diego. The aim is to eventually return the species to Lord Howe island.

### **Spider web research shows promise for noninvasive genetic sampling**

*by University of Notre Dame, US  
January 2016*

Using web samples from black widow spiders fed with crickets, researchers at the University of Notre Dame have successfully used DNA samples to identify both the spider and the species of its prey. Such noninvasive sampling

to obtain genetic information could have practical implications in several fields including conservation research and pest management.

As an environmental science student at Notre Dame, Charles Cong Yang Xu said he had the idea of uncovering the DNA of spiders while he was studying environmental DNA of fish in the lab of David Lodge, the Ludmilla F., Stephen J., and Robert T. Galla Professor of Biological Sciences. Xu found a novel and promising noninvasive source of spider and insect DNA through extracting the DNA from spider webs. Using web samples from spiders placed at Potawatomi Zoo in South Bend, Indiana, he then amplified and sequenced mitochondrial DNA from spider web samples, which identified both the spider and the species of the prey.



Spider and prey DNA remained detectable at least 88 days after living organisms were no longer present on the web. "Sticky spider webs may serve as a natural DNA sampling device for DNA from the spider and from what it's been eating," Xu said.

Noninvasive genetic sampling such as this enables biomonitoring without the need to directly observe or disturb target organisms. The results from this study can lead to practical applications in conservation research, pest management, biogeography studies and biodiversity assessments.

"Sticky spider webs are natural DNA samplers, trapping nearby insects and other things blowing in the wind," Xu said. "We see potential for broad environmental monitoring because spiders build webs in so many places."

A Notre Dame alumnus from the class of 2014, Xu is lead author on the paper. Co-authors are Ivy J. Yen and Cameron R. Turner at Notre Dame and Dean Bowman at Potawatomi Zoo. Their paper, titled "Spider web DNA: A new spin on noninvasive genetics of predator and prey," has been recently published in *PLOS One*.

### **Venus flytrap can count the number of insects it has trapped, study says**

*by Ravi Mandalla  
Dispatch Tribunal, India, January 2016*

Venus flytrap, a carnivorous plant known to depend on insects for nutrition, keeps track of insects that get trapped and uses that information to decide when to keep their traps shut and begin producing their acidic, prey-decomposing cocktail of enzymes.



Authors of the latest study based on which the above conclusion has been derived say that Venus flytrap is capable of 'counting' the juicy insects, lured by the plants' fruity scent, with the aid of sensitive trigger hairs on the inner surfaces of their traps.

To find out whether Venus flytraps record touches, Rainer Hedrich of Universität Würzburg in Germany and colleagues fooled the plants into thinking they'd landed an insect by applying increasing numbers of mechano-electric stimuli to their trap and monitoring their responses. Researchers found that even a single touch to the trigger hair gets the plant into a 'ready-to-go' mode and with second stroke to the hair, the trap closes around the

prey to form what Hedrich and his colleagues liken to a green stomach.

Researchers note that with each stroke, the plant gets more excited and starts producing special touch hormone. After five triggers, glands on the inner surface of the trap also produce digestive enzymes and transporters to take up nutrients. Hedrich calls it a “deadly spiral of capture and disintegration.” This input also allows the plant to scale its production of costly ingredients to the size of the meal.

“By applying a series of trigger-hair stimulations, we found that the touch hormone jasmonic acid (JA) signaling pathway is activated after the second stimulus, while more than three action potentials are required to trigger an expression of genes encoding prey-degrading hydrolases, and that this expression is proportional to the number of mechanical stimulations”, authors note in the abstract of the study published in the Cell Press journal *Current Biology*.

“The number of action potentials informs [the plant] about the size and nutrient content of the struggling prey,” Hedrich said. “This allows the Venus flytrap to balance the cost and benefit of hunting.”

Interestingly, the plants show a particularly marked increase in production of a transporter that allows them to take up sodium. It’s not clear exactly what the salt does for the plant, but the researchers suggest that it may have something to do with how Venus flytraps maintain the right balance of water inside their cell walls.

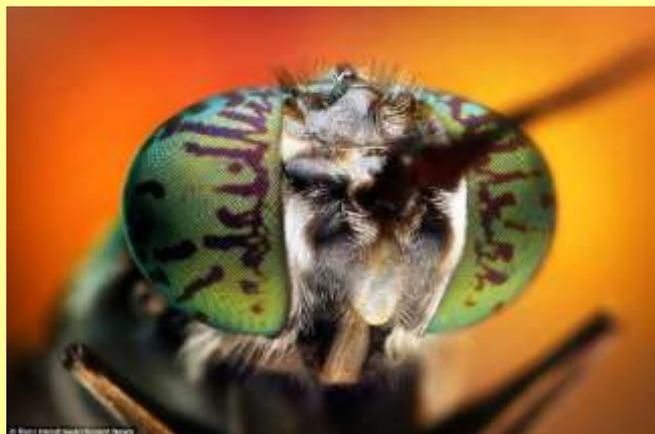
Hedrich and his colleagues are now sequencing the Venus flytrap genome. In those sequences, they expect to find additional clues about the plants’ sensory systems and chemistry needed to support a carnivorous lifestyle and how those traits have evolved over time.



## Mini-beast safari: Mesmerising macroscopic photographs reveal the dazzling beauty of insects in detailed close ups

by Ryan O'Hare  
*Mail Online, January 2016*

These mesmerising close-up photographs of insects reveal intricate details which are usually invisible to the naked eye, offering insights into the stunning biological detail of the world of the very small.



These mesmerising close-up photographs of insects reveal intricate details which are usually invisible to the naked eye, offering viewers an insight into the stunning biological detail of the world of the very small. Some of the bugs show psychedelic swirls on their compound eyes, like this close up of a black soldier fly

In one striking image, the Red Paper Wasp, with sharp pincers on its mouth, make them look like monsters from another world rather than the bugs we find crawling around beneath our feet.

Other insects photographed in the fascinating collection include bees, robber flies, a white and red tiger moth, and a longhorn beetle.

A Rhubarb Weevil, which typically measures just half an inch (1.27cm), has been captured in such detail that the tiny hairs on its brown body are visible.

And another incredible image shows the beautiful pattern of pixels which make up the bulging green eyes of a dragon fly.



A longhorn beetle stands proud.

The images were captured by teacher and freelance photographer Roni Hendrawan, who took the hyperreal pictures in forests and gardens near his home in the Indonesian island of Bangka.

The 23-year-old said: 'I find the insects after sunrise and before sunset, when they are still calm and sleepy.'



This image captures the complexity of a dragonfly's large compound eyes. Each eye may contain thousands of ommatidia - clusters of light-sensitive cells

He used a combination of patience, stealth and zoom to get the shots.

'I zoom in until the insect is 18 millimetres from the lens, which is close enough to get the pixels of a dragonfly's eyes,' he explained.

'I always saw 'wow' - it really surprises me when I get the detail in every new picture.' Mr Hendrawan says it has taken him four years to perfect his technique of taking close-up photographs of insects.



Sparkling armour: A glinting metallic green beetle surveys its environment atop plant matter. Rather than coloured pigments, many insects rely on their shells and wings to scatter light to shorter wavelengths - blues and greens - giving them their dazzling colours

He said: 'Before I became a photographer, I was always interested to see how insect faces look closer-up. It makes me curious.'

'I love the detail and the patterns of insects - I call them the tiny monsters of the small world. 'My favourite insects to shoot are robber flies and wasps, but wasps are really not easy to capture.'

'I also like the dragonflies - their faces are very funny. They always look happy, like they are smiling.'

He added: 'Sometime the insects are so difficult to shoot, the ones with wings can of course easily fly away.'



The mesmerising macro images were captured by teacher and freelance photographer Roni Hendrawan. He took the pictures, like this of a red paper wasp (pictured), in the forests and gardens near his home in Toboali, on the Indonesian island of Bangka

## Praying mantises wearing tiny glasses confirm insects see in 3D

by Claire Lomas  
*The Telegraph UK, January 2016*

Uniquely among insects, mantises have multidimensional sight, although they only see in black and white.

The insects were given 3D glasses during an experiment, which look like any pair we would wear, but because they can't see red, their specs are blue and green.



One of the preying mantises which scientists fitted with tiny 3D glasses (Photo: Newcastle University)

Experiments devised by researchers in the 1980s already proved these insects do see in 3D.

What the scientists at Newcastle University want to do is find out more about how their 3D vision works.

Lead scientist Jenny Read explains that it's the mantis's single minded efficiency as a hunter that make it a good target to study.

"One of the great things about mantises is that they kind of tell us what they're seeing by their natural responses, so they can't move their eyes within their heads so if they see something interesting they tend to move their head around and look at it and they also have this strike response so they're predatory insects and if they see something that they think they can grab, they'll reach out and try and snatch it."

The researchers have built a miniature 3D cinema for the bugs to test their 3D perception.

The fluttering across the screen imitates that movement of a bug.

When it's behind the black and white shapes, the mantis leaves it alone, but the insects watch carefully and when the shaped flutters in front, the mantis strikes.

The mantises do not try to catch the bugs when they are shown in 2D, but as soon as they appear in 3D, the insects pounce.

The mantises are now part of a special breeding programme at Newcastle University.

Read says the mantises' 3D vision is likely to be much simpler than ours.

She believes that in the long term these studies may help scientists to develop simpler 3D for robots, as well as therapies for people with eye conditions such as lazy eye, strabismus, or squint.

At the moment though, the team here is focused on creating a computer software model to recreate the way mantises see.



Newcastle University has shown that the invertebrates use stereopsis, or 3D perception, to hunt (Photo: Newcastle University)

The team is hoping that understanding how the mantises see will give them more information about how 3D vision evolved, and could lead to possible new algorithms for 3D depth perception in computers.

## Why we should learn to love all insects – not just the ones that work for us

By Paul Manning

PhD student in Zoology, University of Oxford, UK  
The Conservation UK, January 2016

Insects, which include more than a million described species, represent roughly two-thirds of the biodiversity on Earth. But they have a big PR problem – many think of insects as little more than crop-eating, disease-carrying jumper-munchers. But in reality, species fitting this bill are but a tiny part of an enormous picture.

A dominant narrative has emerged in an effort to clear the good name of our six-legged friends. Insects are the unsung heroes, the little things that run the world. This fact is undeniable. Insects are critical to the existence of the world as we know it, whether through pollinating plants, controlling populations of agricultural pests, or helping with the decomposition of animal waste.

These numerous benefits provided by our environment are known as ecosystem services. A widely cited paper from 2006 estimates that these insect services are worth an annual US\$57 billion to the US economy alone. These valuations are an important step in starting conversations about the importance of insect conservation.



However economic arguments can only take us so far.

Imagine a field of tomatoes. For an appreciable harvest flowers must be pollinated. To achieve this farmers might choose to enlist the help of

native pollinators by setting aside part of their land for flowering plants.

In some cases this works exceptionally well. For instance, a recent paper has shown that converting 5-8% of arable land to pollinator habitat supports greater or equivalent crop yields, even after accounting for loss of field area.



But how much insect diversity do we need to support ecosystem services? Generally speaking, a more diverse species assemblage means higher levels of functioning. Keeping with our pollinator analogy, we might find that two species of bee can provide a greater service of pollination than one species – even if the overall numbers of bees are the same. A three-species community might perform better still.

But not every species plays an equally important economic role and the presence of a dozen rarer bee species may provide no additional monetary benefit. Recent research shows the majority of pollination services of agricultural crops by wild bees are performed by a tiny handful of species; the authors argue that crop pollination is not a sufficient argument to justify bee conservation. This exemplifies the danger of relying too heavily on economic arguments. If we only worry about the species which provide us a given service, we risk losing a large amount of diversity.

### 'But what do they do for us?'

I am asked this question frequently. Its ubiquity provides two important pieces of information. The first is great news: the public recognises that insects are key components of our

ecosystems. The second piece is concerning. It shows that we're not doing enough to demonstrate that insects have any real "purpose" aside from some service to humans. And, given the overwhelming diversity in the insect world, it's likely there are many species which don't ever make a significant contribution to our lives.

There are many ways that one can advocate the importance of those insects. One can correctly suggest that insects are vital links in food webs. Or that by having multiple species present there is insurance for providing services when systems are disturbed. But there is a simple solution which is hugely successful in encouraging people to value insect conservation: getting them to learn more about insects.

### **Beautiful, mysterious, wonderful**

Rather than focusing primarily on their functional value, we could instead place a greater emphasis on sharing the fascinating behaviour and wonderful appearances commonplace in the insect world. Once people become better acquainted with these qualities, they fall in love. And when people love something, they will fight for its protection regardless of whether or not it contributes to the provision of a particular ecosystem service.

Insects can make us laugh, like the fuzzy caterpillars within the genus *Megalopyge*. These ridiculous-looking larvae are covered in irritating hairs used to deter predators. One especially fuzzy species has been often likened to the hairstyle of a certain presidential-hopeful. Or consider the chirping call of lesser water boatman males. This species calls at over 100 decibels, as loud as a car horn. It produces this noise with its genitalia.

Insects often surprise us. When you're as tiny as an insect, everything seems to want to eat you. Insects have evolved endless strategies to avoid this unfortunate fact. For instance, bombardier beetles fend off enemies by blasting a boiling chemical cocktail from their abdomen, and some species of hawk-moth caterpillars do a truly convincing impression of a snake.

The closer we look at the world around us, the more wonderful pieces of natural history we discover. When we experience the fascinating world of insects firsthand, the dominant dialogue of "insects as ecosystem service providers" begins to shift. Instead, we start to recognise the beauty, mystery and wonder of the insect world for what it is: beautiful, mysterious and wonderful. Through building a stronger appreciation of the important inherent value of insect biodiversity, hopefully "what do they do for us?" will share more space with "what can we do for them?".

## *Around the Societies*

### **Butterflies and Other Invertebrates Club**

*Macro Photography Field Day at Mt. Cotton with Erica Siegel*

Learn techniques for capturing the beauty and secret lives and identities of the many insects that call our gardens and bushland home.

**When:** Saturday 30th January 2016

**Where:** Gather at 8am for an 8.30am start, finish at 11.30am, to be followed by refreshments by the creek

**Bring:** Camera and macro lens, lunch or food to share, chair, water bottle – tea making facilities available.

**Wear:** Covered shoes, hat/sunscreen

**RSVP:** Bookings are essential as places are limited. Reply before 23rd January.

**Phone:** Lois on 3206 6229 for bookings and direction to location.

### *Expression of interest*

The Brisbane City Council Boondall Interpretative Volunteers are planning a Networking Day for early this year. The aim of the day will be to exchange information and interest about Boondall Wetlands with related Environmental Organisations and individuals. They have contacted us as they would like to gauge the interest of members of BOIC in such an event.

In order to cater for a BBQ and other events, such as walks and crafts, an indication of possible numbers would be very useful.

The formal invitation will be sent out when plans have been finalised  
They would greatly appreciate some indication from BOIC members about the possibility of attendance as well as possible numbers. A response by the end of January would be much appreciated.  
Please reply to russeld@bigpond.com

### *Planning and General Meeting*

**What:** Our planning meetings are informative and interesting. As well as planning our activities we share lots of information. Following the meeting and a lunch break, Russel Denton will lead us through part of the Boondall Wetlands.  
We are likely to encounter many invertebrates including lots of butterflies, leaf beetles, ladybird beetles and spiders.  
All members are welcome as this activity is also a general meeting of members.  
**When:** Saturday 13th February, 2016, 10am  
**Where:** Sandgate Town Hall, corner of Cliff and Seymour Streets, Sandgate.  
**Bring:** Your own cup as crockery and cutlery are not available at this venue, your lunch, sun protection and probably mosquito repellent!  
**RSVP:** Jill Fechner on 0417 793 659 or email secretary@boic.info

### **Entomological Society of Queensland**

#### *An Exhibition of Bancroft memorabilia*

An exhibition entitled "The Doctor, his wife and daughter" will be on display at the Miegunyah House Museum and will have memorabilia from Thomas L. Bancroft, his wife, Cecillia and daughter, Josephine Mackerras (née Bancroft). Thomas Bancroft was a medical naturalist who investigated mosquito transmission of disease as well as various other scientific investigations.

His daughter, Josephine, was a prominent research entomologist and parasitologist who contributed significantly to malaria research. The memorabilia which will be on display is all from the private family collection. Five generations of the family have been Members of the Queensland Womens' Historical Association.

Miegunyah House Museum is at 35 Jordan Tce, Bowen Hills, Brisbane. Display is open during normal opening hours until Sunday 6th December, 2015. For more information see: <http://www.miegunyah.org>

#### *Entomological Society of Queensland \$500 Student Award 2016*

This is an award by the Society to encourage entomological research. Honours, Diploma and 4<sup>th</sup> year Degree students who received their qualification from any Queensland tertiary education institution in 2015 or 2016 may submit their entomology-based thesis or report for consideration.

Entrants need not be Society members. Entries are judged by a panel of three entomologists appointed by the President of the Society.

The winner will be announced at the May General Meeting and is then invited to present a summary of their research at the June Notes and Exhibits meeting of the Society.

These reports can be directed to the society's Senior Vice President at the address listed on the entry form. However, please note, a hard copy of your thesis/report does not need to be submitted, and the submission of a PDF version is encouraged. This should be emailed together with a signed copy of the completed entry form to Bradley Brown at [Bradley.Brown@csiro.au](mailto:Bradley.Brown@csiro.au)  
Closing date for submissions is Friday, April 8th, 2016.

### **Society for Insect Studies**

#### *Wolli Creek Survey and Light Trapping*

6th February 2016  
Wolli Creek Preservation Society has invited SFIS to carry out insect survey work. We hope to carry out a first visit around the time this Circular is published and a second visit in February. Please come along on Saturday February 6th to help us out. Details are to be finalised but there is likely to be some general survey work during the afternoon followed by a light sheet during the evening. Please let a Council member know you are interested and we will contact you with final arrangements. For information about Wolli Creek Valley see:

<http://www.wollicreek.org.au/>

### *Notice of AGM*

Notice of Annual General Meeting of the Society for Insect Studies Inc. to be held at the Australian Museum, Sydney, on 9th February 2016 at 7.30 pm.

Graham Owen: The Monarch Butterfly, *Danaus plexippus*  
Monarch or wanderer?  
Migration or not?  
Plentiful or endangered?  
Just how many mimics does this butterfly have?  
These and many more will be discussed in Graham's talk.

The official business of the Society will comprise:

- Minutes of the 2015 annual general meeting (including vote for acceptance)
- 2015 Report from President
- 2015 Financial Report from Treasurer (including vote for acceptance)
- Election of Office-bearers and ordinary Council members

Election of Office-bearers and ordinary Council members for the following positions will occur:  
Office bearers: President, Vice-president, Secretary, Treasurer.  
Ordinary Council members, including Editor and Publisher (minimum 3, maximum 6 positions).  
Nominations for these positions may be made in writing, signed by 2 members of the association and accompanied by the written consent of the candidate (which may be endorsed on the form of the nomination). If in writing, the nomination must be delivered to the secretary at least 7 days before the AGM.  
Nominations may be received at the annual general meeting from the floor, if proposed and seconded by members of the association and with evidence of the consent of the candidate.

## Conferences

### **The 64th Entomological Society of New Zealand 2016**

You are warmly invited to attend the 64th annual conference of the New Zealand Entomological Society, to be held at Orakei Bay conference and function centre, Auckland.

**When:** The conference will run from Tuesday 7th April 2015 until the afternoon of Friday 10th April 2015.

A field trip is planned for Friday 10 April to Rangitoto Island in the Hauraki Gulf.

**Where:** All talks, the poster session (with wine and cheese) and the annual dinner will be held at the Orakei Bay conference and function centre, Auckland. Orakei Bay is a short train ride from the Auckland CBD.

12 March 2015: Early bird registration closes

15 March 2015: Abstract submission closes

7 April 2015: Conference begins

**Website:**

<http://ento.org.nz/conferences/conference-2015/>

### **Australian Entomological Society 47<sup>th</sup> AGM and Scientific Conference and Entomological Society of New Zealand – 2016 Conference**

Theme: "Understanding and managing insects for our mutual benefit."

**Where:** Rydges on Swanston St, Melbourne

**When:** Sunday 27th to Wednesday 30th November, 2016.

Our exciting scientific program will explore themes of insect and human interactions and understanding and managing the environment and landscapes for our future co-existence and mutual benefits. Symposia themes are to be announced but will cover aspects of insects and human health, agriculture, conservation, insect-plant interactions, biosecurity, biodiversity, systematics, evolution and biogeography. The conference logo is of the clerid beetle, *Lemidia frenchi* Lea (Cleridae) which was named after the first State Government appointed Entomologist of Victoria, Charles French (1842 – 1933) and the beetle is only known to occur in Victoria.

**Website:** <http://www.aesconferences.com.au/>

### **XXV International Congress of Entomology**

**Where:** Orlando, Florida, USA

**When:** 25-30 September, 2016

#### **Entomology without Borders**

Over 300 symposia were submitted from around the world to be considered for the ICE 2016 program, and they are currently being reviewed by the ICE Section Co-conveners. Watch for announcements of final symposia selections to be made next month.

**Website:** <http://ice2016orlando.org/>

### **International Symposium on the Ecology of Aphidophaga 13**

The purpose of Aphidophaga conferences is to provide an international forum for the presentation and discussion of research on the biology, ecology and behaviour of organisms contributing to mortality of aphids (Hemiptera: Aphididae).

**Where:** Freising, Germany

**When:** 29 August to 2 September 2016

Registration from 15 February 2016

**Website:** <http://aphidophaga.de/>

### **Second International Whitefly Symposium**

The International Whitefly Symposium (IWS) will bring together researchers, academics, students, and the private sector from all over the world to share on the latest research and education around a range of whitefly-related issues of local, national, and global interest. IWS resulted out of the merger between the International Bemisia Workshop (IBWS) and the European Whitefly Symposium (EWS).

**Where:** Arusha, Tanzania

**When:** 14-19 February 2016

**Website:** <http://www.iita.org/iws2016>

### **Joint meeting of the Brazilian Congress of Entomology and the Latin American Congress of Entomology**

**Where:** Maceio, Alagoas, Brazil

**When:** 13-17 March 2016

**Contact:** [mep@mepeventos.com.br](mailto:mep@mepeventos.com.br)

**Registration:**

<http://cbe2016.com.br/?menu=inscricao>

Contributions to the ESV Newsletter and Bulletin are always welcome.

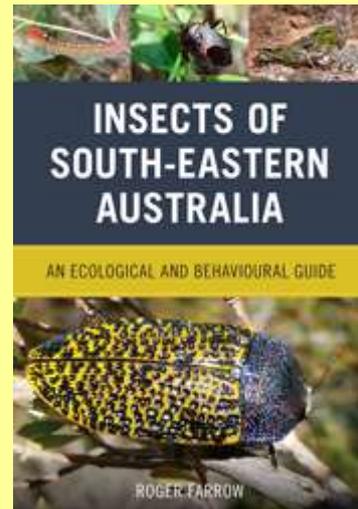
Contact: Patrick Honan

[president@entsocvic.org.au](mailto:president@entsocvic.org.au)



[www.entsocvic.org.au](http://www.entsocvic.org.au)

## *Forthcoming publication*



### **Insects of South-Eastern Australia: an Ecological and Behavioural Guide**

By Roger Farrow

CSIRO Publishing

Paperback, 304pp. with colour photos

Due May 2016

ISBN 9781486304745

A walk in the bush reveals insects visiting flowers, patrolling the air, burrowing under bark and even biting your skin. Every insect has characteristic feeding preferences and behaviours.

Insects of South-Eastern Australia is a unique field guide that uses host plants and behavioural attributes as the starting point for identifying insects.

Richly illustrated with colour photographs, the different species of insects found in Australia's temperate south-east, including plant feeders, predators, parasites and decomposers, are presented.

The guide is complemented by an introduction to the insects of the region, including their environment, classification, life history, feeding strategies and behaviour. Fascinating boxes on camouflage, mimicry and many other topics are also included throughout.

Whether you are a field naturalist, entomologist or just want to know what's in your backyard, Insects of South-Eastern Australia will help you to identify the insects most likely to be encountered, as well as understand the basics of their ecology and behaviour.