



BUTTERFLY CONSERVATION SA INC.

NEWSLETTER

No. 56: October, 2015

EXCURSION TO MILANG

On 16th July this year an intrepid group of 24 members ventured to Milang to, hopefully, see a gathering of Wanderer butterflies over wintering on the shores of Lake Alexandrina.

We were not disappointed. While there were not the large numbers reported in June, it was good to see at least some butterflies and marvel at how they can survive a cold winter in this very windy place.

When the sun came out, suddenly we were able to see the butterflies more clearly as they opened their wings.

Thanks go to Jill Davy for organising this excursion at fairly short notice. Apologies to those not on email who did not receive the notice of this excursion. For logistical reasons, it is only possible to send emails about such events.

On this - if you do have email but choose to pay for your newsletter to be mailed but would like to receive the occasional notice of 'events and happenings' then please provide your email address to membership officer John Wilson and he will mark it 'for notices only' and your newsletter will still be posted.

Jan Forrest



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BUTTERFLY CONSERVATION SA. INC. Membership enquiries: info@butterflygardening.net.au
Membership payments (\$20pa - less 50% discount for email membership): to Treasurer: C/- South Australian Museum, North Terrace, ADELAIDE. 5000. Cheques to be made out to: Butterfly Conservation SA Inc.
Direct Debit details: BSB633000 Account No: 152785838 Bank: Bendigo Bank. Account Name: Butterfly Conservation SA Inc.
Please email Treasurer if paying by direct debit: info@butterflygardening.net.au (Attention Treasurer)

BUTTERFLY CONSERVATION SA Inc. Chairperson's Report 2014 -2015.



2014-2015 though largely a year of consolidation for the BCSA, has seen a couple of new and exciting highlights.

The first of these was the production of our Spider posters. This excellent and unique set of posters was put together by arachnologist David Hirst and our own Jan Forrest. Jan also did the vast majority of the artwork and developed it to such a state that the printers had to do only a little

work to put the designs straight into their machines. The posters have been well received and are tribute to the skills of those that devised and designed them.

The second "new" activity was actually run at the very end of the previous Chairperson's year but was within this financial year and so deserves a second mention. In July 2014 the BCSA ran its first Workshop at the Waite Early Learning Centre. We were focusing on those people and organizations that had put in Butterfly gardens and erected Butterfly Signs and we wanted to know of their successes, their problems and their innovations, but the Workshop ran the whole gamete of butterfly behavior and interests in butterflies. Gerry Butler, Jill Davey and Lorraine Woodcock were the organizers of this very well received activity and we will be running a similar workshop at this location in September of this year.

In this calendar year we also completed the development and production of our plant labels. These labels were largely finished last year but some final tweaking needed to be done to bring them to our complete satisfaction. We had been encouraged by various plant groups to develop some labels to highlight to the public which plants they could buy that would support our native butterfly population. Although all of the committee played a part in their development Gerry Butler and David Keane led the way and after much effort labels for 25 of our more common butterflies have been completed. We see these as an educational tool for the gardening public, a selling point for horticulturists, and a means of this society getting its public message seen and heard. These are for sale to the public and to nurseries.

Another project that has moved forward this year is the Moth Book. A decision had been made to produce a companion to our Butterfly Gardening book highlighting the lives of moths. This is a huge task. We are utilizing the knowledge of Peter McQuillan a SA Lepidopterist to provide most of the text, but are sourcing the images from a wide variety of contacts; some from within the BCSA and some from outside. We believe we can design the page mock ups within the BCSA and hope that that will mean the printers have less to do before production. Quotes have been gathered with regards to printing. Gerry Butler who led the way with the Moth posters has again taken up the reins here and is being helped by all members of the committee to achieve the desired end.

We have been talking about redesigning our website for a while now. We want to have a unified website that is more BCSA centred and that houses all that we want in one location. To that end we have our changed website host and have purchased a few more domain names. In our newly designed site we will incorporate the aims and history of the society, the identification and life histories of South Australian butterflies, their habitat requirements and any threats they currently face. We will also provide ideas and knowledge and ways to encourage butterflies into suburban gardens and hopefully with the right plantings, breed there. Jan Forrest, David Keane and John Wilson have worked hard to provide a framework for us to develop and the whole

committee is at present considering their suggestions.

We continue to be very pleased with our Public Talks Program. This year Lorraine Woodcock has taken oversight of the event. We are pleased with the range of variety of speakers that we access and with the general reception that the program receives.

Responding to requests we receive for speakers from a wide variety of community groups is a major task undertaken by the society. Jan does the bulk of these talks but I find myself on average doing 4 or 5 per year as well. We also attend a wide variety of shows and exhibitions where we set up our information stall. Again it is Jan that leads the way here with setting up and taking down though she is supported most ably by Gerry when she is otherwise occupied.

John Wilson our treasurer has taken it upon himself to construct a list of our assets so that a more comprehensive budget can be developed and a better idea of the extent of our resources achieved. He has also spent considerable time checking and re-checking our membership list so we are as up to date as we can be with this constantly changing set of data.

Jill Davy has organized a successful and enjoyable field trip already this year to view overwintering Monarch butterflies and is keen to organize more BCSA generated public events. Gil Hollamby has become our Minutes' secretary. Andrew Lines adds to the Committee and Public meetings through his collecting activities and natural history knowledge. Bernadette Johnson, and Linda Shmith our newest committee members help wherever possible and add most ably to the pool of ideas under discussion.

Jan Forrest continues her prodigious efforts by, in addition to the above mentioned, doing the club's secretarial work, preparing agendas, distributing information, working on grant applications, and preparing the newsletter. – Phew.

Ladies and gentleman you have a busy and hardworking committee. I am sure that you all realize that where I have highlighted a person by name they are most usually supported by others on the committee, and occasionally other members. I must take this opportunity to express my delight at the activities of the committee and the hardworking enterprise of those that make it up.

I do believe however that we are reaching a stage where we are being limited in our public outreach by the human resources available to us. A committee of this size can only do so much! We also need to think about the existence of the BCSA in the longer term. We have in the last 15 years had a good and healthy flow of members through the committee and that has kept the BCSA vibrant and generating many new and interesting projects and it is essential that this continues.

We can always do with more committee members so please free to "dip your toe in the water" if at all interested; the butterflies need you!

We would also like suggestions from the membership about new projects and directions. Maybe we need to revisit some earlier ideas that have been tried but are worth another go!

I am very happy that 2014-2015 has been a successful year for the BCSA, a year of consolidation no doubt but one in which the aims and outreach of the Association have been fully realized and thank all who have worked in those endeavours.

Mike Moore
4th August, 2015

2014-15 FINANCIAL STATEMENTS

BUTTERFLY CONSERVATION SA INC

STATEMENT OF CASH FLOWS

FOR THE PERIOD 1st JULY 2014 to 30th JUNE 2015

MEMBERSHIP & ADMINISTRATION	
	Subscriptions 2200.00
	Subscriptions mailing members postage 164.00
	Miscellaneous income 0.00
	Interest 968.63
	Donations 224.00
	Bank charges 0.00
	Postage/Stationery etc -298.97
	Miscellaneous expense -587.70
MERCHANDISE	-3247.65
PUBLIC MEETINGS & DISPLAYS	-1459.40
MISCELLANEOUS	-441.00
GRANTS	0.00
NET SURPLUS (LOSS) FOR YEAR	<u>-2478.09</u>

BUTTERFLY CONSERVATION SA INC

STATEMENT OF ASSETS AND LIABILITIES

FOR THE PERIOD 1st JULY 2014 to 30th JUNE 2015

ASSETS

Beyond Bank Saver A/C	37480.10	
Beyond Bank Cheque A/C	1451.28	
Bendigo Bank Cheque A/C	2064.33	
Debtors	550.00	
Merchandise Stock	6317.00	
Total Assets		47862.71

Less LIABILITIES

	0.00	
	0.00	
	0.00	
	0.00	
Total Liabilities	<u>0.00</u>	0.00
NET ASSETS		<u>47862.71</u>

Represented by

Accumulated Funds beginning	50340.80
Surplus (Loss) for year	-2478.09
Stock valuation adjustment	
ACCUMULATED FUNDS	<u>47862.71</u>

Funds in hand will be used to print our new book on caterpillars and moths of the Adelaide region and to eventually reprint the butterfly gardening book which shortly will be out of print. Secretary Jan F.

PURPLE EMPEROR: The butterfly that feeds on rotting flesh.

By Emma Ailes BBC News 23 July 2015

For a few weeks in July, groups of people can be found wandering English woods carrying strange produce - including rotting fish, Stinking Bishop cheese and dirty nappies. They're out to bait the Purple Emperor, one of Britain's most elusive butterflies, whose beauty disguises some filthy feeding habits.

You never forget your first time, says butterfly enthusiast Neil Hulme. "My dad and I were walking through the woods, and we came across a woman in her 30s wearing stars-and-stripes trousers, bent over. Some men in tweed with cameras and long lenses were photographing her from behind."

He moved closer and realised they were taking pictures of a Purple Emperor butterfly that had landed on her bottom.

Hulme was transfixed by the creature - especially when it fluttered up and landed on his collar.



The "Purple Emperor paparazzi"

The butterfly paparazzi

"The butterfly paparazzi moved in and surrounded me," he recalls. "In blind optimism I held out my hand as a falconer might, and it landed on my finger. It was such an amazing experience. I was hooked."

So began a decades-long love affair, which has seen him devote almost every second of every summer to the pursuit of this mysterious butterfly. Now is the key time of year - by the end of July, all of the Purple Emperors will be dead.

Hulme's purple passion runs so deep, he gave his daughter the middle name Iris after its Latin name, *Apatura iris*.

The Purple Emperor is rare among butterflies. It avoids flowers, preferring rotting animal corpses, faeces, mud puddles - and even human sweat.

It dwells high in the tree tops in the domain of birds. The males, who boast the deep purple iridescence, spend their brief lives "drunk on oak sap, brawling in mid-air battles and chasing down virgin females", says Purple Emperor fan Neil Hulme. People try all sorts of ridiculous things to bait Purple Emperors... roadkill, dog poo, rotting fish and even babies' nappies

"It's a violent thug. It attacks anything that comes into its airspace - it even tries to chase big birds like buzzards. It has filthy table manners."

The strange behaviour of "His Majesty" - as the Emperor is affectionately known - inspires equally unusual behaviour in people. At Knepp Castle estate in West Sussex,

people carrying huge cameras and binoculars can be seen dotted across the landscape.

Trotting down one woodland path is 71-year-old Hazel Land, a dainty woman in a large straw hat and sunglasses. She's travelled some four hours from Devon in search of the Purple Emperor. From her pocket she produces a lump of ripe Stinking Bishop cheese, lightly wrapped in cling film. "It really smells - want a whiff?" she offers. "It's my bait. I swear by it. And you can always have some for lunch." Hazel Land and her butterfly bait - ripe cheese.



Hazel Land and her butterfly bait - ripe cheese

She admits the Emperors seem to be off cheese that morning - but she passes on some intelligence about a female spotted on a bramble bush not far away.

Hulme, who now works for the charity Butterfly Conservation, has brought his own secret recipe - a foul-smelling Indonesian shrimp paste called Belachan, which he mixes with hot water and spreads on woodland paths. Sometimes he adds pickled mudfish.

People try "all sorts of ridiculous things" to bait Purple Emperors to the ground for a much coveted shot of its resplendent wings, he says. That includes roadkill, dog poo, rotting fish and even babies' nappies. It's thought the butterflies are attracted to the salts and minerals.

Rotting banana skins are traditionally draped around Bentley Wood "My friend Matthew once hoisted a 15lb (7kg) salmon into the top of a tree," says Hulme.

"Urine-soaked fox scat [dung] is one of the most attractive baits there is to the Purple Emperor. I know of people who go out first thing and scoop them into a bucket.

"And there's a very good fish paste called Shito from Ghana - although I haven't managed to get hold of that for a couple of years now."

In Bentley Wood, Hampshire, people traditionally hang rotten banana skins - although Hulme is dubious about their effectiveness.

One clergyman, the Reverend Prebendary John Woolmer, who has a letter on the state of the Purple Emperor published annually in the Times, even calls on the power of prayer.

He conducts a woodland service at the beginning of each Purple Emperor season in Northamptonshire to bless the forest rides.

His purple stole is embroidered with butterflies.

But while unusual, the tactics of these butterfly chasers are nothing new. The tradition of baiting Purple Emperors goes back at least 250 years.

IRP Heslop and his 37ft butterfly net In Victorian times, the heyday of but-



terfly collecting, gamekeepers would attract Purple Emperors down to their gibbets by hanging out rotting carcasses of crows and rabbits.

In the early 20th Century, expert lepidopterist and Purple Emperor obsessive IRP Heslop imported a trailer-load of pig manure for bait, and designed a 37ft (11m) net for scooping them from the tree tops.

More recently, people have tried cherry-picker cranes to access the canopy, or even floating purple helium balloons or hurling clods of mud into the air to provoke them into the open.

Hulme has ideas for sending up miniature kites or a drone - although the blades would have to be protected. "We wouldn't want to see one shredded."

Back in Knepp, another hunter, Paul Fosterjohn, is lying flat on his back - "the best Purple Emperor spotting position" - under a tall oak tree.

A 25-foot ladder is precariously secured with his belt to a mid-level branch that's oozing sap - a Purple Emperor delicacy. At the sight of one, Paul scampers up the ladder for a closer look and a photo, before diligently noting down every detail.



Paul Fosterjohn keeps a watchful eye on the treetops

Paul Fosterjohn keeps a watchful eye on the treetops. He has spent much of the last two weeks in this manner. "I'm mostly interested in birds, particularly cuckoos, but there's something about the Purple Emperor. I don't know, it takes you back to being a child again."

Fosterjohn is still childlike in his captivation at every new sighting. At one point he spots a pair tumbling in a downwards spiral in the distance.

"It's a male-female rejection," he yells and begins leaping over brambles and ditches towards them. Mthew Oates, who hoisted the salmon, author of *In Pursuit of Butterflies*, is the UK's leading Purple Emperor expert has dedicated 45 years to trying to understand them. In previous years, he's held foul-smelling "butterfly banquets" on trestle tables in the woods, with plates of rotten shrimp and fermenting jellyfish slices to bait the insects.

He says only now are some of the mysteries surrounding this butterfly beginning to unravel. "A lot of knowledge about the Purple Emperor was assumption and



Matthew Oates's "butterfly banquet"



Top: larva of the Purple emperor and below adult

mythology - there are huge areas about its ecology and other dimensions we don't know about," he says.

"For example, it was always thought they were dependent on ancient oak woodland. In fact the caterpillars feed on willow - or pussy willow - thicket." Willow was traditionally seen by foresters as a weed, and rooted out. But at Knepp, a "re-wilding" project by estate owner Charlie Burrell to allow parts of the land to return to its natural pre-agricultural state has allowed willow habitat to develop over the last 15 years.

A boom in Purple Emperors has ensued, this year overtaking even famous hotspot Fermyn Woods in Northamptonshire for sightings. It could mark a huge step for conservation.

By August, the last of this year's Purple Emperors will die away. "You do feel sad when it's over for another year," says Hulme.

"Purple Emperors are this wonderful celebration of British summer. Matthew likes to say they just fly away into the sunset. It's nice to think about it like that."

'His Majesty' The Purple Emperor was first defined as a species, *Apatura iris*, in 1758.

It is one of the UK's largest butterflies, second only to the Swallowtail. It has a wing span of up to 8.4cm (3.3in).

The adult butterfly emerges in early July, with peaks in the second and third weeks of July. It is mostly found in woodland in central southern England.

Its elusive nature makes it difficult to establish how many Purple Emperors there are in the UK, but it is considered a species of conservation concern.

<http://www.bbc.com/news/magazine-33596341> 23 July 2015

NOTE: Honorary Member Roger Grund has observed that the Emperor article is interesting, however it is different to our South Australian Emperor butterfly the Tailed Emperor (*Polyura sempronius*). The Australian species is also attracted to rotting stuff including excrement.

The UK species belongs in the subfamily Apaturinae, however the Australian species is in the Charaxinae, but both belong to the Family Nymphalidae.






IDENTIFYING MOTH FAMILIES – Part 1 by D. Keane

Just like plant families the amateur uses observation and field experience to pick up certain tricks rather than by scientific keys to identify species, which can be extremely difficult. Using scientific keys requires a good knowledge of the Latinized language whilst the short cuts are acquired by recognising certain features/shapes and are the real key to success such as identifying from pictures! Due to the vast number of moth species, over 2,000 in South Australia, moth families are divided into subfamilies for identification. Moths in Australia do not have well known common names unlike Great Britain where nearly all species have been recorded and are named. “Moths, butterflies, and some other insects can often be readily identified as to genus and sometimes as to species, by differences in their eggs” Ref: *Moths Eggs* article by Noel McFarland. There are about 85 families of moths in Australia and recognising a few will go a long way of being able to identify the common ones. Remembering that identifiable features do not always run true, it’s the same with any living thing, there are always exceptions.

Your references as follows:








<i>Common Moths of the Adelaide Region</i> – P. B. McQuillan and J. A. Forrest
<i>Portraits of South Australian Geometrid Moths</i> by Noel McFarland 1988 (Rare) try the Library
<i>Moths of Victoria</i> (present series 1 & 2) by Peter Marriott – 2009. One of the best for our local moths
<i>A Guide to Australian Moths</i> by Paul Zborowski and Ted Edwards - CSIRO 2007 Great pictures!
<i>Moths of Australia</i> by I.F.B. Common – 1990>
<i>Moths of Australia</i> – Bernard D’Abrera 1974 (rare)

The vast majority of Australian moths can be found in Oecophoridae or Tortricidae (micro moths) and Pyralidae, Geometridae, and Noctuidae (larger moths). Here is a selection.

Family	Common Names	Adults	Caterpillar	Adelaide Example
SPHINGIDAE (60 species in Australia) 1200 world wide “Hawk moths”	Death’s Head Convolvulus hawk Vine hawk moth Coprosma hawk	Large bodies and streamlined in design with rapid flight speed	Smooth with a stiff or spine at the rear. Usually brown or green. Eg. <i>Hippotion scrofa</i>	
GEOMETRIDAE (1300 species in Australia) 21,000 world wide “Geometrid moths”	Peppered moth Emeralds Hakea moth Twig looper	Lightly built, slender bodies with ample wing space. Can be well camouflaged	Loop when in motion. Some resemble twigs. Eg. <i>Oenochroma vinaria</i>	
NOTODONTIDAE (90 species in Australia) 2800 world wide “Notodontid moths”	Prominents Puss moth Lobster moth Kitten moths Snub moths	Medium to large hairy moths. Wings folded along the body	Oddly shaped larvae. Some processionary caterpillars. Eg. <i>Oenosandra boisduvalii</i>	
LASIOCAMPIDAE (70 species in Australia) 1500 world wide “Snout moths”	Lappet, Drinker and Oak Egger moths	Mostly big moths where females are larger than males. Some have palps that protrude	Hairy and spin a strong silken cocoon. Eg. <i>Entometa fervens</i>	
LYMANTRIDAE (70 species in Australia) 2500 world wide “Tussock moths”	Gypsy moth Black Arches moth Vapourer moth	Hairy moths with large furry bodies	Often ornamental with tufts which can irritate the skin Eg. <i>Acyphas leucomelas</i>	

IDENTIFYING MOTH FAMILIES Part 2 by D. Keane

Guide to selected larger moth families

Family	Common Name	Adults	Caterpillar	Adelaide Example
SATURNIIDAE (15 species in Australia) 1200 world wide	“Emperor moths” Hercules and Atlas moths. Gum moths	Very large woolly bodies and with large ‘eyes’ on the wings	Allied to silk worms. Usually colourful with sparse hairs.	
ARCTIIDAE (280 species in Australia) 6000 world wide	“Tiger moths” Footmen Ermines Jersey Tiger Cinnabar	Small to large brightly coloured	The ‘woolly bears’ usually brown and very hairy, no pattern	
NOCTUIDAE (1000 species in Australia) 35,000 world wide. Largest family of Lepidoptera	“Night moths” Granny moth Army worms Sword grasses Herald moth Yellow underwing	Small to very large. Wings broad, most folded along the body	Usually with sparse hairs brown or grey.	
ANTHELIDAE (74 species in Australia, 31 in Vic) 12 in New Guinea, many unrecorded	“Anthelids” (look like poor cousins to the emperors)	Many large and showy moths	Hairy like the ‘woolly bears’ with a pattern and spin a hairy cocoon.	
NOLIDAE (170 species in Australia) 1400 world wide Allied to Noctuids	“Tuft moths” Many common names ending in Tuft. Leaf Skeletonizers	Small to large grey/brown moths with antennae simple	Hairy and tussock-like	
HEPIALIDAE (120 species in Australia) 500 world wide (autumn fliers and coincides with rains)	“Swift and Ghost moths” Barti Moth	Vary large usually grey moths with short feathery antennae	Large feeding underground on gum tree roots or on litter. Golden pupal cases are seen after emergence.	
PYRALIDAE (1100 species in Australia) 16,000 world wide (One of the most diverse families both biologically and varied behaviours)	“Pylalids” Web worms Meal moths Borers	Small to large many very attractive.	Usually hairless grubs.	

References: (Ref: *A Guide to Australian Moths* by Paul Zborowski and Ted Edwards - CSIRO 2007). Other references used: *Moths of Victoria* by Peter Marriott – 2009; *A Handguide to the Butterflies and Moths of Britain and Europe* – John Wilkinson and Michael Tweedie – Collins 1980; *Common Moths of the Adelaide Region* – P. B. McQuillan and J. A. Forrest. *Moths of Australia* – Bernard D’Abrera 1974.

POLLINATION – an article from the Australian Museum

Pollination is the process by which plants sexually reproduce. Many plants depend on animals, particularly insects, to transfer pollen as they forage. Plants attract pollinators in various ways, by offering pollen or nectar meals and by guiding them to the flower using scent and visual cues. This has resulted in strong relationships between plants and the animals that pollinate them.

What is pollination?

Pollination is the delivery of pollen to the female organs of a plant (stigma in flowers). Pollen is made by the male organs of a plant (stamens in flowers) and contains genetic information needed for plant reproduction. Pollen may be transferred to female organs on the same plant (self-pollination) or another plant of the same species (cross-pollination). As a result of pollination the plants produce seeds. Pollen can be dispersed by wind, water and animal pollinators such as insects, bats and birds.

How important is insect pollination?

It is estimated that 65% of all flowering plants and some seed plants (e.g. cycads and pines) require insects for pollination. This percentage is even greater for economically important crops that provide fruits, vegetables, textile-related fibres and medicinal products. Because insects are such efficient pollinators, plants have developed many ways of encouraging them to visit. This has led to some strong associations between plants and insects.

Why is pollination by insects important for the environment and us?

Pollination by insects is a much more reliable and efficient pollination mechanism than chance dispersal.

Pollination by insects determines plant community structures.

Pollination by insects is particularly important for Australian native trees and shrubs. For example, native bees pollinate many members of the plant family Myrtaceae. This plant family includes eucalypts, angophoras and tea trees.

Pollination by insects is vital for crop production. One third of the human food supply is crops that are dependent on pollination by bees.

Which insects are pollinators?

Species of bees, beetles, flies, wasps, thrips, **butterflies and moths** are all successful pollinators.

These insects make good pollinators because they share two important features:

They fly, and so are capable of visiting many plants in a relatively short amount of time

They are motivated to interact with pollen, as they either eat it or food items located nearby (e.g. nectar).

The most sophisticated relationships between plants and insects are generally those involving bees. Bees collect pollen and nectar not only for themselves but also to feed their young. For this reason bees have developed a number of adaptations that make them particularly good pollen carriers. Bees have special hairs that are arranged to form pollen 'baskets' on their hindlegs and the underside of their abdomen. These adaptations allow them to gather and carry large volumes of pollen. Bees are ideal pollinators because they visit many flowers while carrying lots of pollen, before returning to their nest. So the chance that a bee will transfer the pollen between flowers of the same species is very high.

How do insects pollinate plants?

Pollination by pollen-feeders

Many insects eat pollen. In the process of eating they become covered in it. Pollination happens when the pollen feeder transfers the pollen to the pollen receivers of the same plant, or another plant of the same species, as the insect looks for more pollen to eat.

Disadvantages of attracting a pollen feeder:

They eat the very item the plant wants delivered- pollen.

They tend to be generalist feeders and eat other parts of the plant, including the sexual organs.

They could be considered to be 'unreliable pollinators' as the pollinator might not go anywhere near the female organs of the same species of plant.

Pollination by nectar feeders

The majority of flowering plants encourage insects to visit their flowers by secreting a sugar-rich liquid called nectar. This nectar collects in pools, below the sexual organs of the plant. As the insect enters the flower in search of nectar it brushes against the anthers (pollen bearing male parts of the flower). In doing so the insect collects the pollen, as it sticks to its body. When the insect visits another flower for more nectar, the pollen is transferred from its body to the stigma (pollen receiving female parts of the flower), causing pollination.

Advantages of attracting a nectar feeder:

The locality of the nectar ensures the insect cannot avoid touching the organs associated with pollination.

Pure nectar feeders such as butterflies and moths do not eat the pollen.

How does flower shape affect pollinators?

Flower shape can restrict access to pollen and nectar to only those insects that have the appropriate tools or abilities. ***For example, the nectar at the base of a long tubular flower may only be accessed by insects that have long mouthparts such as butterflies, moths, flies and bees that have long lapping 'tongues'.***



Right: Painted lady (*Vanessa kershawi*) feeding Photo: E.Steele-Collins



WAS IT DESIGNED?

The Butterfly's Wing



THE wings of a butterfly are so fragile that even the weight of specks of dust or drops of moisture could make flying difficult. Nevertheless, the wings stay clean and dry. What is the butterfly's secret?

Consider: Researchers at Ohio State University studying the Giant Blue Morpho butterfly (*Morpho didius*) found that although the insect's wings look smooth to the naked eye, the surfaces are covered with minute overlapping scales that resemble tiles on a roof. Even tinier parallel grooves on the surface of these scales cause dirt or drops of water to roll off with ease. Engineers are seeking to copy the wings' texture in order to make high-tech coatings for industry and medical equipment that are resistant to dirt and water.

The butterfly's wing is another example of how science is trying to mimic the designs found in living things. "Nature is full of engineering marvels, from the micro to the macro scale, that have inspired mankind for centuries," says researcher Bharat Bhushan.

What do you think? Did the butterfly's wing come about by evolution? Or was it designed? ■

Butterfly: © Robyn MacKenzie, used under license from Shutterstock.com
wing scales: Courtesy of Carolina Biological Supply Company



The butterfly's wing has minute overlapping scales

Article reprinted from 'Awake!' April 2014 sent to us from Kylie Wood from Bargo NSW

JILL DAVY - our thanks.

Jill has been a member of the BCSA committee for quite a few years. However, at the last AGM she thought she might have a break, although she has advised she is still "around the place" and happy to help out when we need some help.

On behalf of the committee and members, our thanks go to Jill for all her work and support over many years and, yes, we shall definitely call upon her from time to time as her work and interest in the Wanderer butterfly has been exceptional.



The flower shape can be so restricting that a certain type of behaviour maybe required to access the pollen. For example, 'buzz pollination' is needed to pollinate many Hibbertia species. It is practiced by the Blue Banded Bee and a number of native Australian carpenter bees, and involves the bee holding onto the plant and vibrating to get the pollen out.

The relationship between flower shape and the location of the nectar is also used by plants to attract certain insects. Many legumes (e.g. Lucerne), have concealed nectar that can only be accessed by large, strong bees like Leaf Cutter or Resin Bees. The flowers of these plants are closed. It is only by pushing down on the lower parts of the flower that the it opens up to allow access to the nectar. As the flower springs open pollen is flung onto the under body of the bee.

How do plants attract pollinators?

Simply supplying nectar does not guarantee that the insect will come to a plant or transfer pollen to the pollen receivers of the same species. For this reason, plants use visual and scent cues to attract and direct insects.

Scent is an effective way of luring pollinators. For example, strong smelling flowers tend to be visited by beetles and flies, while bees and **butterflies visit sweet smelling flowers**. It is also an effective means of directing pollinators to the pollen receivers.

Cycads from inland Australia use scent to lure thrips for pollination. Thrips are very small insects that cannot carry many pollen grains, so the plant needs to attract large numbers of them. A male cycad cone laden with pollen will emit a strong and pungent scent that will attract as many as 50 000 thrips. Female cones also emit a scent once they are ready to receive pollen, which then attracts the pollen-laden thrips.

Scent can also be used to trick insects into becoming pollinators. The Corpse Flower of Indonesia uses a pungent odour of rotting flesh to attract carrion insects. The Australian Broad-lipped Orchid imitates the scent and also the appearance of a female Thynine Wasps. This fools male wasps into attempting to mate with the flower which is pollinated in the process.

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- See more at: <http://australianmuseum.net.au/pollination#sthash.YD4U3fvO.dpuf>

HOW TO ATTRACT BUTTERFLIES TO YOUR GARDEN - Yahoo 7

Whether a butterfly decides to stay a while in your garden depends on how butterfly-friendly it is. Attracting beautiful butterflies to your garden is easy!

Better Homes and Gardens
September 10, 2014, 4:00 pm



Plants with long tubular flowers such as *Grevillea* spp., will help to attract butterflies. Photo: Thinkstock.

How to attract butterflies

Position your butterfly garden in a sunny spot. Butterflies rarely linger in shady areas.

Plant plenty of nectar-rich flowers such as pentas, ageratum, nicotiana, sunflower, verbena, alyssum, marigold, heliotrope, flannel flower and *Sedum spectabile*. These can be grouped into a flowery meadow. More below

For extra nectar, plant shrubs and trees such as banksia, bottlebrush, angophora and eucalypt.

Find out about butterflies native to your area. Get to know what their caterpillars look like.

Caterpillars are fussy eaters. Each has its favourite plants. Find out what they are and plant them.

Join a butterfly group such as Butterfly Conservation South Australia or the Butterflies and Other Invertebrates Club Inc. (For the latest contact details please do a search on these names at yahoo.com.au).

Avoid using poisonous pesticides.

Avoid using products containing *Bacillus thuringiensis*.

Place a shallow dish of muddy water in a sunny spot. You may find butterflies come to a 'mud puddle'.

Untame your garden- butterflies enjoy a bit of chaos.

Tolerate chewed plant leaves- they're a small price to pay for the company of beautiful butterflies.

Which plants?

Flowers that typically have tubular or long flowers are pollinated by butterflies.

Try these:

Bottlebrush

Buddleia

Christmas bush
Daisies and everlastings
Fan flowers
Grevillea
Kangaroo paw
Lantana
Lavender
Melaleuca
Purple-top verbena
Tea tree

The Painted Lady

A MYSTERY REVEALED



EUROPEAN observers have long admired colorful painted lady butterflies (*Vanessa cardui*) and have wondered what happened to them at the end of each summer. Do they simply perish with the onset of cold weather? Fresh research reveals an extraordinary story. The butterflies make an annual journey between northern Europe and Africa.

Researchers combined results from sophisticated radar with thousands of sight-

ings reported by volunteers across Europe. The results revealed that as the summer ends, millions of painted lady butterflies migrate south, mostly flying at an altitude of more than 500 meters—therefore hardly ever seen by humans. The butterflies wait for favorable winds, which they ride at an average speed of 45 kilometers per hour on the long trip to Africa. Their annual migration is up to 15,000 kilometers long, beginning from as far north as the fringes of the Arctic and terminating as far south as tropical West Africa. The trip is almost double that of the North American monarch butterfly. It takes six successive generations of painted ladies to complete the round-trip.

Professor Jane Hill of the University of York, in England, explains: "The Painted Lady just keeps going, breeding and moving." Annually, those steps take the whole population from northern Europe to Africa and back again.

"This tiny creature weighing less than a gram with a brain the size of a pin head and no opportunity to learn from older, experienced individuals, undertakes an epic intercontinental migration," states Richard Fox, surveys manager at Butterfly Conservation. This insect was "once thought to be blindly led, at the mercy of the wind, into an evolutionary dead end in the lethal British winter," Fox adds. Yet this study "has shown Painted Ladies to be sophisticated travellers." ■



Article reprinted from 'Awake!' December 2013 sent to us from Kylie Wood from Bargo NSW

Editors NOTE: the Australian 'Painted Lady' butterfly is *Vanessa kershawi*, this article refers to the European species.

SEEDS OF HOPE FOR A NEW EDEN - reprinted from 'The Southern Cross' June 2015

By Rebecca DiGirolamo

Catholic schools are embarking on an ambitious plan to plant one tree per student across local sites and in areas of degraded land in South Australia and potentially overseas, removing thousands of tons of toxic carbon from the atmosphere to help reverse global warming.

The unique Forest of Eden project has been established by Catholic Education SA (CESA) and international not-for-profit group Pop-Up-Foundation, based on a simple formula – one tree, one child, one ton of carbon sequestration (removal from the atmosphere).

There are about 48,000 students enrolled at 103 Catholic schools across the State. The first Forest of Eden plantings will take place later this month (June 2015) when All Saints Catholic Primary School students plant 150 gum trees at the Second Valley property of Rob Malone and Pamela Wright.

“The whole area has been farmed from the mid to late 1800s, so it’s not completely degraded but it has been farmed hard,” said Mr Malone.

The mass planting would remove 100 tons of carbon from the air. All Saints students also plan to plant 100 seedlings at another Fleurieu Peninsula property later this year, with a proposal to plant 600 seedlings for its 600 students each year.

“The Forest of Eden project is responding to Pope Francis’s call to actively protect the environment as stewards of creation and this is a first step towards doing that,” said CESA Religious Education consultant (ecological conversion) Alice Dunlop.

Pope Francis’s long-awaited encyclical on ecology is expected to be released by the Vatican soon.

Mrs Dunlop said there was potential to expand the Forest of Eden project to the public and independent education sectors and to attract South Australian corporate sponsors to match funding of trees planted by students.

She said CESA was working on a business proposal with the South Australian Government, the Conservation Council of South Australia and Trees For Life.

Trees For Life has come on board to provide Catholic schools with seedlings, training and access to degraded land across the State through registered land owners. Trees For Life chief executive officer Greg Boundy said the Forest of Eden project was unique in South Australia. “We are very excited,” he said.

Conservation Council of South Australia chief executive officer Craig Wilkins said: “I love the idea”. He said the group could link schools with 50 member groups to assist with planting, land care and biodiversity repair. “This is an enormous opportunity for connection between faith communities and environmental organisations.”

The project evolved from school workshops, held last year with Pop-Up-Foundation co-director and founder Dr Paul Clarke, where more than 70 students from 15 different Catholic schools planned to plant 14,130 trees with their school communities.

Dr Clarke, professor of education at London’s St Mary’s University, said the group was in discussion with WeForest to find a way for corporate sponsors to fund an additional tree for every tree planted in the Forest of Eden Project. WeForest is an international not-for-profit body which has helped plant more than 8.5 million trees in severely degraded places like the Brazilian Atlantic Forest.

“There are lots of great tree planting projects around the world...however there are hardly any school-based projects doing this in this way, that is why it’s such an exciting initiative,” said Dr Clarke.

He described the project as “hugely ambitious” starting with small seeds and actions to implement an effective way to “put the words of the Pope into action”.

All Saints environment and sustainability coordinator Bill Giles said it was a simple and positive message for students to grasp.

“If we plant 250 trees and 20 other schools plant 250 trees, well that’s more than 5000 trees and that’s what we are trying to show the kids – that collectively, this is a really powerful option,” said Mr Giles.

Galilee Catholic School, in Aldinga, will later this year plant about 100 mostly Pink Gums, but also Banksia and an Australian Christmas tree. And St Catherine’s School Stirling will later this term plant a fruit tree to start an orchard that will grow by one tree each year. About 20 Year 7 students will be given a native tree to plant off-site at graduation.



All Saints Catholic School students Blake and Amber will kick-start the Forest of Eden project later this month (June) by planting 100 native trees to help restore the eco-system of farmland in Second Valley. Photo: Heidi Linehan

OUR PROMOTION DISPLAYS

Thanks to committee members David, Lorraine, Linda, Gerry, Gil and Jan and to members Ann and Helen for your help at the Garden Show and APS sale. Secretary Jan Forrest.

PHOTOS STILL REQUIRED

Images of moth caterpillars and adults are still required for the new moth book. We are still missing images of a number of the more common species. Please make your photos available, even if you do not have an identification. Contact Secretary Jan Forrest.

Butterfly Conservation South Australia Inc.

www.butterflygardening.net.au

presents

a PUBLIC TALKS PROGRAM

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

Entry by donation (minimum of \$2).

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.

Photo Robert H Fisher: Common Brown *Heteronympha merope*

LAST TALK FOR 2015

3rd Nov: "Rain Moths" Mike Moore has had a lifelong interest in butterflies and moths. His talk will provide a fascinating insight into one of the largest moths, the Hepialids, commonly called rain moths.

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

We are now planning the 2016 Public Talks Program. If you have suggestions for guest speakers please contact Secretary Jan Forrest 82978230 or via email janforrest@hotmail.com.

BCSA FINALIST IN THE 2015 PREMIER'S NATURAL RESOURCES MANAGEMENT AWARDS 'Community Engagement' category.

Winner: Sturt Upper Reaches Landcare Group for their work with bandicoots.



Treasurer John Wilson gives a BCSA presentation at the 2015 State Community Landcare Conference at Waikerie

ARID LANDS BOTANIC GARDEN

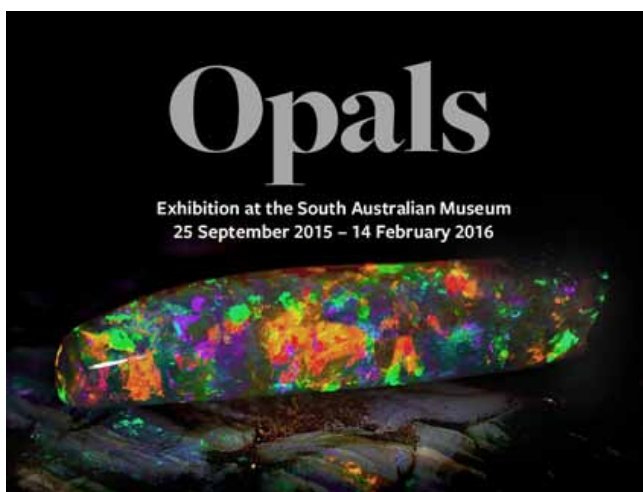
The courtyard (butterfly garden) of the Arid Lands Botanic Garden just out of Port Augusta is presently in full bloom. If you are up that way take some time to have a look. Photo: Chris Nadar



A CHALLENGE FOR NATURE PHOTOGRAPHERS

Moths play an important part in the pollination of many of our native plants. However because they mostly do it at night, we do not have any images. I was recently in the Great Victoria Desert and on one evening (one of the warmer ones), huge numbers of moths were flying around some of the plants. At the time I was too busy cooking tea to get out my camera but it was definitely a missed opportunity. So I am calling on our members to keep a look out and see if you can capture an image of moths feeding and thus pollinating, plants at night. Good luck.

A signed copy of our butterfly book will be donated to the member who can provide the first successful image of moths pollinating plants at night. Jan Forrest (Secretary)



Note from Secretary Jan Forrest:

This exhibition is STUNNING. I don't usually read all the labels however this time I found the whole exhibition fascinating. It culminates in a fantastic display of priceless opals from the collections of the South Australian Museum and elsewhere. Just about all of the specimens have never been on show before and may never be again, in our lifetime. It is a 'must see' exhibition. Not much for kids to do though other than to crawl through a small tunnel in the 'dug out'.

WHAT'S FOR SALE?

BOOKS *"Attracting butterflies to your garden, what to grow and conserve in the Adelaide Region"*

Published by BCSA 2007 - Our price \$25 (members may purchase one book for \$20). Postage \$7.

"the Making of a Monarch" Published Linda Shmith 2013 - BCSA members price \$20 plus postage \$7.

DVD *"Butterfly Garden"* produced by Tracy Baron and Carolyn Herbert - BCSA members price \$15, postage and packaging \$7 One book plus one DVD postage \$12.

POSTERS *"Spiders and their allies of the Adelaide Region"* Published by BCSA 2014 and *"Common Moths of the Adelaide Region"* Published by BCSA 2012 - sets of two \$10 for each set, plus postage \$12. (available FREE to schools - all they need pay is postage costs, contact Secretary for an order form). Single posters: Bats of SE South Australia and The Bilby - Endangered Species are available for \$5 each, plus postage above.

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

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

POLO-SHIRTS with Butterfly Conservation logo. NEW PRICE LIST AVAILABLE Prices between \$35 and \$40 depending on size and style. A wide range of colours are available.

If you would like to order any of our merchandise, obtain an order form for a site sign, plant tags, polo-shirt or schools poster set, please email: info@butterflygardening.net.au or write to the Secretary C/- SAMuseum, North Terrace, ADELAIDE. 5000.



BANKING DETAILS

BCSA has changed its bank to enable electronic signatories.

Below are the new details for any future payments for books, posters, membership etc.

Cheque or Money Order : Please make cheques payable to: Butterfly Conservation SA Inc.

Mail your details with payment to: Treasurer, Butterfly Conservation SA Inc., C/- 12 George St, Hawthorn SA 5062.

Direct Debit : Bank: Bendigo Bank, BSB: 633-000, Account No: 152785838, Account Name: Butterfly Conservation SA Inc. If using this method please put your name in the description and email the treasurer, John Wilson, at j.and.m.wilson@internode.on.net to advise payment.



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

BUTTERFLY CONSERVATION SA Inc.

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Treasurer and membership officer: John Wilson

Committee: Andrew Lines; Gerry Butler (Publications Project Manager), David Keane,

Gil Hollamby, Lorraine Woodcock (Public Talks Program), Bernadette Johnson,

Linda Shmith and Bryan Harwood (endangered species advocate).

Consultants: Roger Grund and 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 Secretary, Jan Forrest.

PUBLIC TALKS PROGRAM 2015: first Tuesday March - November, Clarence Park Community Centre 6.15pm for a 6.30pm start to 8.30pm.

Next talk: 3rd Nov: "Rain Moths" Mike Moore has had a lifelong interest in butterflies and moths. His talk will provide a fascinating insight into one of the largest moths, the Hepialids, commonly called rain moths.

WEB SITES

Butterfly Gardening - www.butterflygardening.net.au

South Australian Butterflies (R Grund private site) - <http://www.sabutterflies.org.au>

NRM Education - <http://www.naturalresources.sa.gov.au/adelaidentloftyranges/home>

'Get involved' - 'Education' - for students, **school monitoring activities** / for educators.

See also other regional NRM Education sites.

WELCOME TO NEW MEMBERS:

**Stephen Koerber
Shanelle Palmer
Patricia Nikolic**

MEMBERSHIP RENEWALS

This year we have moved to a calendar year (approved at the 2014 AGM).

So, with this newsletter you will receive your renewal notice, payable by 31st December 2015.

Annual fee is \$20, 'email memberships' receive a 50% reduction - to \$10 pa.

