
VICTORIAN



ENTOMOLOGIST

VOL . 43 No. 2

April 2013

Print Post Approved PP 349018/00058

Price: \$ 4.00



News Bulletin of The Entomological Society of Victoria Inc.

THE ENTOMOLOGICAL SOCIETY OF VICTORIA (Inc)

MEMBERSHIP

Any person with an interest in entomology shall be eligible for Ordinary membership. Members of the Society include professional, amateur and student entomologists, all of whom receive the Society's News Bulletin, the Victorian Entomologist.

OBJECTIVES

The aims of the Society are:

- (a) to stimulate the scientific study and discussion of all aspects of entomology,
- (b) to gather, disseminate and record knowledge of all identifiable Australian insect species,
- (c) to compile a comprehensive list of all Victorian insect species,
- (d) to bring together in a congenial but scientific atmosphere all persons interested in entomology.

MEETINGS

The Society's meetings are held at the 'Discovery Centre', Lower Ground Floor, Museum Victoria, Carlton Gardens, Melway reference Map 43 K5 at 8 p.m. on the third Tuesday of even months, with the exception of the December meeting which is held on the second Tuesday. Lectures by guest speakers or members are a feature of many meetings at which there is ample opportunity for informal discussion between members with similar interests. Forums are also conducted by members on their own particular interest so that others may participate in discussions.

SUBSCRIPTIONS

Ordinary Member	\$30 (overseas members \$32)
Country Member	\$26 (Over 100 km from GPO Melbourne)
Student Member	\$18
Electronic (only)	\$20
Associate Member	\$7 (No News Bulletin)
Institution	\$35 (overseas Institutions \$40)

Associate Members, resident at the same address as, and being immediate relatives of an ordinary Member, do not automatically receive the Society's publications but in all other respects rank as ordinary Members.

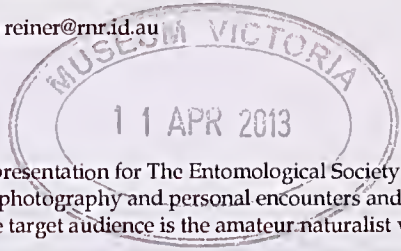
LIFE MEMBERS: P. Carwardine, Dr. R. Field, D. Holmes, Dr. T. New, Dr. K. Walker, Daniel Dobrosak.

Cover design by Alan Hyman.

Cover photo: *Coenagrion lyelli* (mating) taken at a swamp in Colquhoun State Forest (near Lakes Entrance) on 3rd December 2012. Photographer Reiner Richter.

Dragonflies and Damselflies in Focus

©2013 Reiner Richter reiner@rnr.id.au



Abstract

This document is provided as reference notes to the presentation for The Entomological Society of Victoria meeting of February 19th 2013. It covers my photography and personal encounters and experiences and less technical aspects of taxonomy. The target audience is the amateur naturalist who is interested in identifying Odonata (damselflies and dragonflies) in the field or from photos, which is my personal *modus operandi*.

Most of the photographs are available on my web site.

Part 1

Introduction

According to *The Complete Field Guide to Dragonflies of Australia* (Theischinger & Hawking, 2006), my primary reference, Australia has about 324 species. In Victoria we have a good range (about 80 species) of which I have observed 67. This presentation is mostly about my experience chasing, photographing and identifying these insects.



Fig. 1 *Cordulephya pygmaea*

When I got my first digital camera about 10 years ago I needed subject matter to photograph. Being interested in everything in the natural world this of course included dragonflies. Early on I didn't specifically go searching for them but at some stage Simon Mustoe contacted me about an image on my web site. He was building one for identifying Victorian Odonata and had also started an email group (ausodonata@yahoo.com) where interested parties could correspond (this group is still active). I gained a lot of knowledge from asking questions in this group about the photos I had taken. Although Simon has abandoned that web site for a more ambitious project it is still very useful for identifying our dragonflies and damselflies in Victoria.

I will discuss my experiences, web site, some different species found in Victoria and some things to look for when trying to identify adult damselflies and dragonflies.

My Photography and Cameras

I bought my first camera in late 2001. It had 3MP and took good photos but its macro was limited to 20cm distance, which is insufficient for photographing things smaller than 5cm. Several cameras later, I bought my first SLR, which had 16MP and excellent image quality just two years ago.

More megapixels might seem like a good thing but what it really means is each individual sensor component is smaller and therefore captures less light and therefore image quality suffers. My 16MP camera had a 23.5 x 15.6 mm sensor but the next generation now has 24MP in the same area and I feel the image quality has deteriorated as there are just too many receptors on the sensor.

When taking photos lighting is very important, particularly the amount of light. I use flash most of the time when using macro, even in sunlight (but then usually to try and fill shadows). I shoot with

aperture priority and increase the f-stop value (usually around F8-F11), which actually decreases the physical size of the aperture. A smaller aperture actually means greater depth-of-field, which is important for showing more details.

Another thing to consider is shooting with fairly low ISO as high ISO values mean noise. Combining low ISO and high aperture results in less light reaching each sensor element, which is why flash is usually required. This however yields the best image quality. When shooting less close, such as an entire large dragonfly, wider aperture can be used as this helps blur the background. I find around F5-F6 is best for this.

I sometimes photograph just for later identification confirmation. If I intend to try to get good diagnostic images, I start shooting from a distance and then slowly creep closer. For some of the harder-to-separate species you need to remember the diagnostic features also, which may mean the side of the thorax or the like. Occasionally dragonflies themselves get close and when they land on me it's difficult to photograph them.

My Dragonflies Web Site <http://photos.rnr.id.au/dragonflies.html>

All species I have seen are listed down the left and where I've created pages for a specific species the names are links to those pages.

I have put a partial key on my web site. It mainly lists species I'm familiar with (so Victorian species) and allows for the selection of certain attributes to help a novice short-list some possible species, which can then be studied further. Questions on such things as general geographic location and the colours of the insect can be answered and a weighted list will be produced.

My site also includes a list of when I've observed species for the first time, database records of all my sightings and some documents on more significant observations.

Identification

I identify almost all the species I see from photographs I take in the field. As mentioned previously, I often take photos just for identification purposes. I virtually never go through the process of keying out a species but just look up the similar species if I can't remember what to specifically look for. Keying out a species from photos is very difficult as key guides are designed for individuals holding museum specimens and not people like myself who might take a few photos of an individual.

The first and most obvious distinction to make is to separate damselflies from dragonflies. The common misconception is that at rest damsels hold their wings closed above their bodies while dragonflies spread their wings out flat, perpendicular to their bodies.

Members of the dragonfly genus *Cordulephya* perch with their wings closed. In Victoria *Cordulephya pygmaea* (Fig.1) is fairly widespread east from Melbourne. It appears late in the season (around March) and can be found along rivers and creeks, including the Yarra around Warrandyte. It is also one of the smallest dragonflies we have.



Several groups of damselfly nymphs may perch with their wings flat. *Synlestes weyersii* (Fig.2) is a fairly large, slender, metallic-green species common in the eastern half of the state. You can readily find them along the upper Yarra River and ponds and lakes with enough riparian vegetation. These happily perch with their wings in any position, partly depending on sunlight and temperature. This is also the only species of Synlestidae found in Victoria.

The Flatwings is a family of damselflies containing quite a few species, that, as their common name suggests, spread their wings when perched. *Austroargiolestes icteromelas* (Fig.3) is a very common species that can be found over much of the state. *Austroargiolestes calcaris* is generally quite similar in appearance, but slightly smaller. It can be found by rocky creeks from the Dandenong Ranges to alpine bogs around the NSW border. *Griseargiolestes intermedius* (Fig. 4) is a third member of this group in Victoria, common in alpine bogs but occasionally found closer to Melbourne. It is the smallest of the three and can readily be separated in the field.

Fig. 3 *Austroargiolestes icteromelas*



Fig. 4 *Griseargiolestes intermedius*

To accurately tell these flatwings apart from photos you usually need to see the patterns on the side of the thorax. Mature males can however be identified with reasonable certainty as *Griseargiolestes intermedius* are slightly pruinose all over, *Austroargiolestes calcaris* have a very pruinose thorax and *Austroargiolestes icteromelas* don't have as noticeable pruinescence.

The previous discussion was used to illustrate wing position at rest cannot be used to separate damselflies from dragonflies. The most reliable method I find is to look at the position and structure of the eyes. Damselflies tend to have their eyes out on the side of their heads, almost on stalks (Fig.5), while dragonflies eyes come closer at the top, often touching (Fig. 6).

Some Common Dragonflies

Hemicordula tau is one of the most common and widespread species and is often encountered patrolling or disturbed from a perch, as I walk along forest tracks away from water. They can be found from the highest pools to the edge of the sea. A similar species is *Hemicordulia australiae*, still fairly common but encountered less often. When seen normally they can be separated by the coloration of the pterostigma and leading wing veins: that of *H. australiae* is black while *H. tau* is yellow. The frons however should be checked as *H. tau* has a clear "T" marking (Fig. 7) whereas *H. australiae* has just a dark patch.(Fig.8) These are "Emeralds", belonging to the Hemicorduliidae family.

Fig. 5 Damselfly
Austroargiolestes ictromelas

Fig. 6 Dragonfly *Hemigomphus gouldii*



Fig.7 *Hemicordula tau*

Fig.8 *Hemicordulia australiae*

That "T" mark on the frons cannot however be used as diagnostic for a different group. The *Aeslinidae* family is represented by two widespread and common species in Victoria – among the largest Odonata in the state. And both of these have a similar mark on the frons.

Adversaesclua brevistyla has a mostly middle brown colour. In mature males the pale dorsal markings on the front half of the body turn blue, giving this species its common name of Blue-spotted Hawker. They "hawk" (regularly hover in one spot) when patrolling over water or in open patches of forest. The bold, evenly-thick, pale, diagonal lines on the side of the thorax help with identification.

Hemianax papuensis has an overall yellow appearance with fairly square markings on the abdomen and no line markings on the thorax. I've encountered this species hunting over highways on warm days and ended up unavoidably collecting them in my grill.

The dragonfly I've encountered most often is a little smaller than the previous two families but also found virtually everywhere. The colour of the Wandering Percher, *Diplacodes bipunctata*, varies quite a bit, mostly shades of yellow to orange-brown. Mature males are usually red (with some black markings). It's one of the first species I encounter each season, finding them resting on the ground in open woodland during September (while I'm out looking for orchids). The two spots on the side of the thorax give this species its scientific name (Fig. 9).

A similar, less common species is the Black-faced Percher, *Diplacodes melanopsis* (Fig.10). These don't have the two dark spots on the side of the thorax. Mature males also have a black head and thorax with a mostly red abdomen (Fig. 11). Before they go red however they transmute through what I think is a beautiful orange phase.

I regularly see this species at the dam on Buttongrass Creek in Bunyip State Park. This has got to be one of the best places to observe Odonata as I've recorded 27 species at this one dam (plus another 7 species in the park).

Back to the dragonflies, the most striking in this *Diplacodes* group is the Scarlet Percher, *D. haematodes* with mature males being a vivid red-colour all over their body. They are a little more robust than *D. bipunctata* but, apart from mature males, can be diffi-



Fig. 9 *Diplacodes bipunctata*



Fig.10 *Diplacodes melanopsis*



Fig. 11 *Diplacodes melanopsis*

cult to tell apart from each other (*D. haematodes* also has two spots on the thorax). These don't often come to Melbourne but are common along waterways in east Gippsland (and north into Queensland).

Another significantly red dragonfly is the mature male *Orthetrum villosovittatum* (Fig. 12). In Victoria this species is uncommon, being found mostly in east Gippsland. Females are a golden-yellow colour.

In the same family but much more common, and one you're likely to encounter around Melbourne, is the Blue Skimmer, *Orthetrum caledonicum*. Mature males are easily recognised by their pale blue abdomen with a darkened end. They regularly perch on rocks and exposed ground beside water bodies. Females and immature individuals are more difficult to identify as they are yellow with black markings.

Austrogomphus guerini (Fig. 12) is a species of dragonfly having a mostly yellow body with black markings, with both males and females similar. They are common along the Yarra and spend a lot of

their time basking on the ground, including gravel walking tracks, where it waits for either food or a mate to pass.

The Jade Hunter, *Austrogomphus ochraceus*, is also fairly common and looks quite similar. A third superficially similar species is *Hemigomphus gouldii*, although male *Hemigomphus* have quite different anal appendages compared with *Austrogomphus*.

There are quite a lot of species in the Gomphidae family, Victoria having only about half a dozen species. The main feature to look for within this group is the extent of the yellow dorsal line along the abdomen; for *A. gueriini* it extends the entire length, for *A. ochraceus* it extends most of the abdomen except the last two segments and *Hemigomphus* don't have a stripe at all.

I have observed *Austrogomphus australis* and *Austrogomphus cornutus* along the Ovens River north of Wangaratta, which is the only "mature" inland river where I have seen much in the way of Odonata. Another species I have seen there is *Nannophlebia risi*, (Fig. 13) which is similarly coloured but this Archtail has quite a different stance.

To be continued next bulletin including the following:

Identification of damselfly species; Some rare damselflies in Victoria; Some rare dragonflies in Victoria; The darner group.



Fig.12 *Orthetrum villosovittatum*



Fig. 12 *Austrogomphus gueriini*



Fig. 13 *Nannophlebia risi*

Minutes from the General Meeting Tuesday 19th February 2013, Melbourne Museum

Attendance:

Members: Ian Endersby, Margaret Endersby, Geoffrey Weeks, Glenise Moors, Marilyn Hewish, Steve Williams, Joshua Grubb, Geoff Walker, Ken Gosbell, Geoff Hogg, Trevor Hausler, Peter Carwardine, Linda Rogan, Peter Marriott, Ken Harris, Peter Lillywhite. New Members: James Neave, Frank Pierce

Guests: Reiner Richter, Alan Brown, Rob Moors, Linda Neave

Apologies: Carol Page, Daniel Dobrosak, Kaye Proudley, David J. Stewart, Grant Kuseff, Eileen Collins

1. Minutes from the General Meeting of 16th October 2012 [*Vic. Ent.* 42:109-113] and Notes from the Entomological Society of Victoria combined event with Riddells Creek Landcare, 4th December 2012 [*Vic. Ent.* 43: 1-3] were accepted as accurate.
2. Correspondence
 - The society recently responded to a request from the Seven Network for a supply of mosquitoes to be used in filming one of the episodes from *Winners & Losers*. It is expected to be seen in episodes 11-12!
 - The society responded to a request from News for a rural Victorian entomological enthusiast for a human interest feature in *The Weekly Times*.
 - Second announcement for the Third International Entomophagous Insects Conference (IEIC3). This conference will be held in Orford, Québec, Canada, from 2 to 6 June 2013. The web site of the conference, hosted by the Entomological Society of Québec, is now open at: www.seq.qc.ca/IEIC3
 - Correspondence from Marianne Horak: Our scribbly moths paper has finally been published in *Invertebrate Systematics* and CSIRO Publishing has kindly made it available for free on its website: <http://www.publish.csiro.au/paper/IS12022.htm>
 - Email request from Italy regarding *Lucanidae*, *Cetoniidae*, *Buprestidae* species availability. We passed details of local suppliers to them directly.
 - Letters of thanks from Science Talent Quest bursary winners Alyson Gilmore and Kiara Jarvis
 - A number of identification requests and picture submissions on Facebook and email.
3. Treasurer's Report
General account \$ 6,997; Le Souef Award account \$ 5,677; Publishing account \$ 13,997
Unfinancial Members 41
4. Editor's report:
Members are urged to send in contributions prior to the 16th March deadline for the April Bulletin as some space is still available at this stage. It is requested that any complex tables should be fitted to the printable page space ie. 13cm by 20cm and in .pdf format with captions included.
Thanks to Reiner Richter, this evening's speaker for the striking photo of a mating pair of the rare damselfly *Coenagrion lyelli*. To fit in with this cover for the year, articles and observations on Odonata are particularly encouraged although all other taxa are welcome as well.
5. General Business:
~~Five Membership Applications were received and elected at this meeting. We extend our welcome to all these new members listed on the next page.~~

Welcome New Members

James Neave, Trafalgar Vic, Student Member, Interests: Praying mantis, Spinyleaf Stick Insects
Charles van Dijk, Auburn SA, Coleoptera, Hemiptera
Peter Muller, Enfield, Vic, Butterflies, Moths, Ants, Native Plants
Mark Hura, Parafield Gardens, SA, All Invertebrates especially Scaritinae (Coleoptera: Carabidae) and Phasmatodea
Frank Pierce, Kangaroo Ground, Vic, Lepidoptera, Odonata and General.

Threatened Invertebrates in the Goulburn Broken Catchment

We have received a request for assistance from Gaye Furphy, Biodiversity Officer DSE with this project that focuses on 3 species: the Golden Sun Moth (*Synemon plana*) and the Small and Large Ant-blue Butterfly (*Acrodipsas brisbanensis* and *A. myrmecophila*) in the Mt. Piper Reserve. There is much local interest including members of the Friends of Mt. Piper but staff entomological expertise and capacity has been limited in recent times.

Assistance could include:

- Feedback on the technical content and readability of the factsheet before publication. (Draft copy available on request);
- Volunteer assistance for surveys of the ant associates of the *Acrodipsas* Autumn 2012 and the *Acrodipsas* butterflies summer 2013 (ie. "to skill up community volunteers, agency staff and local land managers");
- Publishing reports of data collected from this project for all three taxa in Victorian Entomologist;
- Other contributions our members would like to make.

This request will be further discussed at the March council meeting and any members who have suggestions or would be interested in participating should contact a Council member. You may also contact Gaye Furphy directly at Gaye Furphy Biodiversity Officer
Direct Line: 57611616 gaye.furphy@dse.vic.gov.au

Guest Speaker:

Reiner Richter Nature Photographer presented *Damselflies and Dragonflies in Focus*. Notes from Reiner's presentation along with a few of his photographs will appear in the bulletin in two parts. Part one begins on page 1 of this bulletin. Thank you to Reiner for such an interesting and well illustrated presentation. The volume of species and photos meant things were a bit rushed at the end. These notes allow us to have time to absorb some of the material we may otherwise have missed.

Minutes of the Council Meeting 19 March 2013

Present: P. Marriott, P. Carwardine, S. Curle, L. Rogan, I. Endersby, M. Fiedel
Apologies: K. Walker, D. Stewart, D. Dobrosak, L. Rogan, P. Lillywhite.

Previous minutes

Minutes of the previous council meetings [Vic. Ent. 42(6): 113-114 & 42(5): 86-87] were accepted.
P. Marriott – seconded L. Rogan.

Correspondence:

Fred Woods – Query regarding fighting ants
Michelle – Queen Ezra Bull Ant
Bronwyn Johnson – presenters for a workshop

Treasurer's Report:

Account Balances

General a/c \$6,737

Le Souef a/c \$5,677

Publishing a/c \$14,028

Unfinancial Members 34

We have been asked for a donation to the 62nd Science Talent Search.

I. Endersby moved a donation of \$100. All in favour.

As part of the meeting, we now need to approve the current Association Incorporation Reform Act; Schedule 1 form 1; and publish the accounts for our members in the next publication.

Editor's report:

Wording with regard to "CONTRIBUTIONS TO THE VICTORIAN ENTOMOLOGIST" is in need of review:

Copyright statement

Currently: Items printed must not be reproduced without the consent of the author and Council of the Entomological Society of Victoria Inc.

Proposed: Items printed must not be reproduced without the consent of the author and acknowledgement of the Entomological Society of Victoria Inc.

Wording revision

Currently: Tables should fit an A5 page with 1 cm borders as a maximum size.

Proposed: Tables should fit an A5 i.e. 12.5cm width x 18cm height as a maximum size and complex tables should be in .pdf format.

Additional wording

Preference will be given to articles with 5 or fewer pages of straight text and articles longer than this will be returned to the author for reconsideration.

Proposed: L. Rogan Seconded: P. Carwardine

Membership Applications:

No new members to be elected this month

General Business:

Constitution Changes

Required changes to our Society's Rules arising from changes to the Association's Incorporation Act. I. Endersby has presented to the council a comparison between the model rules and our current Rules showing proposed changes that will be required. We are aiming to present these changes to the June meeting this year. It will require a quorum of 15 members to pass changes to the society's rules. I. Endersby will distribute the proposed changes to our members prior to the June meeting.

Events Co-ordinator / Excursions Secretary:

The society is seeing wonderful growth generally within Victoria and we see the need for an Events Co-ordinator to join the team. We'd see this as someone perhaps who would welcome the opportunity to gain some real experience in organising events for the society and perhaps gain valuable experience that might help them develop their skills in this field. Expressions of interest please advise the secretary as soon as possible please. secretary@entsocvic.org.au

(Continued on page 48)

Mimicry in the moth larva *Nisista serrata* (Geometridae: Ennominae)

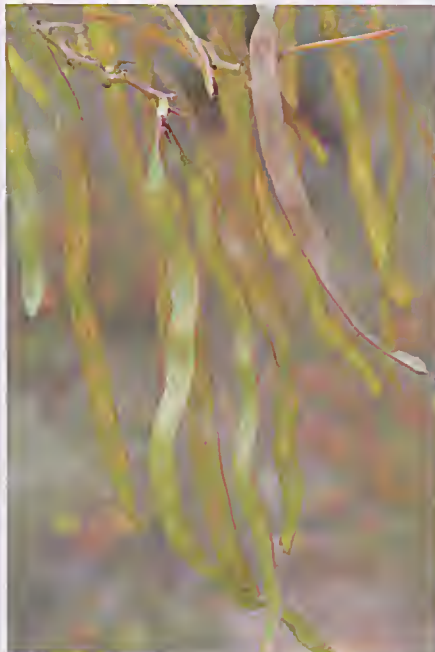
Marilyn Hewish and Stephen Williams
hewishs@iprimus.com.au, steve.williams@dpi.vic.gov.au

On 28 October 2012, one of us (MH) discovered a larva of the moth species *Nisista serrata* at Bert Boardman Reserve at Steiglitz (west of the Brisbane Ranges). It was well disguised as it rested along a Golden Wattle (*Acacia pycnantha*) stem. At Eppalock in central Victoria, captive larvae readily accepted Golden Wattle as a food-plant and it is probably the major host in this area (Williams, 2012).

The larva was light green with a pink dorsal stripe. It resembled in colour and form the immature seedpods of the wattle which were green with pink edges. The advantages for



N. serrata larva on Golden Wattle, Steiglitz, 28 October 2012
Photo: D. Hewish



Immature seedpods of Golden Wattle, Steiglitz,
3 November 2012 Photo: D. Hewish



Young leaves of Golden Wattle, Bannockburn,
20 January, 2013 Photo: D. Hewish

the caterpillar are probably in part mimicry but the pink line may also act to break up the outline and confuse the eye. As the Golden Wattle seedpods mature they become darker and the resemblance is lost.

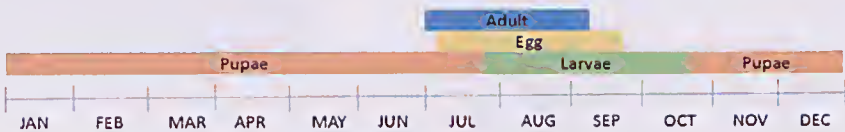
The young leaves of Golden Wattle are slender and light green, and can also exhibit a pink or dark margin. This is pertinent as the larvae would overlap with immature seedpods only in the later part of their development. Earlier, during the flowering period, the larvae would still visually match some leaves. It is interesting that *N. serrata* larvae raised at Eppalock tended to have darker brown lines rather than pink.

N. serrata has a relatively short larval phase and this seems to be typical of winter-flying moths in the subfamily Ennominae. The larvae tend to be present just prior to host flowering and through into early seedpod development (see figure showing annual life-cycle profile). It seems likely that the colour pattern and the timing of the larval stage have evolved so that the larvae match the host for concealment and protection. A few larvae would be very hard to spot in a Golden Wattle laden with young seedpods or leaves.

Similar mimicry can be observed in other species feeding on Golden Wattle. For example, *Chlorocoma vertumnaria* larvae also show a pink line from about halfway through their larval growth, although the line fades in the final instar.



Adult male *N. serrata*, Brisbane Ranges, 23 August 2009
Photo: M. Hewish



Annual profile of *N. serrata* life cycle, Eppalock (S. Williams).

Acknowledgments

Thanks to Cathy Young for helping to identify the larva, and to Dean Hewish for photographs.

Reference

Williams, S. 2012. Observations regarding host plants of sixty eight moths at Eppalock in central Victoria. *Victorian Entomologist* 42/1: 13-17.

Southern Grass-dart *Ocybadistes walkeri* (Lepidoptera) observed in south-western Victoria.

Bryan Haywood
CMB, Moorak, SA, 5291

The Southern Grass-dart *Ocybadistes walkeri* was found in the Hamilton district of south-west Victoria in the summer of 2008. This colony appears to be bridging a gap (in distribution) between Naracoorte in South Australia and central Victoria (a line south of Horsham to Bendigo then south to Geelong).

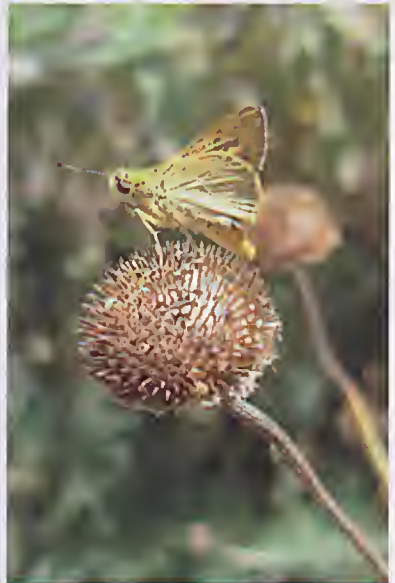
On 16th February 2008 *O. walkeri* was observed at the Hamilton Institute for Rural Learning while the author lead a butterfly walk within the grounds of the nature reserve with members from the Hamilton Society for Growing Australian Plants.

The skipper pictured below was seen amongst various non-native plants growing in the picnic area. At the time, this observation was not considered unusual but nonetheless the skipper was brought to the attention of as many participants as possible. Once the group was shown the butterfly (which thankfully stayed put), it was netted by Peter Nicholson for later preservation and confirmation of identification by the Victorian Museum.

One participant (Cicelia Fenton) offered a photo taken a week earlier at her property near Hamilton (Table 1). It was later determined to be the same species. These records confirm a more widespread colony occurring through this district.

Kath Alcock of Naracoorte (SA) has regularly observed *O. walkeri* in her backyard garden sometimes with White-banded Grass-darts *Taractrocer a papyria*. Table 1 p.38 displays all observations (known to the author) of *O. walkeri* in the SE of SA and SW Victoria. NOTE: Only 1 or 2 individuals were observed on each occasion.

Neither Braby (2000) nor the Museum Victoria (2013) show this species to occur in this district and perhaps this find is helping to bridge the gap between the colony in Naracoorte (SA) and the population in central Victoria. With further survey effort between Hamilton and Naracoorte perhaps this will one day become true. It should be noted that Butterflies of South Australia (2013) also has a record near Beachport.



Ocybadistes walkeri at Hamilton (RIL) 16-Feb-2008

Acknowledgements

Ken Walker for confirming the identification.
Peter Nicholson for assisting in capturing the skipper. C Fenton for providing details of observations and L Fenton for inviting me along to the Society for Growing Australian Plants - Hamilton branch for the opportunity to share knowledge on butterflies with a fabulous group of interested people. Kath Alcock for her constant encouragement towards recording nature and for a selection of diary records of *O. walkeri* used in this paper.

References

Braby, M.F. (2000). *Butterflies of Australia*. Vols I & II. CSIRO Publishing, Melbourne; 976 pp.

Butterflies of South Australia website <http://sabutterflies.org.au/> (accessed 5 Jan 2013)

Victorian Museum website. <http://museumvictoria.com.au/bioinformatics/> (accessed 5 Jan 2013)

Date	Species	Observer/s	Location
25-Feb-07	<i>O. walkeri</i> <i>T. papyria</i>	KA, BH & TH	Naracoorte (SA)
7-Feb-08	<i>O. walkeri</i>	CF	Hamilton district (Vic)
16-Feb-08	<i>O. walkeri</i>	BH & JH, Hamilton SGAP	Hamilton (Vic)
12-Feb-11	<i>O. walkeri</i> <i>T. papyria</i>	KA	Naracoorte (SA)
25-Apr-11	<i>O. walkeri</i> <i>T. papyria</i>	KA	Naracoorte (SA)
20-May-11	<i>T. papyria</i>	KA	Naracoorte (SA)
21-May-11	<i>O. walkeri</i>	KA	Naracoorte (SA)
24-Feb-12	<i>O. walkeri</i>	KA	Naracoorte (SA)
16-Apr-12	<i>O. walkeri</i>	KA	Naracoorte (SA)

Observers: KA = Kath Alcock, CF = Cielia Fenton, BH = author, JH = Jean Haywood, TH = Toni Haywood

Subdued by a Sundew

Bryan Haywood
CMB, Moorak, SA, 5291

On 31 October 2012 while searching for orchids along a firebreak in Comaum Native Forest Reserve (17km NE of Penola) I came across a Cabbage White *Pieris rapae* butterfly in an unusual position on the low heathy vegetation growing along the fire track. At closer inspection I saw it was stuck to the filaments on a sundew Pale Sundew *Drosera peltata*.

The butterfly was still alive but appeared to have been unable to escape the grasp of the sundew. I did not return to the site after this observation to report on the eventual consequences of this capture.

This is the largest insect I've observed caught by the gluey filaments of a sundew and wondered if others had any observations to report.



Confirmation of *Austrophlebia costalis* (Southern Giant Darner) in Victoria

Reiner Richter reiner@rnr.id.au

Abstract

Austrophlebia costalis (Tillyard, 1907) is an enormous dragonfly (Odonata: Telephlebiidae) endemic to the east coast of Australia. Previously it had been recorded "not much further south than the Bega area" (G. Theischinger, pers. comm.) so this discovery extends its range by approximately 100km into eastern Victoria.

This article discusses the discovery and my observations at the currently only known site in Victoria for this species.

Discussion

I first visited this site, the Wingan River at Boundary Track, Croajingolong National Park (37.690°S, 149.492°E) in January of 2009. This section of the river is mostly rocky with large, deep pools separated by short rapids. It is a picturesque, warm-temperate rainforest valley dominated with *Tristaniopsis laurina* (Kanooka or Water Gum).

During visits in previous years a very large, light-brown, swift-flying dragonfly was observed. The probability that this was indeed *Austrophlebia costalis* (Southern Giant Darner) seemed high but conclusive evidence eluded me. Instead, *Austrocordulia refracta* was serendipitously discovered at the site last season (24 December 2011); it is very rare in Victoria.

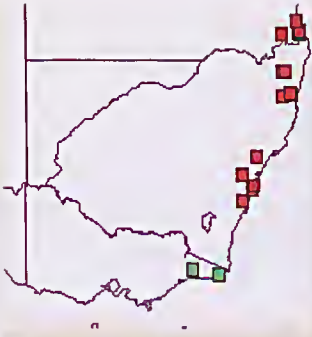
It was observed that the males of this unknown dragonfly patrolled around the edge of the large pool, most interested where there was debris such as logs. Therefore on this trip (24-27 January 2013) I based most of my time where large and small semi-submerged logs lay, rather than at the rapids (where crossing the river is easy but which they tended to ignore).

I was rewarded by seeing numerous flybys of males, particularly in the mornings and evenings of warm days. From a distance I also observed an ovipositing female. On a cooler day with a morning and afternoon rain-shower these dragonflies appeared more often throughout the day and it was then that I was able to finally photograph one of these creatures from close quarters. While I was sitting on a log beside the river with my feet resting on another semi-submerged log a female landed beside me and went about her business. I also recorded a video of this: <http://youtu.be/MoUVLizPwQ>

There were at least 4 individuals sighted, as three males were observed simultaneously and of course the female ovipositing. In my estimation there were probably 3-4 males and one or two females active at the site.

Males seem to be attracted to red, as indeed these insects themselves are predominantly red-brown in colour. After a little rain I was by the river with my bright-red umbrella leaning up against the bank. The males tackled this several times, presumably distracted by the colour and attempting to grasp a female that wasn't actually present. They did also seem to pause at a rusty pipe where I spent most of my time.

Other Odonata sighted personally at this Wingan River site are: *Anstroaeschna pulchra*, *Anstroaeschna unicornis*, *Anstroagrion watsoni*, *Anstroargiolestes icteromelas*, *Anstrocordulia refracta*, *Austrogomphus guerini*, *Austrogomphus oclraceus*, *Austrolestes cingulatus*, *Coranlephyia montana*, *Diphlebia lestooides*, *Hemicordulia australiae*, *Hemigomphus gouldii*, *Notoaeschma sagittata*, *Rhadinosticta simplex* and *Synlestes weyersii*. This is the only current known site for *A. refracta* in Victoria. *C. montana* is also rare in Victoria. Identity of *Hemigomphus* is uncertain due to similarity between *H. gouldii* and *H. heteroclytus*. Other fauna personally observed include *Ornithorhynchus anatinus* (Platyopus), *Papilio aegaeus* (Orchard Swallowtail Butterfly), *Physignathus lesnenrii howittii* (Gippsland Water Dragon), *Egernia saxatilis* (Black Rock Skink) and *Litoria mudidigita* (Leaf Green Tree Frog).



Distribution of *A. costalis*

This map (courtesy of Ian Endersby) shows the location of previous museum specimens (red) plus the relative location of these new discoveries. (green).



A. costalis apparent habitat preference means other suitable sites are very limited in Victoria to a few in east Gippsland. Sites I have visited on the Thurra River are enclosed by trees and there are no large, open pools. Raymond Creek in the Snowy River National Park has potential but only once have I observed a large, unidentified species there (poorly sighted at a distance). Much of the Genoa River I have visited does not contain *Tristaniopsis laurina*. The Broadribb is a healthy-looking river lined with these trees.

So there are other possible sites but they have not been explored sufficiently. Raymond Creek is the only one that I have visited numerous times.



Addendum

After writing the original report I visited Raymond Creek (in Snowy River National Park) on 8-9 March 2013 mainly for this dragonfly and did indeed observe *Austrophlebia costalis* several times along the length of the walking track. A perched male was photographed at 37.4758°S, 148.2991°E (1 above) and an ovipositing female was photographed the following day nearby (2 above). This extends the known range by another 100km.

Earias moths, rare vagrants in Tasmania

LIONEL HILL

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This article records rare, vagrant appearances of two species of *Earias* moths (Noctuidae: Chloephorinae) in Tasmania. They were detected in the mercury vapour light trap operated by the Department of Primary Industries, Parks, Water & Environment, Tasmania (DPIPWE). Five specimens were trapped between 1992 and 2012 and these represent all *Earias* specimens held by the DPIPWE and the only records of the two species for Tasmania.

The trap is similar to the Rothamsted design traps used extensively in the United Kingdom (see RIS 2012 for image). Its dimensions were given by Hill (2013). It operates at the Stony Rise Government Centre, 1 Rundle Street, Devonport, 41°11'29"S, 146°19'24"E, at 69m above sea level and about 5km inland from Bass Strait. Operation commenced in 1992 and continues but the trap was non-operational in the period 2007-9 inclusive as well as the first halves of 2006 and 2008. It was serviced at intervals of one to several days.

Common (1990) wrote that, "The widely distributed Old World genus *Earias* includes eight small Australian species, some of which have green markings". The two species trapped at Stony Rise are rough bollworm, *Earias huegeliana*, described by Gaede in 1937 and *E. parallella*, described by T.P. Lucas in 1898.

Rough bollworm occurs widely but northerly in Australia and the Pacific Islands on malvaceous plants. The weed, bladder ketmia is the major host. It is a minor, irregular pest of cotton (Wilson *et al.*, 2007). It does not breed in Tasmania. *Earias perluegeli* was described by Holloway in 1977 but synonymized with *E. huegeliana* by Ted Edwards (1996). Specimens may possess or lack a bold green stripe on the forewing. Both forms were trapped at Stony Rise (Figs 5, 7 & 9).

The other species trapped at Stony Rise, *Earias parallella* Three-barred *Earias* has no pest status. It has been associated with the host plant *Abutilon* in the Malvaceae (Herbison-Evans & Crossley, 2012). It does not breed in Tasmania.

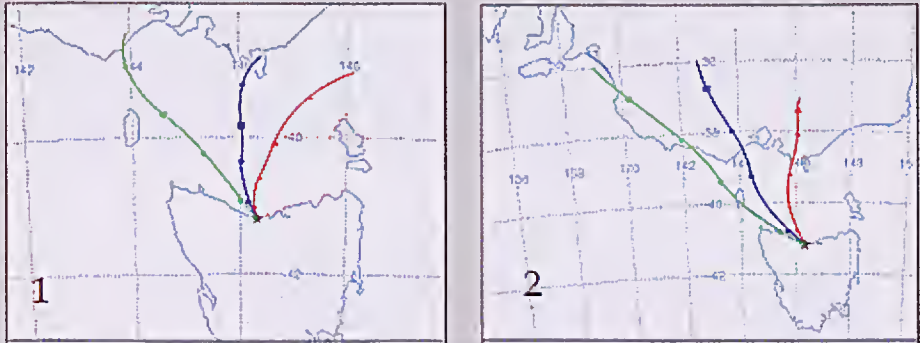
The HYSPLIT model (Draxler and Rolph 2011, Rolph 2011) was applied to the five catches to determine plausible air flows to Tasmania. If you wish to try this, go to Air Resources Laboratory website (<http://ready.arl.noaa.gov/HYSPLIT.php>) and select: HYSPLIT trajectory model, compute archive trajectories, one starting location, normal trajectory, reanalysis (global, 1948 – present) meteorological data, latitude -41.191389, longitude 146.323056, select a monthly file e.g. RP199304.gbl, backward trajectory, model vertical velocity, enter 'start' time (add 10 hours to convert UTC to EST), enter one or more heights such as 100 m, 500 m and 1000 m above ground level and run program. The vertical profile of airflow was cropped from the HYSPLIT maps below to save space.

The following record of catches is in chronological order, with notes on meteorology and vagrant or migratory moths trapped with *Earias*. Pest record numbers from the Tasmanian Plant Pest Database (TPPD) are provided. These double as specimen accession numbers in the DPIPWE collection.

Catch interval 27 April 1993 (night of 26 April): one male *E. parallella*, identified by Ted Edwards of ANIC, TPPD 13147. This moth was caught along with the known or likely (in spring armyworm, cutworm, budworm and looper are certainly immigrants while in autumn their origin is less well understood) migrants: 800 horehound moths, *Utetheisa pulchelloides*; 16 *Athetis tennis*; five southern armyworm *Persectania ewingii*; one cabbage-centre grub *Hellula hydralis*; one native budworm *Helicoverpa punctigera* and one green blotched moth, *Cosmodes elegans* (and the possible migrants one *Leucaena uda* and three *L. obusta*). In the preceding three-day catch interval, 24-26 April, 85 hore-

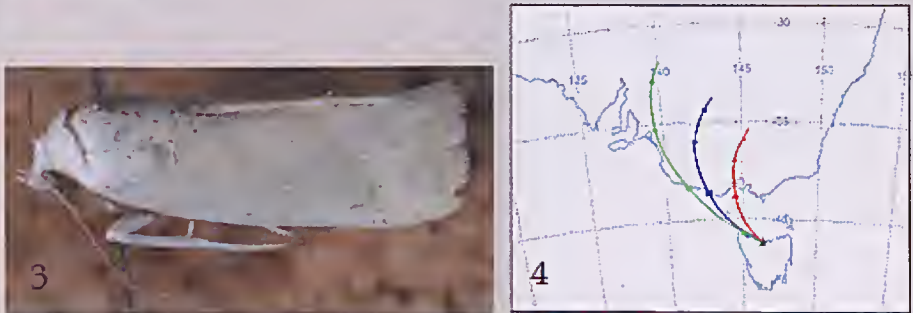
hound moths, 14 southern armyworm, two *Athetis tenuis*, one inland armyworm, *Persectantia dyscrita* and one green blotched moth were trapped. The trap was non-operational on the night of 22 April. Hill (2011a) described a prolonged series of migrations by horehound moth between mid-February and early May, 1993. For *E. parallela*, an airflow on the night of 26 April may have been the pathway although it did not provide a fast back trajectory into the south-eastern Australian mainland (Fig 1). A faster, favourable airflow occurred several days earlier on 22 April (Fig. 2).

Figure 1. 24-hour back trajectories at 100m (red triangles at 6-hourly intervals), 500m (blue squares) and 1000m (green circles) above ground level from Devonport, midnight EST, 26 April. Figure 2: Same for 6am EST, 22 April 1993.



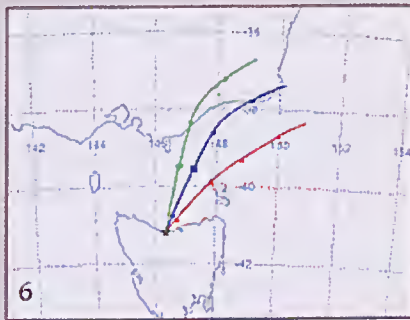
Catch interval 25 October 1996 (night of 24 October): one male *E. parallela*, determined by Ted Edwards, TPPD 25611 (Fig. 3). This moth was caught along with the known migrants: 54 southern armyworm; seven brown cutworm, *Agrotis ununda*; six diamondback moth, *Plutella xylostella*; four native budworm; two tobacco looper, *Chrysodeixis agentifera*; two cabbage-centre grub; 2 *Hypoperigea tonsa*; one *Tathorhynchus fallax* (unique vagrant) and one *Melaugyna* hoverfly. Similar catches had occurred on each of the preceding three nights. A suitable pathway occurred during the night of this catch (Fig. 4).

Figure 3: *Earias parallela*, TPPD specimen 25611. Figure 4: 24-hour back trajectory at 100m (triangles at 6-hourly intervals), 500m (squares) and 1000m (circles) above ground level from Devonport, 6pm EST, 24 October 1996.



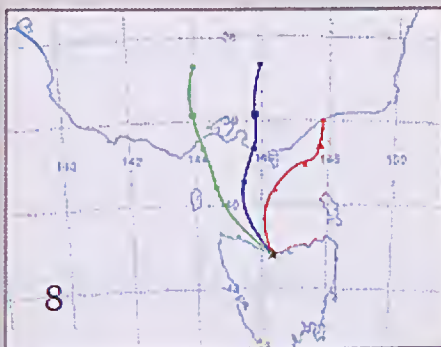
Catch interval 2-8 Apr 1999 (seven nights): one male *E. huegeliana* with green markings, identified by Ted Edwards, TPPD 40953 (Fig. 5). This moth was caught along with the known or likely migrants: four southern armyworm; two horehound moths; one black cutworm, *Agrotis ipsilon* and one native budworm (and the possible migrant one *L. obusta*). At the beginning and end of this catch interval airflow was from the south-west to west but around 4 April a high level (1000m) pathway from the mainland existed as in Fig. 6.

Figure 5: Rough bollworm, *Earias huegeliana*, TPPD specimen 40953. Figure 6: 24-hour back trajectory at 100m (triangles at 6-hourly intervals), 500m (squares) and 1000m (circles) above ground level from Devonport, 4am EST, 5 April 1999.



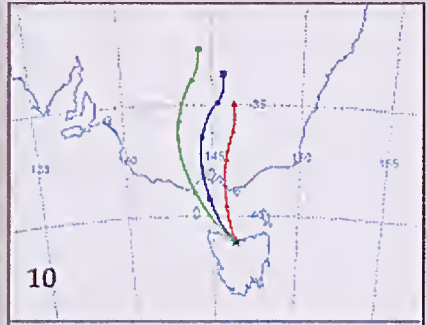
Catch interval 1-2 March 2000 (two nights): one male *E. huegeliana* with green markings, TPPD 47001 (Fig. 7). This moth was caught along with the known or likely migrants: two *Athetis tenuis*; two southern armyworm; two corn earworm, *Helicoverpa armigera*; one brown cutworm and one *Pantylidia* sp. In Hill (2011b) *E. huegeliana* was incorrectly ascribed to the week 5-11 March 2000. The bulb failed on the night of 28 February so there was no catch for 29 February. A suitable airflow occurred on the night of 1 March (Fig. 8) with the previous most likely pathway on the night of 25 February.

Figure 7: Rough bollworm, *Earias huegeliana*. TPPD 47001. Figure 8: 24-hour back trajectory at 100m (triangles at 6-hourly intervals), 500m (squares) and 1000m (circles) above ground level from Devonport, 4am EST on 2 March 2000.



Catch interval 13 April 2005: one male *E. huegeliana*, without green markings, TPPD 87991. This moth was caught along with the known or likely migrants: 14 horehound moths; eight cabbage-centre grub; three southern armyworm; one common cutworm (bogong moth), *Agrotis infusa*; two green mirid, *Creontiades dilutus*; one brown cutworm and one *Athetis tenuis* (and the possible migrants two *Proteuxoa tibiata*, two *L. obusta*, one *L. obumbrata* and one *L. dictyota*). Larger catches of horehound moth and green mirids occurred in the preceding catch interval, 9-12 April and of horehound moth in the interval, 2-6 April. A marginally suitable high (1000m) pathway occurred during the night of 12 April from Gippsland but a more favourable pathway occurred on 10 April (Fig. 10).

Figure 9: Rough bollworm, *Earias inuegeliana*, TPPD 87991. Figure 10: 24-hour back trajectory at 100m (triangles at 6-hourly intervals), 500m (squares) and 1000m (circles) above ground level from Devonport, 10am EST, 10 April 2005.



Discussion

The *Earias* moths are useful but rare indicators of migrations into Tasmania. The cabbage-centre grub, *Hellula hydralis* is a more frequent vagrant and indicator of migratory events with moths (835) captured in 25% of all weeks between 1992 and 2006 (Hill 2011c, 2012). The noctuid moth, *Athetis tenuis* is another frequent indicator with moths (938) captured in 30% of those weeks. Records of it breeding in Tasmania are extremely rare.

Acknowledgement

The author gratefully acknowledges the National Oceanic and Atmospheric Administration (NOAA) Air Resources Laboratory (ARL) for the provision of the HYSPLIT transport and dispersion model and (Real Time Environmental Applications and Display Systems) READY website used in this publication.

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Psyllids in a Nathalia Garden (North Central Victoria)

Lyn Loger logerel@internode.on.net

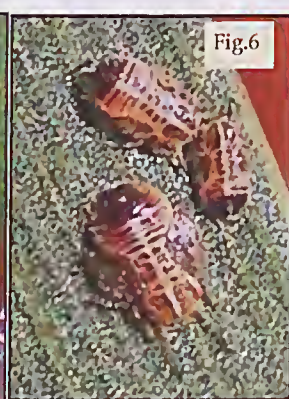
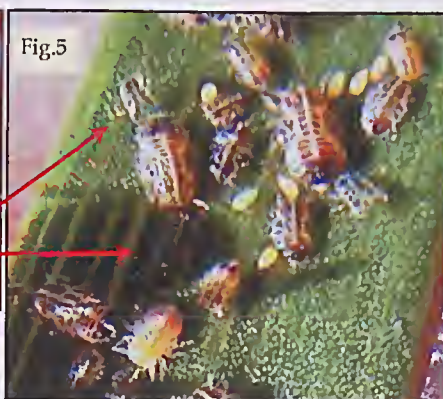
Mutualism between ants and psyllids.

Figure 1 shows ants on one of the Lightwood Wattle *Acacia implexa* leaves with herds of immature psyllid nymphs that they 'farm' January 2013.

The ants collect the honeydew secreted by the psyllids; in return, they protect them from predators: lady birds, hover fly larvae and tiny wasps. It's a symbiotic relationship benefitting both creatures. The relationship between these ants and psyllids is not species specific - the identity of the ant species can change, according to the time of day or the season.



These ants look like they are a species of *Iridomyrmex*. Close up fig.2. The psyllid genus *Acizzia* look like tiny cicadas. The orange colour is due to the adult psyllid having newly emerged as an adult. They darken in colour with time. Here one is shown laying an egg. (Fig.3)



The ants do not bite; they crawled over my

hands as I took photos (fig.4) - Psyllid nymphs are shown variously sized (Fig. 5 and 6).

Psyllids are related to aphids, but have strong jumping legs and shorter antennae. Several hundred species of psyllids occur, mainly on eucalypt and wattle trees.

Ref:<http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7423.html>

Usually, there is one type of psyllid for each flora species, or closely related species. Psyllids are

commonly seen on wattle and eucalypt trees. Most native species of psyllids require no management. Plants can tolerate substantial numbers and the psyllids decline naturally.



Figure 7 The psyllids on the *Acacia implexa*, on same branches five days later than figures 1-6.

Figure 8 and enlargement fig. 9 taken by Danielle Loger, also in summer, on December 3rd, 2010. Psyllid nymphs and their ants on the Silver Wattle *Acacia dealbata* tree out in the backyard. It is difficult to determine from nymphs whether this is the same species as the one on the *A. implexa*.



Acknowledgement and thanks to Alan Yen, entomologist and expert on Psyllids, for both focussing this article and for further information.

Further notes from the author:

From 1996 to the present day, Howie Marshall O.A.M., our local flora expert up here (O.A.M. awarded for his lifelong services to the conservation and identification of the local flora) has assisted me to develop a local flora garden. Out of the 400 plants recorded for this area, I now have about 120 growing in my backyard. The garden has become my living laboratory. This year, I am writing a journal on the garden, recording what I find each day. The psyllid page is based on one day's recording.

We welcome Lyn as a new author in our bulletin. Editor

THE ENTOMOLOGICAL SOCIETY OF VICTORIA INC.
STATEMENT OF RECEIPTS AND PAYMENTS
FOR THE YEAR ENDED 31 DECEMBER 2012

GENERAL ACCOUNT

INCOME	Subscriptions				
	Member	2012	2,142		
		2013	378		2520
	Institution	2012	194		
		2013	60		254
	Donations				38
	Interest				131
					2,943
EXPENDITURE					
	Printing		2,604		
	Postage		891		
	Envelopes		190		
	Labels		30	3,715	
	Lecture Room Hire			0	
	Corporate Affairs Fees			43	
	Aust Ent Soc Sub			0	
	Treasurer's Expense			47	
	CBA Merchant Fee			20	3,825
					(882)
SURPLUS/(DEFICIT) FOR YEAR					(882)
	Add Balance brought forward from 2011				(1,018)
	Balance carried forward to 2013				(1,900)

LE SOUËF MEMORIAL FUND

INTEREST INCOME

	Commonwealth Bank Fixed Deposit				40
Less	Award Expenditure		0		
	Science Talent Search		100	100	
SURPLUS/(DEFICIT) FOR YEAR					(60)
	Add balance brought forward from 2011				3,248
	Balance carried forward to 2013				3,188

PUBLISHING ACCOUNT

INCOME

Book Sales

(Moths of Victoria Part 1)	997	
(Moths of Victoria Part 2)	861	
(Moths of Victoria Part 3)	892	
(Moths of Victoria Part 4)	1,345	
(Collecting & Sampling Insects)	356	
Wings & Stings	2	

Postage

347

Commonwealth Bank Fixed Deposit Interest

149

4,949

EXPENDITURE

Printing Costs

6,736

Postage

311

Credit Card Fees

146

7,193

SURPLUS/(DEFICIT) FOR YEAR

(2,244)

Add balance brought forward from 2011

15,167

less transfer to Term Deposit

9,000

Balance carried forward to 2013

3,923

STATEMENT OF ASSETS AT 31 DECEMBER 2012

GENERAL ACCOUNT

Bank Account

(1,900)

Commonwealth Bank Term Deposit

7,600

5,700

LE SOUËF MEMORIAL FUND

Bank Account

(1,900)

Commonwealth Bank Term Deposit

7,600

5,700

PUBLISHING ACCOUNT

Bank Account

3,923

Commonwealth Bank Term Deposit

9,000

Value of Inventory

9,011

21,934

(Continued from page 33)

DSE Proposal

We have received a communication from Gaye Furphy, requesting the society's participation in the survey work for the Golden Sun Moth and Large and Small Ant Blue Butterfly out at Mount Piper.

The DSE are looking for volunteers to assist with survey work starting with ant's survey during Autumn 2013. See also Threatened Invertebrates in the Goulburn Broken Catchment p.32.

L. Endersby will review the fact sheet for accuracy and readability and return to Gaye via Linda.

L. Rogan to verify requirements for surveys from DSE and we will advertise to our members.

Special Thanks

To I. Endersby for the phenomenal amount of work that has so far gone into reviewing the constitution amendments. Proposed: P. Carwardine Seconded: P. Marriott

2013 Schedule

General Meetings

A number of people have been informally meeting up at Michelinos Trattoria Restaurant prior to general meetings. Any members who would like to meet at Michelinos - at around 18:00 - are welcome to join us for a pre meeting chat / food.

www.michelinos.com.au/ 69 Pelham Street Carlton VIC 3053 (03) 9663 3365

Council meeting dates: May 21st, July 16th, Sept 17th, Nov 19th

Month	Date	Planned event	
April	16 th	AGM & General Meeting	Speaker TBC
June	18 th	General Meeting	General Meeting Members' short presentations
August	20 th	Excursion	Proposing new DPI facility
October	15 th	General Meeting	General Meeting Members' short presentations
December	12 th	Excursion	Please note, December's meeting date is second Tuesday of December to try and avoid Christmas celebrations

Meeting closed [19:10](#)

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Thanks to Daniel Dobrosak, Marilyn Hewish and Laura Levens for assistance in producing the Victorian Entomologist.

CONTRIBUTIONS TO THE VICTORIAN ENTOMOLOGIST

The Society welcomes contributions of articles, papers or notes pertaining to any aspect of entomology for publication in this Bulletin. Contributions are not restricted to members but are invited from all who have an interest. Material submitted should be responsible and original. The Editor reserves the right to have articles refereed. Statements and opinions expressed are the responsibility of the respective authors and do not necessarily reflect the policies of the Society.

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Contributions may *preferably* be E-mailed to Internet address: editor@entsocvic.org.au, or posted to the Hon. editor in *Microsoft Word for Windows* with an enclosed hard copy. Tables should fit an A5 page with 1 cm borders i.e. 12.5cm width x 18cm height as a maximum size and complex tables should be in .pdf format. Preference will be given to articles with 5 or fewer pages of solid text and articles longer than this will be returned to the author for reconsideration. The main text of the news bulletin is prepared in 8 point, *Book Antiqua* font (please do not use fixed point paragraph spacing). The deadline for each issue is the third Friday of each odd month.

The Society's Home Page on the World Wide Web is located at:

www.entsocvic.org.au

ADVERTISING: The charge for advertising is \$5.00 per half page.

The *Victorian Entomologist* is printed at ImpactDigital

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DIARY OF COMING EVENTS

Tuesday April 16th AGM
And special speaker
Note 7:45 pm start
Museum Victoria auditorium

Tuesday May 21
Council Meeting

Scientific names contained in this document are *not* intended for permanent scientific record, and are not published for the purposes of nomenclature within the meaning of the *International Code of Zoological Nomenclature*, Article 8(b). Contributions may be refereed, and authors alone are responsible for the views expressed.