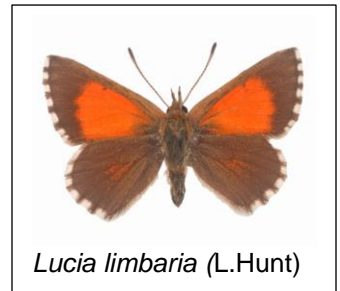


Friends of the Chequered Copper (*Lucia limbaria*) Butterfly

c/- Butterfly Conservation of SA Inc
ABN 88 179 165 805

Telephone 0407 972 149
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Lucia limbaria (L.Hunt)

UPDATE OCTOBER 2020

Butterfly Conservation SA (BCSA) established a 'Friends of the Chequered Copper (*Lucia limbaria*) Butterfly' in 2018, as a sub-committee of the BCSA.

MISSION:

This group will be involved in:

- Promotion of the Chequered Copper (*Lucia limbaria*) butterfly as an indicator species of the health of the biodiversity area in Pakapakanthi/Victoria Park/Park 16;
- Conservation and management of the Chequered Copper (*Lucia limbaria*) butterfly in some parts of the biodiversity area in Pakapakanthi/Victoria Park/Park 16 (in agreement with Adelaide City Council (ACC);
- Conservation and management of areas of potential habitat for the Chequered Copper (*Lucia limbaria*) butterfly, outside of the fenced area in Pakapakanthi/Victoria Park/Park 16;
- Develop monitoring programs for the Chequered Copper (*Lucia limbaria*) butterfly and other invertebrates in selected areas of suitable habitat, with appropriate groups (e.g. Nature Glenelg Trust, Department of Environment and Water); and
- Joint promotional activities with other stakeholders (e.g. City of Adelaide, Adelaide Parklands Preservation Association, Trees For Life, Green Adelaide Board).

Update October 2020:

We have commenced monitoring following a number of successful information events over the last few months.

In August as part of the **National Science Week 2020**, the association conducted an online webinar with the title 'Herding Caterpillars - the close relationship between ants and Lycaenid butterflies, focusing on the Chequered Copper (*Lucia limbaria*) in Pakapakanthi/Victoria Park/Park 16.' The Herding Caterpillars webinar was held on 20 August 2020 and brought one of the world's foremost experts on Lycaenid butterflies, the blues and coppers, Emeritus Professor Roger Kitching AM from Griffith University, who was able to give an overall picture of the LYCAENIDAE. This presentation was followed by Mike Moore's presentation on the South Australian species of Lycaenids, Jan Forrest's video of *Ogyris otares* from Kangaroo Island and Greg Coote's video compilation of the *Lucia limbaria* caterpillars and ants in Pakapakanthi/Victoria Park. Gerry Butler presented the Story Map 'Herding Caterpillars 2' a compilation of text, GIS data and images summarizing the work done by the Friends of the Chequered Copper (*Lucia limbaria*) butterfly.

Nature Festival 2020:

As part of the inaugural Nature Festival, facilitated by the Nature Conservation Society (SA) and supported by the City of Adelaide and the Hackett Foundation, the association brought together some very talented experts for a 'Grasslands Tour' in the biodiversity area on Wednesday 30 September 2020. We were privileged to have a Welcome to Country and a Smoking Ceremony Corey Turner, Kurna and small groups walked with experts in Grasslands (Ann Prescott), Ants (Rodney Hutchinson), Butterflies (Bryan Haywood) and Spiders (David Hirst).

Thanks to the City of Adelaide for their support in running this event in a COVID Safe environment.

A series of photos are available to view here: <https://photos.app.goo.gl/7bhifG3Nru7REGjX6>

Monitoring has commenced for 2020-21:

We have started seeing lots of adult butterflies flying around in the Grasslands biodiversity area and when we visited on Wednesday 14 October we estimated that we saw about 100 adult butterflies demonstrating territorial and mating behavior. Greg Coote took many photos and videos which can be viewed on his Flickr site:

<https://www.flickr.com/photos/glcoote/50487242157/in/dateposted-public/>

Greg's CCB album on Flickr now has 127 photos and 31 videos!

The next instalment in monitoring will be a determined effort to find eggs on the *Oxalis perennans*, amongst the very weedy environment. The consistent rain, synonymous with an El Nina weather event, has certainly increased the growth of native and exotic plants.

Selected images (photographer Greg Coote unless shown otherwise) from Pakapakanthi:



Female CCB resting on grass (14/10/20)

Male CCB resting on capeweed flower stalk (14/10/20)



Comparison of underwing pattern and abdomens of female (left) and male (right) Chequered Copper butterfly

Ongoing monitoring will be held on a weekly basis dependent on the weather. Please contact Gerry Butler on 0407 972 149 or chairman@butterflyconservationsa.asn.au if you wish to be involved.

Previous work:

During the warmer months of 2018-19 (October 18- March 19) and 2019-20 (September 19-April 20) the Friends of the Chequered Copper (*Lucia limbaria*) Butterfly have frequently visited the Grasslands Site in the southern part of Pakapakanthi/Victoria Park/Park 16 and monitored the Chequered Copper (*Lucia limbaria*) butterflies, the butterfly host plant *Oxalis perennans* and the obligate common black ant *Iridomyrmex rufoniger*.

Each year we do over 300 hours of monitoring, usually in the mornings, especially to study the interaction of the ants and the caterpillars. The amazing relationship between the ants and the caterpillars from hatching from the tiny egg (0.78mm in diameter) and moving between the protection of the ant hole and the plant where it is encouraged to feed, we call 'Herding Caterpillars'. The ants often move an anthole to the base of the plant so there is a minimum cross ground travel for the caterpillar, as there are plenty of predators out there, like spiders and wasps, which would take the caterpillar if the ants weren't there. We also record the location in the grassland site of the male and female butterflies, their territorial and mating rituals, egg-laying and feeding.

We have often come across 'fresh' butterflies that have just emerged from the chrysalis, which is in the ant hole. We believe that if there is plenty of food the caterpillar will eat well and reach maturity after 2-3 weeks. Metamorphosis in the chrysalis takes 1-2 weeks and an adult will last for at least a week before it dies. We do see some caterpillars go into dormancy over winter and are then brought up to feed in September, once the plants grow again.

Frequent visits to Pakapakanthi, and the use of the monitoring program on our smartphones, have occurred with multiple users uploading data via Collector for ArcGIS, which has enabled multiple sightings of our targets. The 3 main aspects we collected data on are:

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

We now have a significant library of still and video observing the butterfly larvae browsing the host plants, many records of the location and condition of the host plant, great photos of CCB eggs (fresh and hatched), images and video of male and female butterflies and the obligate ant *Iridomyrmex rufoniger* (main photographer Greg Coote). See attached selected images.

The City of Adelaide has held a few activities in the Grassland Site with support from the SA Museum and Butterfly Conservation SA and there is significant interest in the biodiversity of the region. In addition to the signage on the main walking track, a Grassland booklet from 2018 is available from the City of Adelaide. The Friends group has received grants from the City of Adelaide, to assist with the monitoring, and in particular the GIS database management and data processing. Friends group members often provide information and discuss management of the grassland area with Council staff. One very important management aspect is that Council staff have been encouraged not to use mowers or brushcutters before 1100, as the butterflies are late-risers and remain quite lethargic, roosting in the grass tussocks, until the ambient temperature is above ~22C.

A public event in the Grassland Site was held on March 18th, 2020, for the Friends volunteers and members of the general public, which was advertised on Facebook and Eventbrite. The BCSA brought to the event Kaurna elder Corey Turner who performed a Welcome to Country and Smoking Ceremony and experts in grasslands and biodiversity: David Hirst (spiders), Andrew Lines (butterflies and moths) and Andrew Crompton (grasslands). The group activities were very well received and the contribution by these experts significantly enhanced the learning opportunity for the general public.

On January 31st and February 1st, 2020, following significant rain after the very hot summer heatwave events, we were able to see significant growth in the host plant. This was followed by many butterfly larvae browsing the host plants, culminating in very large numbers of butterflies emerging from their pupal stage around the day of the public event on March 18th. It is estimated that about 50 adult CCB were exhibiting territorial and mating displays at that time. Many images were taken of 'fresh' butterflies that had just emerged from their chrysalis and consequently were lethargic. Most of the images and video of male and female butterflies, caterpillars and the obligate ant *Iridomyrmex rufoniger* have been taken by volunteer photographer Greg Coote. (Greg has a Flickr site: [flickr.com/photos/glcoote](https://www.flickr.com/photos/glcoote) where you can view selected images.)

It is anticipated that when the COVID-19 lockdown is eased that a presentation will be made to staff of the City of Adelaide, with a presentation on the monitoring work, and provide information and recommendations for management of the grassland area and the area south of walking track.

A presentation will also be made to the BCSA Public Talks during 2020, showcasing the activities of the Friends group and the amazing behaviour of the caterpillars and the obligate ant.

The Friends group is seeking information about sightings of Chequered Copper butterflies in other regions of South Australia and made a presentation in December 2019 to the Playford Council and volunteers from environmental groups. In addition, a visit to some roadside sites in Elizabeth Vale in February 2020 was successful in recording multiple sightings of Chequered Copper butterflies, caterpillars and the obligate ant. Any persons who would like to forward information and location about other localities with Chequered Copper butterflies will be supported by monitoring and acknowledgement by the BCSA.

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 BCSA.

You can see the Story Map of March 2019 and May 2020 on our website
<https://butterflyconservationsa.net.au/projects>

Gerry Butler

Convenor, Friends of the Chequered Copper (*Lucia limbaria*) Butterfly



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Lucia limbaria (L.Hunt)

Selected images (photographer Greg Coote unless shown otherwise) from Pakapakanthi:



Male CCB 26/2/2020



Female CCB 26/2/2020



Fresh unhatched eggs of the CCB 22/12/19



Fresh unhatched eggs of the CCB being inspected
by an obligate ant *Iridomyrmex rufoniger* 22/12/19



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Selected images (continued):



CCB head closeup with ant's mandibles open 9/3/20



CCB (F) inspecting an ant - Peter Raine 200318



CCB caterpillar on ground being herded 9/3/20



Male CCB resting on rock marking territory 6/2/20