

BUTTERFLY CONSERVATION SA INC. **NEWSLETTER**

No. 78: February 2022

LIFE MEMBER ROGER GRUND RECOGNISED IN AUSTRALIA DAY HONOURS.

The contribution Roger Grund has made to the conservation of butterflies and their habitat has been recognised by an award of the Order of Australia Medal (OAM) in the 2022 Australia Day awards.

Roger is an inaugural member of Butterfly Conservation SA, a past Chairman and an Honorary Life Member. His contribution to many BCSA projects include two exhibitions at the South Australian Museum "Where have all the butterflies gone?" and "Bringing back the butterflies".

As co-author of our two books he wrote much of the butterfly text in "Attracting butterflies to your garden, what to grow and conserve in the Adelaide region" and provided many images for our most recent book "Caterpillars moths and their plants of southern Australia" as well as providing life history details for a number of species.

Roger's main contribution however has been his butterfly survey work in remnant vegetation on the Fleurieu, Eyre and Yorke peninsulas as well as on Kangaroo Island, Lower SE and the Flinders Ranges. He collected widely and painstakingly reared, recorded and photographed the life histories of butterfly species not only in South Australia but also interstate. Much of this work has been documented in scientific papers and on his comprehensive now redesigned website "SA Butterflies and Moths" which is now managed and funded by BCSA.

His most recent work has been on sun-moths and he named a new species after his daughter - Larissa's Sun-moth Synemon larissa (Grund and Stolarski, 2012).

Congratulations Roger, this is a well deserved honour.

SOPHIE IS NOW OUR PATRON

We are delighted to announce that South Australia's own 'Gardening Australia' presenter Sophie Thomson has agreed to be our Patron.

Sophie has been a enthusiastic supporter of Butterfly Conservation SA for many years and at every opportunity, has actively promoted butterflies and the conservation of their habitat as well as invertebrate biodiversity.

We have thoroughly enjoyed being involved in Sophie's Open Days at Sophie's Patch and have welcomed her as a guest speaker at our Public Talks program.

Her involvement in BCSA will be a win for the environment and our quest to promote the conservation and habitat of butterflies, moths, and other invertebrates. As the food for so many other animals and birds, invertebrates are the foundation of the food chain.

Welcome Sophie.

BUTTERFLY CONSERVATION SA. INC. Membership enquiries: membership@butterflyconservationsa.net.au or online: www.butterflyconservationsa.net.au/product/become-a-member/ Membership payments (\$10pa - plus \$10 for hard copy newsletters): to Treasurer: PO Box 4, DAW PARK 5041. Cheques to be made out to: Butterfly Conservation SA Inc. EFT details: BSB 633-000 Account No:152785838 Bank: Bendigo Bank. Account Name: Butterfly Conservation SA Inc. Please email Treasurer if paying by direct debit: treasurer@butterflyconservationsa.net.au with name, amount and item.

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(see also pages 5-8) Roger Grund OAM Sept 2021



MEMBER LETTER - OBSERVATIONS OF THE PAINTED LADY BUTTERFLY

I would like to tell you about some observations I have been fortunate to make of the Australian Painted Lady, *Vanessa kershawi*. Others may have previously reported such sightings but nevertheless they new and exiting to me.

I live at Mt Barker and every Thursday I enjoy having the company of my grand-dog. We do quite a bit of walking and resting in my front room that faces south into my front garden. Predominantly the garden is crowded with palms of the *Trachycarpus* genus, but I do have a few flowering plants. One such plant just outside the window is pictured below. Even so I don't remember its name but I don't believe it is a native. When in flower, as it is now it's a great attraction to bees and sometimes, butterflies.

A Painted Lady has been going to flower head to flower head for well over five hours, with no sign of going away. Nearly every time it lands on a new flower head it gently exercises its wings two to four times as it starts to feed. There are many bees also foraging for the life giving elixir on the same plant. If a bee comes close to the Lady it gives a noticeably faster one or two short movements of its wings and the bee changes direction.

It's not a surprise that I also see a Cabbage White fluttering by but rarely do I see one land but today I did. This one appears about half the size of the ones I usually see and clearly smaller than the Painted Lady. It flew quite quickly from head to head only occasionally spending longer. It also only stayed around for about five to ten minutes before moving on.

At back of my home is a four by seven metre garden that is still in transition from what it was five years ago, a lawn. This garden can be a hive of activity on a good day with 6 or 7 species of birds and many insects including the occasional butterfly.

Beyond that is a park that I am grateful to have access to via a back gate. This park could loosely be referred to as a formal garden although what appears behind my actual fence line is predominantly an environmental weed, kikuyu. Over the past few years I have managed to kill about 150 square metres and dug up, landscaped and planted about 120 square metres. The plants are predominantly Australian native and of those many are local. There are about four species of grass and about the same, in depressions, sedges that will hopefully attract birds and butterflies. Other plants include the small flowering plants you might find on the forest floor including Pelargonium australe (dead easy to grow and transplant and flowers while you look) and Bulbines. The plants that are really taking off are Acacia, Banksia, Grevillea, Correa, Eucalyptus and Callistemon spp.

I also volunteer for the CFS with the Mt Lofty Fire Tower Brigade. This gives one a unique view of this part of the Planet we live on. Sometimes the visible horizon can be some sixty kilometres away. The tower we work from is 37 metres above Mt Lofty on top of which it sits. That is 764 metres above sea level. It might surprise that I often see butterflies around the cabin and they include the Cabbage White and the Painted Lady.

Being a member of Butterfly Conservation has given me a greater understanding and interest in these wonderful creatures and to provide and island environment to help them survive.

Warm regards Andy Saunders

PAINTED LADY BUTTERFLY Vanessa kershawi



Photos: egg and first instar larva LFHunt; final instar larvae, pupa and adult RGrund; Adult feeding on eversasting E.Steele-Collins.

BUTTERFLY CONSERVATION NEWSLETTER Number 77 November 2021.

MOTHS AND THEIR COMMON NAMES – PART II

Bryan Haywood

Part I of this series was about introducing the concept of 'us - moth enthusiasts' devising interesting common names for our Australian moths. The purpose of providing common names is;

to make 'mothing' fun and interesting, to improve knowledge within the Lepidoptera community about local moths and to increase ownership of moths, their habitats and conservation activities.

Part II is highlighting a moth within the Hepialidae family with a scientific name of *Elhamma australasiae*. As with the 'Masked Yellow-wing' (from Part I), I became introduced to *E. australasiae* some years ago as it was attracted to lights around my home and I wondered what it was.

The first male moth arrived on 25 February 2014, shortly after rain. Another similar but larger moth (a female) came to light in March of the same year. At this point, I had an 'inkling' that they were male and female of the same species of moth – but what species were they?

Both specimens remained a mystery and sat in my hepialid box labelled but un-identified.

Their scientific name was finally revealed after I found them while flicking through Part 6 - Moths of Victoria, which was all about 'Ghost Moths'. And there they were, on page 12 – *Elhamma australasiae* (Walker, 1856).

Elhamma australasiae is unique, as it is the only species in this genus to occur in Australia. This moth is recorded throughout the eastern states of Australia excluding South Australia (pers. comm, Parslow, B & Moore, M. 2019). Their flight period is documented as January to early May (Kallis 2015; Simonsen 2015) - in South Australia they have been seen in February, March and April.

The male forewing colour may be dark chocolate-brown, grey or an ochreous-red - with a characteristic stripe, (Figure 1). The stripe is present in all colour forms.



Figure 1 - Male

Females are larger than males, and almost free from markings. They may be grey, ochreous-red, or even yellow (Figure 2). Different colour forms may occur together.



Figure 2 - Female

Hind wings in both sexes tend to be pinkish-tinged (Figure 3), but the hind wing and abdomen in fresh specimens can be a deep maroon.



Figure 3 – Male, showing hind wing and abdomen colour

After considerable research into this species I was unable to find conclusive evidence as to their preferred habitat or larval host plant – although Blackwood (*Acacia melanoxylon*) is very likely and is a common plant on our property. Also, I could not find any reference to a common name. So, 'like a moth to a UV light', Maroon Ghost Moth is one I'm putting forward for this fabulous hepialid.

PS - In terms of moth ID guides - get yourself copies of the Moths of Victoria series. They are the 'bee-knees of moth ID' for southern Australia.

Further reading on Elhamma australasiae:

https://natureglenelg.org.au/species-of-the-monthmaroon-ghost-moth/ - 2019

Kallies, A. (2015). Moths of Victoria. Part 6 Ghost Moths – Hepialidae and Allies. Entomological Society of Victoria, Melbourne.

Nielsen, E. S., Robinson, G. S. & Wagner, D. L. (2000). Ghostmoths of the world: a global inventory and bibliography of the *Exoporia* (Mnesarchaeoidea and Hepialoidea) (Lepidoptera) Journal of Natural History, 34(6): 823-878.

Simonsen, T. J. (2015). *Elhamma* Walker (Lepidoptera: Hepialidae) revisited: adult morphology, assessment of recently proposed synonyms and descriptions of two species. Zootaxa 3955 (3): 301–328.

BUTTERFLY CONSERVATION NEWSLETTER Number 78 February 2022 MOZZIE MONITORS

Mozzie Monitors is a citizen science mosquito surveillance program. It aims to increase scientific knowledge about mosquitoes and mosquito-borne diseases amongst the public, and generate information which can be used to improve public health.

The program began in Australia in 2018, at the University of South Australia. In 2020 we plan to form a Mozzie Monitors association, which members of the public are free to join. Currently, Mozzie Monitors runs in two different ways:

1. Trap-based: Citizen scientists use a mozzie trap (BG-GAT) to monitor mosquitoes in their backyards and report these data. This trial is run for a specific time and in a specific area each time. It is advertised in advance to recruit new members.

2. App-based: Citizen scientists from anywhere in Australia can share their observations of mosquitoes at any moment, using the iNaturalist app. New members can join at any time throughout the year and start collaborating and sharing their observations.

Why citizen science mosquito surveillance?

Millions of people are exposed to mosquito-borne diseases daily, especially dengue and malaria. In Australia, Ross River fever is common, and nuisance biting by mosquitoes has a big impact on people.

There is evidence that several diseases are going to emerge and re-emerge in new areas in the future, due to increasing globalisation, human mobility and climate change. As there is no vaccine for the most of these diseases, the most effective way to prevent them still relies on controlling mosquito populations. To do that, it's crucial to understand the mosquito fauna in each local community and how these populations fluctuate throughout the year.

Monitoring urban mosquitoes is essential to establishing early warning systems to predict disease risks and mitigate them.

Why become a Mozzie Monitor?

In becoming a Mozzie Monitor, you can contribute to a program of global importance, monitoring the mosquito-fauna in your backyard and helping keep your whole community free from mosquito-borne diseases. You can also learn about the ecology of these species that surround your house every day.

You will also be part of a vibrant community of citizen scientists who are making a revolution in the way mosquito surveillance is done in Australia. To become a member, you only need to complete the Become a Member form.

Some advantages of being a Mozzie Monitor:

Helping mosquito surveillance sharing real-time information;

- Helping build a map of mosquito distribution across Australia, through the iNaturalist app;
- Opportunity to work with Mozzie Monitors team to create and run events and initiatives;

Participating in discussions with other members about mosquito surveillance in Australia and regional chapters;

Opportunity to contribute to the Mozzie Monitors



Ochlerotatus notoscriptus, Tasmania, Australia JJ Harrison (https://www. jjharrison.com.au/), CC BY-SA 3.0 <https://creativecommons.org/licenses/ by-sa/3.0>, via Wikimedia Commons

website, posts, blogs and newsletter;

Being recognised as Mozzie Monitor in scientific publications; Eligibility to be nominated for and elected to the Management Committee and regional chapters; Discount in Mozzie Monitors Merchandise; Free annual Mozzie Monitors calendar.

Email us at:

mozziemonitors@unisa.edu.au or send a message via the website https://mozziemonitors.com/contact.php

Update on the May 2021 front page story *Ogyris* and ants - A PERSONAL ENCOUNTER

Member Helen Goldney has provided the following images and reported "Amazing, I watched a butterfly walk down the tree trunk from the mistletoe, lay eggs around the bottom, and walk back up the trunk and into the mistletoe!"

"No caterpillars at night at the moment but hopefully soon".



At the time of writing the article for Newsletter 75 we assumed the butterfly species was Amaryllis Azure *Ogyris amaryllis* because Roger Grund noted their caterpillars feed on *Amymea preissii* as well as other mistletoes. Now, having seen the adults, we have confirmed the species as *O. amaryllis*.

As soon as we know that caterpillars and ants are present we hope to visit the property to see this amazing event. If you would like to join an evening excursion to Helen and Rob's property to see these caterpillars being escorted by *Camponotus* ants please contact Jan Forrest (see back page for contact details).

ROGER GRUND OAM

Roger was born in 1945 in Adelaide and has had an interest in butterflies and moths since childhood. He recalls collecting skipper butterflies at Hectorville where he grew up and rain moths in the foothills of the Mt Lofty Ranges.

His interest in butterflies was fostered by the late Robert Fisher OAM and Japanese entomologist A. Sibatani, with whom in 1978, he wrote his first scientific papers.

Being a petroleum geologist, he had the chance to study butterflies as a hobby in many places around the world while in pursuit of his work. It was upon retirement in the early 1990's that his interest in South Australian butterflies became a passion.

He conducted many surveys in South Australia and these reports are a vital tool for ecologists today, seeking information on remnant butterfly populations and their efforts to conserve them.

Of particular note are butterfly and vegetation surveys conducted in the mid 1990's including 20 sites in state government owned parks and reserves, 29 sites in state owned government coastal reserves, 58 in council land and reserves, 11 privately owned heritage listed properties and 133 sites in non heritage listed private reserves all primarily along the coast of the Fleurieu Peninsula.

In addition he conducted surveys on the lower Eyre Peninsula, Yorke Peninsula, Flinders Ranges, Kangaroo Island and the Lower South East as well as travelling throughout Australia searching for little known species to rear and photograph.

Few copies of these reports were printed and the work is unpublished. Although these are historical records they still contain a wealth of information on the butterfly and plant species seen at that time at each location and as such, are a valuable tool to assess the current state of these remnant patches of vegetation. We are keen to published them as PDFs on the BCSA website.

For the last 15 years Roger has concentrated on rearing moths and recording their life histories. His website SA Butterflies and Moths and latest scientific papers reflects his work on the moth family Castaniidae, the sun moths.

Roger's digital image collection contains around 283,000 images of mostly moth life histories, many never recorded before. He photographed every specimen he collected and removed a leg for later DNA analysis.

All this material is presently being prepared for donation to relevant Museums and institutions around Australia including the South Australian Museum, who unfortunately due to space restrictions cannot house it all.

His transparency collection numbers over 10,000 slides mostly of butterfly life histories. As many of these are not available electronically in either the Fisher or Hunt collections the BCSA committee plan to digitise a number of species for use in our publications and to be made available to organisations. Sadly now, due to ill health Roger is unable to continue his work and we wish him well in the future.

The following pages contain images from Roger's vast image collection.

If you can assist in creating PDF's from hard copy survey reports or sorting Roger's transparancy collection please contact Jan Forrest 0419990430.

> WATERHOUSE'S HAIRSTREAK Jalmenus lithochroa South Australia's only endemic butterfly







All Photos: Roger Grund OAM

Top: late first instar larva; final instar larva with attendant ant *Iridomyrmex purpureus*.

Below: pre pupa with ant; pupa.

Above: Adult male and female underside.

Left: Adult male and female upperside.



















SWORDGRASS BROWN

Tisiphone abeona All photos: Roger Grund OAM In South Australia this species is found in the Lower South East, these specimens came from Port MacDonnell and were

reared by Roger.





Images: Top row eggs, then the head capsule starts to show through the transparent case. When the 1st instar caterpillar starts to emerge it breaks through the top then crawls out. It then eats the transparent case. The four images above show a newly emerged first instar larva (before feeding), 2nd instar, 4th instar and final instar. Page opposite: mature larva, pre-pupa, pupa, adult female upperside and underside, caterpillar host plant *Gahnia clarkei* and far right pristine *Gahnia clarkei* wetland.



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TAILED EMPEROR

Polyura sempronius

All photos: Roger Grund OAM

The photo series show the transition from larva to pre-pupa, pupa and finally emergence as an adult.

























CURIOUS KIDS: DO BUTTERFLIES REMEMBER BEING CATERPILLARS?

Michael F. Braby

August 27, 2018 6.12am AEST

This is an article from <u>Curious Kids</u>, a series for children. The Conversation is asking kids to send in questions they'd like an expert to answer. All questions are welcome – serious, weird or wacky! You might also like the podcast <u>Imagine This</u>, a co-production between ABC KIDS listen and The Conversation, based on Curious Kids.

We have caterpillars at home. I would like to know whether they will remember being caterpillars when they are butterflies. – Evan, age 5, Bristol, UK.

Dear Evan,

I think it is highly unlikely that a butterfly or moth remembers being a caterpillar. However, it may well remember some experiences it learned as a caterpillar.

That fact in itself is especially amazing because inside the pupa (or chrysalis), the caterpillar actually <u>turns to liquid</u> as it transforms into a butterfly or moth (the adult stage). The transformation from the pupa to the adult is the most dramatic change in the life cycle of a butterfly, and scientists refer to this change as metamorphosis. During metamorphosis, the body tissues of the caterpillar are completely reorganised to produce the beautiful adult butterfly that emerges from the pupa.

Scientists have known for a long time that caterpillars can learn and remember things when they are caterpillars, and adult butterflies can do the same when they are butterflies. However, because of metamorphosis, we were not sure if an adult butterfly could remember things it learned as a caterpillar.

This ability to remember caterpillar experiences as an adult was tested in a <u>study</u> by a team of scientists at Georgetown University in the US.

The researchers <u>trained the caterpillars</u> to dislike the smell of ethyl acetate, a chemical often found in nail polish remover.

They did this by giving the caterpillars little electric shocks every time they smelled the chemical. Soon, these caterpillars were trained to avoid that smell because it reminded them of the electric shock.

They let the caterpillars transform into adult moths, and then tested the moths again to see if they still remembered to stay away from the ethyl acetate smell.

And guess what? Most of them did! The scientists had shown that the memories of avoiding the bad smell experienced as a caterpillar had been carried over into the moth stage.

The study showed that memory, and therefore the nervous system, stays during the complex transformation from the caterpillar to the adult moth. So while a moth or butterfly may not remember being a caterpillar, it can remember experiences it learned as a caterpillar.

More weird and wonderful butterfly facts

The main purpose of a caterpillar's life is to eat food and grow bigger. The adult butterfly or moth, however, is

mostly concerned with finding a mate, flying to a new area and searching for suitable plants on which to lay its eggs. Most caterpillars eat leaves of plants, but some eat other foods like flowers or fruits. Some eat very strange foods, such as ants or insects.

Dr Daniel Rubinoff, a scientist who studies butterflies and moths, recently reported a very unusual diet from Hawaii. The caterpillar of a particular species of moth <u>ate only the</u> <u>soft tissue of a snail!</u>.

Unlike a hungry caterpillar, which grows quickly and increases in size, the adult butterfly never grows. It always stays the same size.

However, for the butterfly to survive and live long enough to mate and lay eggs, it must drink. The favoured drink for butterflies is nectar from flowers, which is rich in sugars to give energy. But some butterflies also drink the moisture from sand, especially along the banks of creeks or rivers.

A few species in the tropics even drink the moisture from rotting fruit or animal poo to extract essential nutrients.

Thank you for sending in this very interesting question.

Yours sincerely,

A/Prof Michael F. Braby

Hello, curious kids! Have you got a question you'd like an expert to answer? Ask an adult to send your question to us. They can: Email your question to curiouskids@theconversation. edu.au or tell us on <u>Twitter</u>

The conversation



The life cycle of a butterfly. Shutterstock



Caterpillars just want to eat eat eat! *Papilio anactus* 3rd and 6th instar larvae. LFHunt photo.

Butterfly Conservation South Australia Inc.

presents the twelfth

PUBLIC TALKS PROGRAM for 2022

On the first Tuesday of the month March to November at 6.15pm for a prompt 6.30pm start.

At the Plympton Community Centre

34 Long Street, Plympton. (200 metres E of Marion Rd, and 300 metres N of Anzac Highway).

Public transport options include:

Bus from the city via Anzac Highway. Routes: 245, 248, 262, 263, 265, M44, N262. Closest stop is Stop 9, then approximately 350 metre walk along Long Street.

Bus from the city via Marion Road.

Routes 100, 101, H20. Closest stop is Stop 10 (east side is approximately 100 metres south of Long street). Stop 10 (west side is on the other side of Moringie Ave. approx. 100 metres north of Long Street). Then approx. 250 metre walk along Long Street. Entry by donation (minimum of \$2).

Bookings not required

Please bring supper to share (unless otherwise advised). Bring your own cup, tea/coffee will be supplied.

Meetings should conclude by 8.30pm.

At the start of each meeting a ten minute presentation on a 'Butterfly of the Month' will be given by a BCSA committee member.

Meetings will be held in a Covid safe environment. DON'T FORGET TO BYO CUP.

Photo Marianne Broug: Dainty Swallowtail butterfly Papilio anactus

BUTTERFLY CONSERVATION SA INC.

C/- PO Box 4, DAW PARK. 5041.

For further information contact: Jan Forrest 8297 8230 Annual membership: **\$10** per year. Plus \$10 if you choose to receive the newsletter via mail. Life Membership \$200.

Website: www.butterflyconservationsa.net.au

Resources for sale: at public talk meetings or on-line at www.butterflyconservationsa.net.au/shop. Books 'Attracting butterflies to your garden, what to grow and conserve in the Adelaide region' (2nd edition). 'Caterpillars moths and their plants of southern Australia'. Large spider posters, A3 size moth posters and plant tags.



1st March Ghost wasps. Dr Ben Parslow from the South Australian Museum will provide an insight into the world of parasitic Ghost wasps and how they affect our native bees.

5th April How do butterflies see the world? Butterflies can see the colours of mates and flowers better than humans. We will explore how colour and motion vision are wired in their brains, and how this affects their behaviour. Presented by Dr Yuri Ogawa, Research Fellow at Flinders University.

3rd May Can genetics improve conservation outcomes?

SA Museum Assoc. Director, Dr Steve Donnellan will talk about how conservation outcomes can be improved by the use of molecular genetic analyses. Genetic data contribute to species discovery, surveying for biological diversity, choosing appropriate populations for translocations and for monitoring how populations can adapt to rapid climate change. Steve will use examples from his work on marsupials, birds, frogs and fishes from South Australia, Australia and New Guinea.

7th June: Insect Investigators: A citizen science project.

Dr Erinn Fagan-Jeffries will provide an overview of the 'Insect Investigators program' working with 50 regional schools in SA, Qld and WA. The program aims to connect schools to insect biodiversity documentation and the process of taxonomy.

5th July The evolving Port River & Barker Inlet Estuary

The Port River and Barker Inlet Estuary remains vital to Kaurna people, industry and community. Catherine McMahon, Estuary Care Foundation will discuss the challenges facing, plus possibilities and well-being of the estuary.

2nd August. Observing butterflies in the field and raising them

at home. Committee member Mike Moore will provide an introduction about capturing, observing and raising butterflies. He will include discussion of the equipment required along with tips and techniques, for field collection and for raising species "at home."

6th Sept. 6.30pm BCSA AGM 7.00pm Public Talk Cat Tracker:

where do cats roam? The Cat Tracker project explored the movement of pet cats, with over 400 cats tracked in South Australia. Discover how far cats roamed and the impact of the project on cat owners. Presented by Dr. Philip Roetman.

4th Oct. *The Bandicoot Superhighway project.* Sturt Upper Reaches Landcare Group President Danny Rohrlach will talk about this innovative and ambitious project, bringing together community, philanthropy and government in a unique partnership. Protecting our endangered bandicoots through improving and linking natural habitat; revegetation; educational workshops; translocating bandicoots and citizen science.

1st Nov. What caterpillar is that? Dr Peter McQuillan will provide an overview of the characteristics and biology of caterpillars and similar looking larvae as well as a sneak preview of a proposed phone app. to assist in their identification. This talk will be

a ticketed event with catering provided. Further details to be advised.

In the case of an advertised speaker not being available, a speaker of similar interest will replace that advertised. The views of presenters are their personal views.



PUBLIC TALKS PROGRAM ON ZOOM

Providing access to our Public talks program is now permanently available for BCSA members on Zoom providing the guest speaker is comfortable with this.

Members for whom we have email addresses receive via email, the log on information several days prior to the talk from our Membership Officer Gil Hollamby.

If you do not receive this information please provide your email details to Gil at membership@butterflyconservationsa.net.au to receive this and other BCSA notices.



BUTTERFLY CONSERVATION NEWSLETTER Number 78 February 2022.

1st March Ghost wasps.

Dr Ben Parslow from the South Australian Museum will provide an insight into the world of parasitic Ghost wasps and how they affect our native bees.

Dr Ben Parslow is one of the collection managers for terrestrial invertebrates at the South



Australian Museum, where his passion for working with insects, fieldwork and collaboration are helping to discover South Australia's biodiversity.

His primary research interests are the systematics and host-parasite interactions of the insect order Hymenoptera (ants, bees and wasps). His talk will explore the wasp family Gasteruptiidae, an easily recognised, diverse group of wasps whose larvae are predator-inquilines of cavity-nesting bees and wasps.

Although they are readily collected and there is an abundance of material in collections, there is limited information on their systematic relationships, biodiversity, and evolutionary relationships with their hosts.

The family exhibits an interesting distribution with the largest genus Gasteruption found across all biogeographical regions. The smaller genera are all restricted to specific regions (e.g. Pseudofoenus is restricted to a Gondwanan distribution, Spinolafoenus is only found in the Neotropical region).

There has been no strong consensus for the phylogenetic relationships or biogeography of the family, with only two studies including more than singleton taxa in large-scale family-level studies. We used Ultraconserved Elements (UCE) from freshly collected and museum preserved material to infer phylogenetic relationships, estimate divergence dates and test biogeography boundaries for the family across the world.

Our dataset recovered the most robust phylogeny for the family to date with almost unanimous support across the tree confirming the monophyly of the genera Gasteruption, Hyptiogaster and Pseudofoenus. We were also able to estimate the divergence age of the family during the Paleocene, coinciding with the divergence of their hosts but revealing a complex and confusing biogeographical history within this family.

5th April How do butterflies see the world? Butterflies can see the colours of mates and flowers better than humans. We will explore how colour and motion vision are wired in their brains, and how this affects their behaviour. Presented by Dr Yuri Ogawa, Research Fellow at Flinders University.

Yuri has has been studying insect vision for over 10 years and her passion for neuroethology continues to grow with each year.



Sensory systems such as eyes, hearing or smelling organs, receive information from their surrounds. The inputs from them, therefore, are essential for performing or changing natural behaviour. Just like us, animals also rely on vision to perform daily activities including finding food, finding mating partners and moving around in the world.

Insects have compound eyes with thousands of tiny lenses. Yuri studied the physiological basis of colour vision in a sulphur butterfly, *Colias erate* under the supervision of Professor Kentaro Arikawa during her PhD studies at Sokendai Hayama, Japan. By measuring the electrical activity of cells in the retina, we found that the butterflies have eight distinct types of spectral photoreceptors, which differ between males and females, especially in red receptors. The distinctive red receptors of the eye may relate to female-specific behaviour such as finding high-quality leaves on which they lay eggs.

After finishing her PhD studies in 2013, she moved to Australia and started working as a postdoc. She has been fascinated by the peripheral and more central mechanisms underlying vision in invertebrates because the variations in the anatomy and physiology of the eye thus likely reflect differences in habitat and life history.

Understanding how animals see their world with limited but specialised sensory systems and neurons in a small brain is her research aim.

3rd May Can genetics improve conservation outcomes? SA

Museum Associate Director, A/Professor Steve Donnellan will talk about how conservation outcomes can be improved by the use of molecular genetic analyses. Genetic data contribute to species discovery, surveying for biological diversity, choosing appropriate populations for translocations and for monitoring how populations can adapt to rapid climate change. Steve will use examples from his work on marsupials, birds, frogs and fishes from South Australia, Australia and New Guinea.



Steve Donnellan is the Chief Research Scientist of the Evolutionary Biology Unit at the South Australian Museum and also an Affiliate Professor at the University of Adelaide.

Steve moved from New South Wales to South Australia in 1985 to undertake research recovering the evolutionary history of Australia's lizards. This work led to the establishment of a comprehensive collection of reptile and frog tissues from Australia and New Guinea.

In 1990 he joined the South Australian Museum's staff and established the DNA laboratory there. His research since has focused on the evolution and biogeography of Australasian fauna and has used molecular genetic methods to examine issues in the population genetics, phylogeography and phylogenetic relationships of vertebrates and selected invertebrate groups.

Many of his research projects have been supported by the Australian Research Council (ARC). His work has been published in numerous scientific journals, including Biological Conservation, Evolution, International Journal for Parasitology, PLOS One, Restoration Ecology, Zoologica Scripta and Zootaxa.

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WHAT'S FOR SALE? - IN OUR ON-LINE SHOP

BOOKS *"Caterpillars, moths and their plants of southern Australia"* Published BCSA

September, 2019 Our price \$30, plus postage.

"Attracting butterflies to your garden, what to grow and conserve in the Adelaide Region" 2nd EDITION Published by BCSA 2016 - Our price \$25 (financial members may purchase a book for \$20) plus postage. *"The Making of a Monarch"* by Linda Shmith. Cost \$20 plus postage.

DVD "Butterfly Garden" produced by Tracy Baron and Carolyn Herbert - \$20 each (BCSA financial members price \$15) Plus postage. Limited stock available.

POSTERS *"Spiders and their allies of the Adelaide Region"* Published by BCSA 2014. \$10 a set of two, plus postage.

"Moths of the Adelaide Region" \$10 Set of four A3 plus postage. Free download available.Single posters: "Bats of SE South Australia" and "The Bilby -Endangered Species" posters are available for \$5 each, plus postage. FREE Orchid Posters. Plus postage. Posters are free to schools, but incur postage.

SITE SIGNS: to obtain an application form to register a butterfly site click on the site sign logo. Cost \$60 includes postage.

PLANT TAGS: See list and form available on website. \$2.00 per tag, inc. plastic stake and postage.

If you would like become a member, order any of our merchandise, including books, plant tags, site signs or posters check out the **ON-LINE STORE at https://** butterflyconservationsa.net.au/shop/ For queries please email: info@butterflyconservationsa.net.au.

BUTTERFLY CONSERVATION SA Inc.

An affiliated organisation of the South Australian Museum and Friends of Parks. Postal Address; PO Box 4, DAW PARK 5041 South Australia Email: info@butterflyconservationsa.net.au

Chairman: Gerry Butler - chairman@butterflyconservationsa.net.au 0407 972 149 Secretary: Sukhpreet Singh Bala - secretary@butterflyconservationsa.net.au Treasurer: Dan Daneshi - treasurer@butterflyconservationsa.net.au 0468 449 331 Membership: Gil Hollamby - membership@butterflyconservation.sa.net.au Newsletter Editor and Public Talks Convener: Jan Forrest OAM editor@butterflyconservationsa.net.au C/- South Australian Museum 0419 990 430. Committee: Bernadette Johnson, Bryan Haywood (endangered species advocate), Anne Frodsham and Lionel Edwards (website). Book sales: Sarah Macdonald - publications@butterflyconservationsa.net.au Consultants: Roger Grund OAM and Dr. Peter McQuillan. Public Officer: Beth Keane

DIARY DATES

COMMITTEE MEETINGS - Meetings are normally held bi-monthly (usually the second Monday of the month) at 6.00pm at a committee member's home. All members are welcome to attend. If you would like to attend please contact Chairman Gerry Butler on 040 7972 149.

PUBLIC TALKS PROGRAM 2021: first Tuesday March - November, at the Plympton Community Centre, 34 Long Street, Plympton. 6.15pm for a 6.30pm start to 8.30pm. with an option for some talks to be viewed via Zoom. Please watch your email for information regarding public talks.

NEXT TALK. 1st March. 6.30pm Dr. Ben Parslow South Australian Museum Ghost wasps.

WEB SITE

BCSA official website - Butterfly Conservation SA - www.butterflyconservationsa.net.au The former domain name **Butterfly Gardening -** www.butterflygardening.net.au is also still available and links directly to the new BCSA site.

South Australian Butterflies and Moths - https://sabutterflies.org.au (authored by Roger Grund OAM and now managed by BCSA).

Landscape SA Boards, Urban Biodiversity: https://landscape.sa.gov.au/hf/plants-and-ani-mals/native-plants-animals-and-biodiversity/urban-biodiversity















A recent photo taken by Greg Coote of a Clouded Footman moth and cocoon.



WELCOME TO NEW MEMBERS

Claire McLoughlin Edwin Burrows William Brooker **Geni Summers Tony Commisso** John Bent **Bonnie Sibley Karen Worley** Luisa Ekermann Tanva Schroeder Eliza Reid Sarah Beer Megan Long Anne Copley **Amy Baker** Adrian Uren



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