



BUTTERFLY CONSERVATION SA INC.

NEWSLETTER

No. 65: August 2018

FRIENDS OF THE CHEQUERED COPPER (*Lucia limbaria*)

The Friends of the Chequered Copper (*Lucia limbaria*) Butterfly have been quite busy visiting Victoria Park/Pakapakanthi Park 16 and other places investigating the ways of recording the presence of the butterfly host plant *Oxalis perennans* (a small native soursob) and the obligate ant *Iridomyrmex rufoniger*.

We have decided to develop a monitoring program that can be recorded on tablets or smartphones, as this can occur with multiple users – Collector for ArcGIS. The 3 main aspects we will be collecting data on are:

- Host plant *Oxalis perennans* – presence/absence due to 'browsing' by the butterfly larvae;
- Obligate meat ant *Iridomyrmex rufoniger* – presence/absence and proximity of the ant nest;
- Flight of adult, especially male, Chequered Copper (*Lucia limbaria*) butterflies.

Any persons who would like to volunteer for these activities are most welcome and the only requirement is that you are a financial member of Butterfly Conservation SA.

We are also developing some exciting partnerships with other stakeholders, such as the Friends of the Waite Arboretum and the South Australian Museum in our quest to make our work interesting and relevant. We may even end up publishing our work, in local nature journals, which will lift the profile of the Chequered Copper (*Lucia limbaria*) butterfly and the humble ant *Iridomyrmex rufoniger*.

The Adelaide City Council is developing a School Holiday program activity on October 5th, in the remnant grassland area. Butterfly Conservation SA will be involved in this event with the South Australian Museum and Adelaide City Council. For those who would like to volunteer to assist young people on that day (5/10/18), please contact the BCSA Secretary Jan Forrest at secretary@butterflyconservationsa.net.au.



IN THIS ISSUE

- Friends of the Chequered Copper Butterfly
- Upheavals in Ghost Moth (Hepialidae) taxonomy
- FACT SHEET - Bitter-bush Blue
- FACT SHEET - Long-tailed Pea-Blue
- Butterfly
- From the Chairman
- AGM - nomination form
- Excursion to Hindmarsh Is.
- Public Talks Program 2018
- 3rd Sept. *Afghan cameleers*
- 1st Oct. *Symbiotic relationships for pollination and development.*
- 5th Nov. - *Creating a Butterfly garden.*
- What's for sale
- AGM notice of meeting
- New Members
- Diary Notes



Photos: *Lucia limbaria* Chequered Copper. Far left: baby caterpillar scour marks on host plant *Oxalis perennans*, last instar caterpillar 10mm. Above top: 4th instar caterpillars with obligate ant *Iridomyrmex rufoniger*, Above: adult. Photos: LF Hunt

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 surcharge for posted newsletters): to Treasurer: C/- South Australian Museum, North Terrace, ADELAIDE. 5000. 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.

UPHEAVALS IN GHOST MOTH (HEPIALIDAE) TAXONOMY

Michael Moore

On March 1st 2018 Thomas Simonsen's long awaited revision of certain Rain Moth families was published. The work places the taxonomy (organization) of the groups treated in a much more modern light.

Taxonomy is the scientific organization of living creatures reflecting closeness in their structure and reproduction. Ideally it also reflects their evolution. Before the understanding and analysis of DNA became possible it was much harder to base the evolutionary relationship of living things on a truly scientific basis.

Hepialid taxonomy goes back to Linnaeus the Swedish scientist who invented the structure of modern taxonomy, and he named the European ghost moth *Hepialus humilus*. Linnaeus invented a naming system that gave every living creature a binomial (two name scheme!) A Genus name and a species name. Genera (plural of genus) are like the way we use surnames, and species are more like first names. In Taxonomy though we put the Surname first in order and the specific name second.

Although a number of Australian Hepialids were named by Europeans the first big systematic revision of these moths was done in the 1930s by Norman Tindale, working out of the South Australian Museum, (SAMA). Tindale collected or viewed most of the material available in Australian museums and private collections. He also checked material taken or sent to Europe by early collectors. The end result of all this work was a series of papers that would stand solidly in the scientific arena for over 80 years. All of his work was done using morphological characteristics such as wing venation, antennal structure, genitalia shape and wing patterning. He ended up describing and naming many new genera and species. His work fitted with the mores of the time in its scope and style.

To me, Tindale was a bit of a splitter. A splitter is a taxonomist who sees small differences as very important and is likely to erect a new species on the basis of those small differences. If you do not have much material to compare, then you are unsure as to whether the differences that you are looking at are important or just a variation on a normal pattern. I think this was the situation that Tindale found himself in on many an occasion and because he had "splitting" tendencies he allowed this to make up his mind in some situations.

What then is the make-up of the Hepialidae. I will keep this brief but it is important for the remainder of the article to fit into a context.

The first major split in the Hepialids is on wing venation. In the one group radial vein 4 and radial vein 5 are joined for part of their journey, but in the other group they remain separate veins. Simonsen's work dealt only with this first group. This second group needs still to be worked upon. This second group only has three genera within it; - The Elhamma - in Australia a single species, the Jenanas and the Oxycanids. All of these genera have bifid or bi-pectinate antennae. The antennae of moths are made up of segments but the number of segments differ from moth group to moth group. Many moths have appendages on these segments, these could be thought of like teeth on a comb, and indeed that is what the term pectinate refers to; - "comb like." So bi-pectinate means that each segment has two teeth (or

rami) coming from it. In Jeana the rami are long and thin whereas in Oxycanids they are shorter and thicker. Jeana also has long spicules (spikey looking hairs) coming from the ends of the rami and along the backs of the segments, whereas Oxycanids do not. The genus Oxycanus is the largest in the Australian Hepialids having over 70 species ascribed to it (most named by Tindale!).



Above: *Elhamma australasiae*
Left: *Jeana delicatula*
Photo: MMoore



Above: *Oxicanid dirempta* Photo: N.Tenby



Fraus polypspila

So back to the first group. It is somewhat variable in composition and it is indeed made up of six groups.

The Fraus are small moths most usually grey or brown in colour but many species have a white strip in the forewing. These are considered the most primitive of the Australian hepialids and form their own little subset of the family in Australia.

The genus Aenetus is the most colourful of any of the groups, with the colours green, bright pink and aqua being obvious in many of the species. These have short antennae with few segments.



Aenetus blackburnii

One species that was in the past considered to be an *Anaetus* has been moved into its own genus; - *Archeoaenetus*. It is an eastern moth and whilst it is olive in colouration it is rather spotty in appearance, unlike the moths in the genus *Aenetus*, *Oncopora* are a group of similarly coloured brown moths with leopard like markings over their wings. They are difficult to identify without dissection. They have the shortest antennae of any Australian hepialids having only 14 segments, whereas the upcoming group the *Abantiades* have almost 60 segments in their antennae.



Oncopora rufobrunea

The “*Abantiades*” group is the most variable of the genera and we will discuss this in greater detail further on. These are medium to very large moths usually brown and grey in colour with scroll like patterns and white marks on the wings.

Finally we have the largest Hepialid in the world, *Zelotypia staceyi*. This is a moth that lives on the east coast of Australia stretching from about Coffs Harbour in the north to Bega in the south.



Zelotypia staceyi

operation of and behavior of an individual. This chemical is present in all organisms on this planet and is one of the clues that points to the unity of life and the fact that it all stems from a common origin back in the mists of time.

DNA is an interesting chemical! It is a very long molecule and it is made up of two strands twisted around each other. Each strand is a reflection of the other. It is “pectinate” in its structure, with the back of the comb being a long repeating chain of deoxyribose sugar molecules and adjoining phosphate molecules. Coming off each of the sugar molecules is an organic base – these are the teeth of the comb. A feature of the sugar phosphate bond in the backbone of the molecule is that the bond is slightly angled and this causes the chain to twist making it helical in structure.

There are only four possible organic bases in a DNA molecule. Each is referred to by a letter, they are – Adenine (A), Thymine (T), Cytosine (C) and Guanine (G). Now it just so happens that A will weakly bond with T and C will weakly bond with G. Now, remember I said the DNA molecule had two strands. Well the second strand is a reflection of the first, in that where the first strand has an A the second has a T (and vice versa), where the first has a C the second has a G (and vice versa). The second strand is held to the first by many weak bonds and by the fact that it is mutually intertwined with it. Hence the well-known terminology of DNA being a double helix. Why have a second strand I can hear you say? Well it is a vital back up! Every time a cell is replicated the DNA needs to be replicated too, and it is now thought that every time this happens a mistake (called a mutation) is made in copying the base sequence. The second strand allows the mistake to be detected and corrected. These mutations are the origin of genetic diseases and of cancers.

In advanced organisms (that is all living things except bacteria, cyanophyta (blue green algae) and viruses!) the vast majority of the DNA present in the cell is present in the cell’s nucleus. What not all you say? No not all! And that leads us into another story!

Way back in the misty dawn of creation we think a very special event occurred that allowed living systems to really flourish. A bacteria-like organism that could use oxygen (a dangerous gas to early living systems!) to obtain energy joined up with a larger organism that was good at finding chemicals to eat. The larger “cell” scooped up the chemicals, the bacteria oxidized them releasing energy that both organisms utilized to grow, move and reproduce. Now an arrangement like this works best if the bacteria lives within the large cell, and indeed this (over time) is what is thought to have happened. Initially both organisms replicated independently but eventually the large organism took over the smaller one even to taking some, but interestingly, not all of its DNA into its own. These bacteria were the ancestors of organelles that exist within our own cells (and other non-primitive organisms.) These days we call the organelles that oxidise our food – Mitochondria. And modern mitochondria still have some important DNA within them and still replicate themselves.

We seem a long way from taxonomy you say – well not as far as you think.

One of the chemicals that the mitochondria still retains the DNA for, is a chemical called Cytochrome oxidase. This chemical has three protein chains and therefore requires three genes to make it. One of these genes is referred to as Mitochondrial Cytochrome oxidase gene 1 (original thinking eh?) shortened to Mito CO 1. This gene is about 640 base pairs in length (remember we talked about base pairs!), it is relatively easy to collect and isolate and it for some reason mutates at a useable rate – it not being too fast nor too slow. The upshot of this ease of mutation has been that different species of organism have different DNA sequences for the Mito CO 1. So much so that some people believe that by simply analysing the base sequence of an organisms Mito CO 1 gene you can tell what the organism is (specifically – eg. down to the species.) They often refer to this gene as the Barcode of Life gene. Indeed there is one organization, based in Canada that has set itself the project of getting the DNA analysis of this gene from every living creature on Earth.

The Mito Co 1 is most useful in indicating that two organisms are of different species. Two organisms are likely to be of different species if their Mito CO 1 gene differs from each other by greater than 2 percent. That is if the DNA in the Mito Co 1 gene differs in sequence by 11 or more bases. (remember we said it was about 640 bases long) then it can be considered a separate species. Ideally of course this would also be backed up by morphological (structural) differences, but these might be difficult to find!

Nothing is of course that easy and there are an increasing number of people that are finding problems with the idea. However it is still a useful, rough and relatively inexpensive tool to use on a group that has had little work done on it. Such as Australian Hepialidae.

In 2013/14 Simonsen in his aforementioned Revision started the first serious work on DNA sequencing of Australian Hepialidae. When I heard of Thomas' preliminary results I thought it would be worthwhile repeating his work and also use the results that I would gather to investigate the specific status of a number of suspected new species that I was accumulating. We have subsequently amalgamated our results and a number of papers are in preparation both individually and collegiately. With regards to the "Abantiades" group, what Simonsen found was rather unexpected and his conclusions fundamental in their changes.

Tindale had split this Abantiades group into three distinct lineages, uni-pectinate Abantiades, bi-pectinate Bordaia and tri-pectinate Trictena. To be fair though he had two of these groupings forced onto him by previous workers. Simonsen has, based on the DNA analysis synonymised Bordaia and Trictena into Abantiades. In other words he has collapsed two of the groups and joined them all into the third. Abantiades survives because it was the first named group. The reason he has done this is that there were not three distinct lines in the Mito CO 1 analysis. If he had obtained all of the Abantiades coming from one stem and all of the Bordaia from another and the Trictena from a third then he would have retained them all but he did not find that. He found only one origin, leading to a multi linear hodge podge of Abantiades and Bordaia (in other words all mixed up), the Trictena did have a single stem but it was within the mix of Abantiades and Bordaia.

To retain the genetically identifiable Trictena group he would have had to "atomise" Abantiades in about 15 to 20 new genera and these would be based on little else but DNA. (no obvious morphology!) Instead he took the other path and said all of these things come from a common origin but what has happened subsequently needs more time to analyse and so we will show they are all related by using a single "Surname" – Abantiades.

Tindale had suggested some venation differences between the three groups but these differences have not been able to be supported by any other workers. Instead the voracity of the one major anatomical difference between the groups – the antennal structure was called into question by Simonsen. He pointed out that actually the bipectinate group was not truly bipectinate nor the tripectinate one tripectinate.

Instead on each segment of the antenna they all started off unipectinate and then diverged, so that really tripectinate was only a fragmented unipectinate arrangement. So now *Trictena atripalpus* and *Bordaia pica* do not exist they are now *Abantiades atripalpus* and *Abantiades pica*.



Above: Tripectinate *Trictena atripalpus* now *Abantiades atripalpus*



Above: *Trictina argentata* now *Abantiades argentata*



Above: *Bordaia pica* now *Abantiades pica*.



Above: Monopectinate *Abantiades hyalinatus* (Eastern States)
Photo: N.Tenby

We will now talk about tripectinate Abantiades and monopectinate Abantiades.

Oh yes and bipectinate too. As it turns out I was never a fan of the genus Bordaia because though all the species in this group were bipectinate they were so different from each other in appearance and form.

Simonsen's major revision has been a huge upheaval in the Hepialid world upsetting ideas that have been in place for over 80 years. He has however placed this part of the Hepialidae on a much firmer genetic footing and it now awaits further researchers to untangle the mysteries that still lie buried within.

Bitter-bush Blue



also known as 'Grund's Blue'

Class: Insecta
Order: Lepidoptera
Family: Lycaenidae
Genus: *Theclinesthes*
Species: *albocincta*

This pretty blue once used to occur along the beaches of Adelaide, but urbanisation has caused its demise from those areas. Its wing colour is environmentally controlled such that butterflies breeding near beaches have full blue colouration on the wing uppersides, but in populations occurring further away from the sea the blue colour reduces in area until finally in deep inland areas the butterflies are totally devoid of blue colour. There is sometimes a mass emergence when hundreds of butterflies are seen flying around the foodplants.

Description

Wingspan: male 28mm, female 30mm. The forewings are angular and there is a short stubby tail on the hindwing.

Upperside: The upperside has variable amounts of blue in the males, and the females even less amounts of blue when flying in the same areas as the males.

Underside: The underside is pale brown, the forewing having straight bars and the hindwing has a large central dark area and usually two small black spots near the tail. Those butterflies flying in winter can be nearly black on the undersides.

Larval foodplants:

The larvae feed on bitterbush (Euphorbiaceae). In coastal areas they use *Adriana quadripartita* form *klotzschii* (coast bitterbush), while inland they use *Adriana urticoides* var. *hookeri* (mallee bitterbush or waterbush). The plant is dioecious, having separate male and female plants. The larvae are attended by, or at least are harmlessly associated with, most types of ants in the general area of the foodplant, as the ants also feed from nectary glands occurring on the *Adriana*.



Larvae attended by *Camponotus teribrans* ants. Right: Eggs, 3rd instar larvae, final instar larvae, pupa, adult female, male and underside. Photos: LFHunt



**BUTTERFLY
 CONSERVATION
 SA. Inc.**

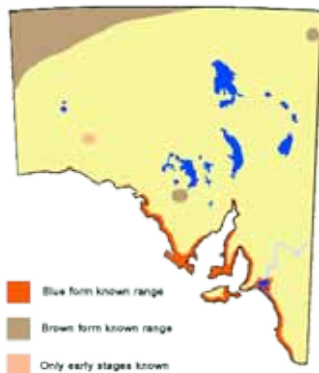
**C/- SA Museum
 North Terrace,
 ADELAIDE 5000
 S. AUSTRALIA**

Habitat and Ecology:

Its foodplants favour dune areas. In coastal areas the plants occur in the back-dune habitat, while inland the plants are associated with red dunes. The plants require a reliable source of fresh water, which is held within the dunes, hence the plant common name of waterbush. The larvae will eat all parts of the plants but favour the purple flower heads on the male plants. The butterfly occurs only near its foodplants.

Distribution

The blue form of the butterfly occurs in coastal dune areas of South Australia, including Kangaroo Island. The inland form of the butterfly, devoid of blue colour, occurs wherever there is sufficient density of *Adriana* foodplants.



Flight period:

It is possible to find these butterflies flying throughout the year, but they are most common during spring to autumn. They are very rarely seen during winter. They can complete a brood in 3-6 weeks in summer.



Threats:

Coastal habitat is under constant threat from urbanisation, in the form of beachside marina and holiday-shack developments. Inland habitat can be affected by drought and trampling by pastoral animals.

Conservation Strategy:

Coastal management policies need to recognise the dependence of the butterfly on the *Adriana* growing in the back-dune environment and therefore coastal dunes need to remain undisturbed. The *Adriana* plants would also be beneficial in preventing further scouring of beach sand. Near Adelaide, the butterfly and foodplant needs to be re-introduced, particularly to conserved coastal dune areas. The foodplant would also make an attractive addition to gardens and the roadside environment in coastal areas, as it is tough, easily grown, and readily amenable to pruning.



Adriana hookeri Photo: RGrund



Habitat of *Theclinesstes albocincta* Photo: RGrund



Adriana quadripartita form *klotzschii* (coast bitterbush) top left and above left male plant, above right female plant. Photos: JAF Forrest

ACKNOWLEDGEMENTS *Theclinesstes albocincta* fact sheet:

Majority of text, map and flight bar from: 'Butterflies of South Australia' website by Roger Grund.
Other references and contributors include: Michael Moore; Fisher RH 1978 *Butterflies of South Australia*; Braby MF 2004 *The complete field guide to Butterflies of Australia*; Dashorst RM & Jessop JP 'Plants of the Adelaide Plains & Hills'.
Production: Jan Forrest OAM, October, 2011.

BUTTERFLY CONSERVATION SA Inc.

is a not-for-profit organisation for those interested in conserving the habitat of Lepidoptera (butterflies and moths) and other animals.
For further information or to purchase our book 'Attracting Butterflies to your Garden, what to grow and conserve in the Adelaide region' or to purchase a 'Butterfly Garden' DVD contact the Secretary, c/- South Australian Museum, North Terrace, ADELAIDE 5000.
WEBSITE: www.butterflyconservationsa.net.au
EMAIL: info@butterflyconservationsa.net.au

Long-tailed Pea-blue

also known as Pea-blue, Tailed-blue, Long-tailed blue.



Class: Insecta
Order: Lepidoptera
Family: Lycaenidae
Genus: *Lampides*
Species: *boeticus*

A widely distributed butterfly, occurring through much of the Eastern Hemisphere. It was one of the first butterflies to be caught in Australia by the early seafaring European explorers. It is a rapid flying butterfly, and is often seen feeding from flowers of the foodplant, or from other nearby flowering plants. The males will occasionally hilltop, while the females usually remain near the foodplant. Males are also sometimes seen to slowly flutter beneath the foodplant looking for newly emerged females with which to mate.

Description

Wingspan: male 25mm, female 27mm.

Upperside: Males - Both wings have a uniform metallic, blue to violet suffusion covering the entire wing surface which are edged with a brown terminal band. The point of the hind wing has two sub-terminal black eye spots with a well developed white tipped black coloured "tail" between them.

Females - These are larger than the males and the colouring is usually less intense. The majority of the surface area of the fore and hind wings are covered with paler blue metallic scales. The edging of the wings has a wider brown terminal band and a somewhat handsome subterminal band of spots and crescents. It too has the eye spots and tail.

Underside: Both genders are similar in having a series of variably sized alternating brown and white lines on the undersides of both wings. These lines are for the main part thinnish, but there is a prominent thick white line on the hindwing, which is projected onto the forewing in a much thinner manner. Eye spots are also obvious on the hindwing

Distribution

Occurs throughout Australia, including Kangaroo Island and Tasmania. It has migration tendencies, which are occasionally witnessed in Australia, heading in a southerly direction.



Photos: Egg, early and final instar caterpillars, typical eating pattern, pupa, underside female. Photos: LFHunt

**BUTTERFLY
 CONSERVATION
 SA. Inc.**

**C/- SA Museum
 North Terrace,
 ADELAIDE 5000
 S. AUSTRALIA**

No mass migrations have ever been reported from South Australia, although the odd spring vagrant has been seen flying from the mainland across Backstairs Passage to Kangaroo Is. Island.

Larval Foodplants

Larvae feed on numerous native and introduced plants of the Leguminosae/ Papilionoideae family including *Chamaecytisus proliferus* (tree lucerne), *Colutea arborescens* (bladder senna), *Crotalaria* spp. incl. *C. cunninghamii* (green birdflower), *C. eremaea eremaea* (bluebush pea), *C. eremaea strehlowii* (loose-flowered rattlepod), *C. novae-hollandiae* (birdflower), *Cullen (Psoralea) australasicum* (tall verbine), *C. patens* (native verbine), *Dipogon lignosus* (lavatory creeper), *Gompholobium ecostatum* (dwarf wedge-pea), *Kennedia prostrata* (running postman or scarlet runner), *Indigofera* sp. (indigo), *Lathyrus odoratus* (sweet-pea), *Lotus australis* (trefoil), *Lupinus* spp. (lupins), *Phaseolus vulgaris* (garden bean), *P. limensis*, *Pisum sativum* (garden pea), *Pultenaea tenuifolia* (bush-pea), *Sesbania cannabina* (yellow pea-bush), *Sophora* spp. *Swainsona* spp. (darling peas) incl. *S. (Clanthus) formosa* (Sturt's desert-pea), *S. greyana* (darling pea), *S. stipularis* (orange darling pea), *Templetonia retusa* (cockies tongue), *Vicia faba* (broadbean), *V. sativa* (common vetch), *Virgilia oroboides* (Cape virgilia), *Wisteria sinensis*. The larvae also prefer to eat the inner ovary and stamen parts of buds and flowers, and the immature seeds within developing seed pods.

Habitat and Ecology

Found wherever its foodplants occur, which are common and widespread occurring in most habitats. Larvae are sometimes attended by a few ants, including the large *Camponotus* sugar ants (*subnitidus* and *tricoloratus* groups, and in the Far North by a large black sugar-ant *Camponotus capito*), small *Froggattella* spp. and *Iridomyrmex* spp., and very rarely the large meat ants *Iridomyrmex purpureus* and *I. viridiaeneus*. In the case of the larger ants, it is more often a harmless association on the same bush, rather than direct attendance of the ants to the larvae.

Flight period

It is possible to find flying butterflies throughout the year, depending on the area and whether its foodplants are in flower. In the urban garden it can be found

during the warmer months. They are capable of completing a brood within about 7 weeks in southern areas.

Threats

No major threats.

Conservation

None required. Thrives in urban gardens. Sometimes considered a pest due to the fondness of its larvae for low growing leguminous crops and vegetables.



Photos: Male (top) and female upperside adults. Photo: LFHunt. Hostplant Sturt Pea. Photo: JAF Forrest

ACKNOWLEDGEMENTS *Lampides boeticus* fact sheet:

Majority of text, map and flight bar from: 'Butterflies of South Australia' website by Roger Grund. Other references and contributors include: Michael Moore; Fisher RH 1978 *Butterflies of South Australia*; Braby MF 2004 *The complete field guide to Butterflies of Australia*; Dashorst RM & Jessop JP 'Plants of the Adelaide Plains & Hills'. Production: Jan Forrest OAM, August, 2018.

BUTTERFLY CONSERVATION SA Inc.

is a not-for-profit organisation for those interested in conserving the habitat of Lepidoptera (butterflies and moths) and other animals. For further information or to purchase our book 'Attracting Butterflies to your Garden, what to grow and conserve in the Adelaide region' or to purchase a 'Butterfly Garden' DVD contact the Secretary, c/- South Australian Museum, North Terrace, ADELAIDE 5000. **WEBSITE: www.butterflyconservationsa.net.au** **EMAIL: info@butterflyconservationsa.net.au**



FROM THE CHAIRMAN - Mike Moore

Dear BCSA Members

That time is coming around again! Yes you've guessed it – the AGM. The AGM of the BCSA will be on Tuesday, September 4th starting at 6.30 pm at Clarence Park Community Centre at Black Forest.



My report at the AGM will provide a wonderful insight into the different projects we have undertaken this year and with your help we are keen to extend out support to the community, local government, (including the Adelaide City Council) and organisations such as Monarto Zoo, Friends of Parks groups where there is remnant vegetation and to raise the awareness of the importance of invertebrate biodiversity in our gardens, parks and reserves. There are also significant opportunities for BCSA to partner with local governments under the new State Government 'Greening our Neighborhoods' initiative, the nature education initiative set out in the new State Government 'Green Adelaide' as well as the newly gazetted 'Glenthorne Farm National Park' to name just a few. There are so many projects we can take part in however, with just a small group of organisers, we cannot do everything we would like to do.

So, with that thought in mind we are asking firstly, for **new members to serve on the Committee** to continue the run of this great little community group. Please think seriously about it. An in depth knowledge of butterflies and moths is not a requirement. What is required is a wish to see the wildlife in this wonderful country of ours survive and to flourish. We think that is best done by education and consciousness raising.

If you do not want to be on the Committee – who meet by the way only 6 times a year, then CAN YOU HELP THE BCSA by taking on a non-committee role. As you know we have been conducting a skills audit of our members, with the aim of finding out what skills we have out there in membership land. Did you know that three of our members have undertaken such roles in 2018. Andrew Walters has organised our presence at the Australian Plant Society Sales, Mike Kokkinn has taken on the role of organising our Friends of the Chequered Copper group and Lionel Edwards has taken on oversight of our Web-page and several members have put their hands up to help with editing the moth book (when we are ready!). A seriously big thank you!

Some jobs are more time consuming than others, some are short term, others will take longer, but they all help the BCSA to function more efficiently and they all reduce the work load on the Committee. Are you willing to put your hand up and say YES I can help and I am interested in If so, let me or a member of the Committee know and we will talk to you about your interests and what 'jobs' we have in mind.

Please put your hand up and say, "I think I can help this great group, what tasks (small or large) are available."

Mike Moore
Chairman
Butterfly Conservation SA Inc.

NOMINATION FORM AGM 4th September, 2018 and SUPPORT TEAM INTEREST FORM

**I (Name of Proposer).....wish to nominate
name of person being nominated**

Signature of proposer

Seconded name:Signed.....

For the position of Chairman Secretary Treasurer Committee Member

I accept nomination for the position indicated (signed by person accepting nomination)

.....Date:

I would like to join the SUPPORT TEAM. NAME:

Please contact me to talk about how I can help:phone/mobile.

Copy and post to Secretary C/- SA Museum, North Terrace or email: chairman@butterflyconservationsa.net.au

BUTTERFLY CONSERVATION SA INC.

presents

a PUBLIC TALKS PROGRAM for 2018

www.butterflygardening.net.au

**Butterfly Conservation
South Australia Inc.**

presents

a PUBLIC TALKS PROGRAM for 2018

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

**At the Clarence Park Community Centre
72-74 East Avenue, Black Forest.**

Bus route W91/W90: stop 10.

Noarlunga Train service: Clarence Park Station.

Genelg Tram: Forestville stop 4, 9min walk south.

Entry by donation (minimum of \$2).

Bookings not required

Please bring supper to share, 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.**

*In the case of an advertised speaker not being available,
a speaker of similar interest will replace that advertised.*

Photo LFHunt. Bitter-bush blue butterfly *Theclinessthes albocincta*

4th September: 6.30pm BCSA AGM 7.00pm Public Talk *How the Afghan cameleers shaped our state.* Historian Pamela Rajkowski OAM will trace the early routes of the Afghan cameleers in South Australia and how they shaped our economy.

2nd October: "The importance of symbiotic relationships between flowers, insects and microbes for pollination and development." Dr Miguel de Barros Lopez will present the latest findings in this rapidly changing field, from the importance of gut microbes for insect metamorphosis to the role of yeast in pollination.

6th November: 'Creating a butterfly garden' Member Roz Daniell and partner have created a beautiful butterfly garden at Forrestville and are now creating a 'rain garden' in the street. Find out their process and progress as well as their tricks and hints for going about it.



4th September - HOW THE AFGHAN CAMELEERS SHAPED OUR STATE Pamela Rajkowski OAM



In the 1980s while full time secondary teaching Pamela Rajkowski travelled around Australia researching and interviewing the history and families of the "Afghan" cameleers of Australia. Collaborating with descendants, government and community groups she organised 2 national festivals at Marree

and Port Pirie to celebrate their history.

Pamela's first book "In the Tracks of the Camelmen" was published in 1987 and she has written three other books since then. In 2009 she was awarded an Order of Australia medal for her services to research and community as a historian of the Afghan cameleers. She has appeared in national and international Television, was a consultant in 2004 – 7 for the SA Museum and 2 national Australian documentaries, and has been interviewed by national and international radio presenters. She has given many talks on the Australian Afghan cameleers, on various themes, from 2000 – 2018.

She introduced the Guided walk, "Afghan herbalists and cameleers community of s-w Adelaide" in 2015, was commissioned in 2017 to produce an Afghan cameleers exhibition for the Adelaide Cemeteries Authority and in 2018 was nominated SA Historian of the Year.

Talk summary:

The innovation of importing camels from north-west India and Afghanistan to the 30 year old struggling colony of SA guaranteed its future. As working and domesticated [bred] dromedaries they supported pastoralism, mining and other national projects and their pattern of colonial and cross-continent tracks helped map the arid interior of this continent. They provided SA and beyond with a reliable transport infrastructure from the 1870s – 1920s that it had not yet had. They established the SA colony's progress and Australia's global trade. Rail, motor transport and air services eradicated the demand for them as haulers by the 1920s many were set free. Today, several innovative ideas are being considered to see how the many thousands running wild and threatening our native ecosystems can be useful in shaping our economy once again.

BUTTERFLY CONSERVATION SA INC.

c/- South Australian Museum, North Terrace, ADELAIDE
For further information contact: Jan Forrest 8297 8230
Annual membership: \$10 per year. If a hardcopy of the newsletter is requested, add a surcharge of \$10 for postage. Life Membership \$200.

Website: www.butterflyconservationsa.net.au

Resources for sale:

Book '*Attracting butterflies to your garden, what to grow and conserve in the Adelaide region*' (2nd edition). RRP \$29.95

At the talks program or on-line - \$25ea and \$20 for members (one only at this price).

Books, spider posters and plant tags are available at the online shop: www.butterflyconservationsa.net.au/shop.



DON'T FORGET TO BYO CUP

PUBLIC TALK - 2nd OCTOBER:

**THE IMPORTANCE
OF SYMBIOTIC
RELATIONSHIPS BETWEEN
FLOWERS, INSECTS
AND MICROBES FOR
POLLINATION AND
DEVELOPMENT.'**

Dr Miguel de Barros Lopez



Over the past decade, scientists have begun to describe humans as a superorganism - part *Homo sapien* and part bacteria. Not only are these microorganisms using us as a safe place to live, but they can influence what we eat and how we think. This rapid increase in understanding the human microbiome has, not surprisingly, led to interest in the role of microorganisms in all different aspects of biology, including symbiotic associations with plants and insects.

Miguel's research over the last 30 years has focused on yeast - microscopic single celled fungi. His realization of the importance of the relationship of yeast and insects struck while leading the genetics laboratory at the Australian Wine Research Institute. Although easy to forget, aromas in wine are not made by yeast to tempt us into drink but are produced to attract insects so that the yeast can be flown to their next meal. With this in mind, experiments were done to try and find yeast which were more attractive to fruit flies in the hope that these yeasts made wines that were also more attractive to humans.

Miguel's interest in yeast-insect interactions continued after his move to the University of South Australia. Initial studies focus on cacti yeast, which were likely estranged in Australia since transport of prickly pears on the first fleet. More recently he has been making forays into yeast isolation from insects. The importance of yeast and bacteria in many aspects of insect biology is being discovered. The talk will present these findings, highlighting the most recent international research on the importance of microorganisms in attracting pollinating insects to flowers.

**PUBLIC TALK 6th November:
CREATING A BUTTERFLY GARDEN**

Roz Daniell is our speaker for November. Her talk will follow the journey she and her partner took in creating their beautiful Butterfly Garden.

"When Unley Council put speed humps on the nearby collector road with the result that hundreds of cars a day were diverted past our Forestville house, we decided that our best option was to build a front wall to protect ourselves from the noise and disturbance. Unfortunately, this meant we had to cut down all the shrubs in the front yard because they were in the way of the construction.

As we were starting from scratch, we took the opportunity to choose all our landscaping plants to attract local butterflies and honeyeaters to our garden. We used the Butterfly Conservation Society's "*Attracting Butterflies to your Garden*" book to make a list of plants attractive to Adelaide plains butterflies focusing on those that are locally indigenous to Adelaide.

Although only a small space, our new front garden is particularly lovely to wander and sit in - there is always lots of plants in flower and honeyeaters and butterflies to watch".



WATSON'S GAP GAHNIA WETLAND near Port Elliott
Refer page 3 of Newsletter 64 (August 2018)

A copy of the response received from Alexandrina Council can be obtained from the Secretary.
secretary@butterflyconservationsa.net.au

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

BOOKS "*Attracting butterflies to your garden, what to grow and conserve in the Adelaide Region*" **NEW EDITION** Published by BCSA 2016 - Our price \$25 (**financial members** may purchase a book for \$20). Postage \$7.

"*The Making of a Monarch*" by Linda Shmith has now been reprinted. Cost \$20 plus postage \$7.00.

DVD "*Butterfly Garden*" produced by Tracy Baron and Carolyn Herbert - \$20 each (BCSA financial members price \$15) Postage and packaging \$7 One book plus one DVD postage \$15.

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

Single posters: "*Bats of SE South Australia*" and "*The Bilby - Endangered Species*" posters are available for \$5 each, plus postage.

Poster postage is \$12 for up to 6 posters. Posters are free to schools, but incur postage.

SITE SIGNS: Application form to register a butterfly site is available on the butterfly gardening website. Cost including postage \$50.

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

If you would like to order any of our merchandise, obtain an order form for a site sign, plant tags or schools poster set, please email: info@butterflyconservationsa.net.au or write to the Secretary C/- South Australian Museum, North Terrace, ADELAIDE. 5000 or check out the **ON-LINE STORE** at www.butterflyconservationsa.net.au.



EXCURSION to HINDMARSH ISLAND

Butterfly Conservation SA members are invited to join a trip organised by Australian Plant Society SA to Karen and Chris Lane's place 81 Mcleay Road Hindmarsh Island (drive down Randell Road approx 8 kms, turn right at the Murray Mouth turnoff (Sesmacho Road,) drive approx 1 km, turn right onto Mcleay Road, we are second on the left).

Sunday 23rd September
at 12.30 for the afternoon.

Bring own lunch and walking shoes.
Tea and coffee will be provided.

See Bitterbush, *Gahnia filum* and other plants for habitat restoration and butterfly habitat.

CONTACT: Jan Forrest secretary@butterflyconservationsa.net.au or phone 82978230 by 15th September if you plan to attend.

2018 ANNUAL GENERAL MEETING

Members are advised that the Annual General Meeting of Butterfly Conservation SA Inc. will be held on Tuesday 4th September, 2018 at the Clarence Park Community Centre, Clarence Room at 6.30pm

BUTTERFLY CONSERVATION SA Inc.

C/- South Australian Museum, North Terrace, ADELAIDE, 5000
Email: info@butterflyconservationsa.net.au
Chairman: Mike Moore - chairman@butterflyconservationsa.net.au
Secretary: **vacant** - secretary@butterflyconservationsa.net.au
Newsletter Editor: Jan Forrest OAM - info@butterflyconservationsa.net.au
Treasurer: John Wilson - treasurer@butterflyconservationsa.net.au
Membership Officer: Gil Hollamby - membership@butterflyconservationsa.net.au
Publications Officer: Gerry Butler - publications@butterflyconservationsa.net.au
Committee: Andrew Lines, David Keane, Bernadette Johnson, Erinn Fagan-Jeffries (social media) and Bryan Haywood (endangered species advocate).
Consultants: Roger Grund 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 Mike Moore.

PUBLIC TALKS PROGRAM 2016: first Tuesday March - November, Clarence Park Community Centre 6.15pm for a 6.30pm start to 8.30pm.

Next talk: 4th Sept. 6.30pm BCSA AGM 7.00pm Public Talk *How the Afghan cameleers shaped our state.*

WEB SITES

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 (R Grund private site) - http://www.sabutterflies.org.au (has been off-line however it will be back on-line shortly).

NRM Education - http://www.naturalresources.sa.gov.au/adelaidemtoftyranges/home 'Get involved' - 'Education' - for students, **school monitoring activities** / for educators. See also other regional NRM Education sites

WELCOME TO NEW MEMBERS

**Donald Barnes
Jase Dowsett
Terri Heath
Luke Tilley
Carmel Daher
Tracey Hall
Sarah Harman
Paul van Loenen
Bernadette Haggerty
James van Loenen
Daniel Wilkin**

Correction to Newsletter 64.
Image on page 2 of Native pea *Cullen australasicum* should have been credited to "Friends of Black Hill and Morialta"



KONICA MINOLTA

Thanks to Chris Lane and Konica Minolta for their generosity in printing the BCSA newsletter.

Konica Minolta is a Landcare Australia National Partner

Articles for the next newsletter to: 'The Editor' BCSA Newsletter C/- info@buttbutterflyconservationsa.net.au

Please send images separately as a .jpg, not embedded in a word document.



Butterfly-Conservation-South-Australia



ButterflyConSA



Butterfly_Conservation_SA