



Golden Sun Moth

By **Dan Williamson** Landholder and CMN Facilitator

Whilst I coordinate the CMN and write most of the articles in this newsletter, they are usually written from a coordinators perspective. This time however I decided to write from my perspective as a keen native vegetation manager myself.



Recently I came across a flier in a 'Friends of Grasslands' (FOG) newsletter about a field day coming up on a critically endangered species. Now when you think endangered species you normally imagine a rare bird or some unheard of marsupial, but this one is a moth. Yep, the Golden Sun Moth is listed nationally as critically endangered for three reasons; clearing of native vegetation, human-caused climate change and invasion of native plant communities by exotic perennial grasses.

My enthusiasm was instantly captured. A moth, a creature that most people would not notice let alone care about was getting some attention. I was drawn in even more when I realised that its habitat was grassland ecosystems. The distribution of known sites in New South Wales stretches in a relatively narrow band from Boorowa in the north-west, through Yass and down to Queanbeyan in the south-east. Sites are also recorded in the ACT and Victoria. Immediately it got me thinking whether it might occur down here in the grasslands of the Bega Valley, once dominated by native grassy woodland ecosystems.

I spent some more time researching the little critter on the internet, found a few people to talk and realised that not much was really known about the Golden Sun Moth's extent or range. In fact not much was really known about it at all. That left me with a sense that there could quite possibly be populations of the moth in the valley that have not been recorded before. Museum records show the distribution extending from Bathurst, through the Southern Tablelands of NSW, central and western Victoria, to Bordertown in eastern South Australia. Could this somewhat inconspicuous moth be lurking through grasslands in the Bega Valley?

It seems that the grasslands it does occur in are mainly Wallaby grass (*Austrodanthonia*) dominated ecosystems.

In the Bega Valley our grasslands are predominantly, but not always, Kangaroo grass (*Themeda*) dominated ecosystems. It has been recorded in *Themeda* grass before but never in the Bega Valley.

Available data shows the Golden Sun Moth is most likely just found on the western slopes and inland of the divide. My optimism still lingers however that with the valleys unique grassy woodlands coupled with the great work of landholders protecting them, the Golden Sun Moth may well exist here. Or if not here now, it may find our valley more suitable as climate change and habitat decline in the west force it to move on.

If you think you have seen it the best thing you can do is photograph it and contact us to make a positive ID.

Interesting facts about the Golden Sun Moth.

- Bare ground between the tussocks of wallaby grasses are thought to be an important microhabitat feature. This is generally where the females are observed displaying to attract males.
- Adults are short-lived (one to four days) and do not feed - having no functional mouthparts; the larvae are thought to feed exclusively on the roots of wallaby grasses.
- Females have reduced hind wings and are reluctant to fly. Males will not fly long distances (<100 m) away from areas of suitable habitat. Thus populations separated by distances >200 m can be considered effectively isolated.

www.threatenedspecies.environment.nsw.gov.au

www.environment.gov.au/sprat

CONTENTS

Golden Sun Moth	1
Coordinators Column	2
Free Book Offer	2
Rainforest Tour	3
Trial Results Micro Habitat	4
Member Stories Revegetation as Carbon Offset	6
Events & Resources Motion Sensing Camera Tree Planting Methods Field Day	7

Coordinators Column

So there have been a few changes lately, mainly from our side as CMN coordinators. Vickie has taken on a full time job leaving me to run the CMN and our budding family! Vick is working with The Southern Councils Group on a regional program called 'Business Trading Lightly' www.btl.net.au.

Cliff Wallis, a CMN member has contributed his thoughts and findings on using his revegetation as a carbon offset for his business. It's a very new area of research and there are certainly contrasting models out there but it is great to see people taking proactive measures to reduce their carbon footprint.

Our micro habitat trial is well under way now. On page four and five we've presented some of our early findings. We are interested in hearing if you have implemented a similar project and what changes you are noticing.

This month I will be attending the 'NRM Networking Partnerships Conference'. NRM stands for Natural Resource Management, so the conference is basically about building and strengthening working relationships between people working in or interested in land management on a regional scale. I'm really pleased to say that four other CMN members are attending with me. Our CMN is predominately about helping landholders manage native vegetation but in my view it is also about helping to develop skills and interest in regional NRM.

If you want to be involved from a more regional perspective, have a chat to us, we more than happy to include members in decision making and event planning etc. Firstly you have to write a newsletter article for us...ha ha.

Keep up the good work everyone.

DAN

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Free Book Offer for Your Ideas

The Far South Coast Conservation Management Network supports landholders with native vegetation on their property and caters to all types of vegetation and all types of land holders. The CMN is about you so we'd like to hear how the network can best support you to manage your vegetation.

Have you got something to share? Are you working on a vegetation management project at home that is really successful and you could share your learnings with other members?

Anyone who would like to contribute an article in the next edition will receive a \$40 book voucher for Candelo Books.

Contact us to discuss your ideas.

The FSCCMN is funded by the Southern Rivers Catchment Management Authority.



Rainforests of the South East Tour 19th October 2008

It was a long and busy day but all who came were captivated from start to finish. Bill Peel, our presenter for the tour had come up from east Gippsland to talk and his trip was well worth it. He shared well over 20 years of experience on rainforest ecology and took the group to places that we all knew, but never realised the significance of the vegetation. All who attended came away with a very different understanding of how rainforests fit into the Bega Valley landscape.

The tour started with a one hour presentation where Bill described the different rainforest communities that are present in the Valley and the characteristics that define each one. He also discussed the factors that lend themselves to rainforest occurring. One of the main points was that the single most important predictor is fire, rather than rain. Dry Rainforest, a type which was quite common in the valley, can withstand long periods of drought but one major fire can wipe it out altogether. Subsequently, dry rainforest is found in areas of fire shelter, being protected from intense fires by land breaks such as rivers or even grassland ecosystems where fire still exists but is much cooler, slower and less intense. Thus the grassy woodland nature of the Bega Valley created quite good habitat for dry rainforest communities. Some of the plant species actually drop their leaves in severe drought much the same way as deciduous tree do. This is referred to as 'rain green'.



After the presentation the group was hustled onto a bus. Heading first to Springvale, not far out of Bega, the group departed and scrambled up a paddock and on a hot day, were shown how different the micro-climate is under the canopy of a dry rainforest remnant. The Port Jackson Fig (*Ficus rubiginosa*) pictured left, creates a dense and wide barrier to sun penetration allowing vegetation suited to shade to prevail underneath. Just metres away in the cleared paddock, conditions are far too harsh.

Bill described how figs (in dry rainforest) are a linchpin species, in a sense that if they are lost the whole structure of that vegetation community falls in within a very short space of time.

From Springvale we moved to Tathra to see a surprisingly intact remnant of Littoral Rainforest at the back of 'Hobbs Corner' (the small reserve below the hairpin bend leading down to Tathra beach). It has the typical image of rainforest; vines, creepers, ferns, buttressing roots and 95% canopy (see photo on right). Worth a look for anyone who missed out on this tour.

Next stop, Goalen Head just south of Murrah Lagoon. Here Bill pointed out that thick kikuyu grass is no barrier to recovering Littoral Rainforest. Goalen Head was bought by the Carr Government in the late 1990's and gazetted

into Mimosa Rocks National Park. The photo below shows participants crouched down in the kikuyu paddock as a lightening storm passed over. In the background you can see Coastal Banksi (*b. integrifolia*) advancing into the paddock. It is one of the coloniser species in this community and is followed by other littoral rainforest species such as Sweet Pittosporum, Lilly Pilly, Muttonwood and Figs. Access to Goalen Head is via Hergenahs Road, Murrah.



Last stop was brief but different once again. This time Warm Temperate Rainforest on the western side of Dr George Mountain. This can be seen from the road as you head up the tight bends over Dr George from Bega just after the road turns to gravel.

Bill made it quite clear that rainforest communities are quite possible to restore. In 2009 CSIRO will have published 'Rainforest Restoration Manual for south eastern Australia' written by Bill. If you have recovering, struggling or even rainforest remnants this manual will be invaluable in your efforts to manage it. We will let you all know when it is available.



Micro Habitat and Biodiversity on your Property

You may remember back in June we set up a trial of artificial micro habitat on a property in Bournda. Finally we have returned to gather some initial results and see for ourselves how it can work to restore balance in the ecological web.

The premise for this trial was to restore ground layer habitat in a landscape where it was lacking. In this case it was a vegetation corridor that had been planted about nine years ago. It will take tens if not hundreds of years for this area to form its own ground layer habitat such as fallen dead wood. Without this form of habitat a whole range of fauna are unable to colonise the site.

You may have a similar landscape on your property or more mature vegetation where the ground layer has been cleared or regularly 'cleaned up'. This could be from over harvesting firewood or clearing for stock. Either way re-establishing ground layer micro habitat can increase biodiversity in those areas simply because it allows a whole 'layer' of fauna to re-establish along with it.

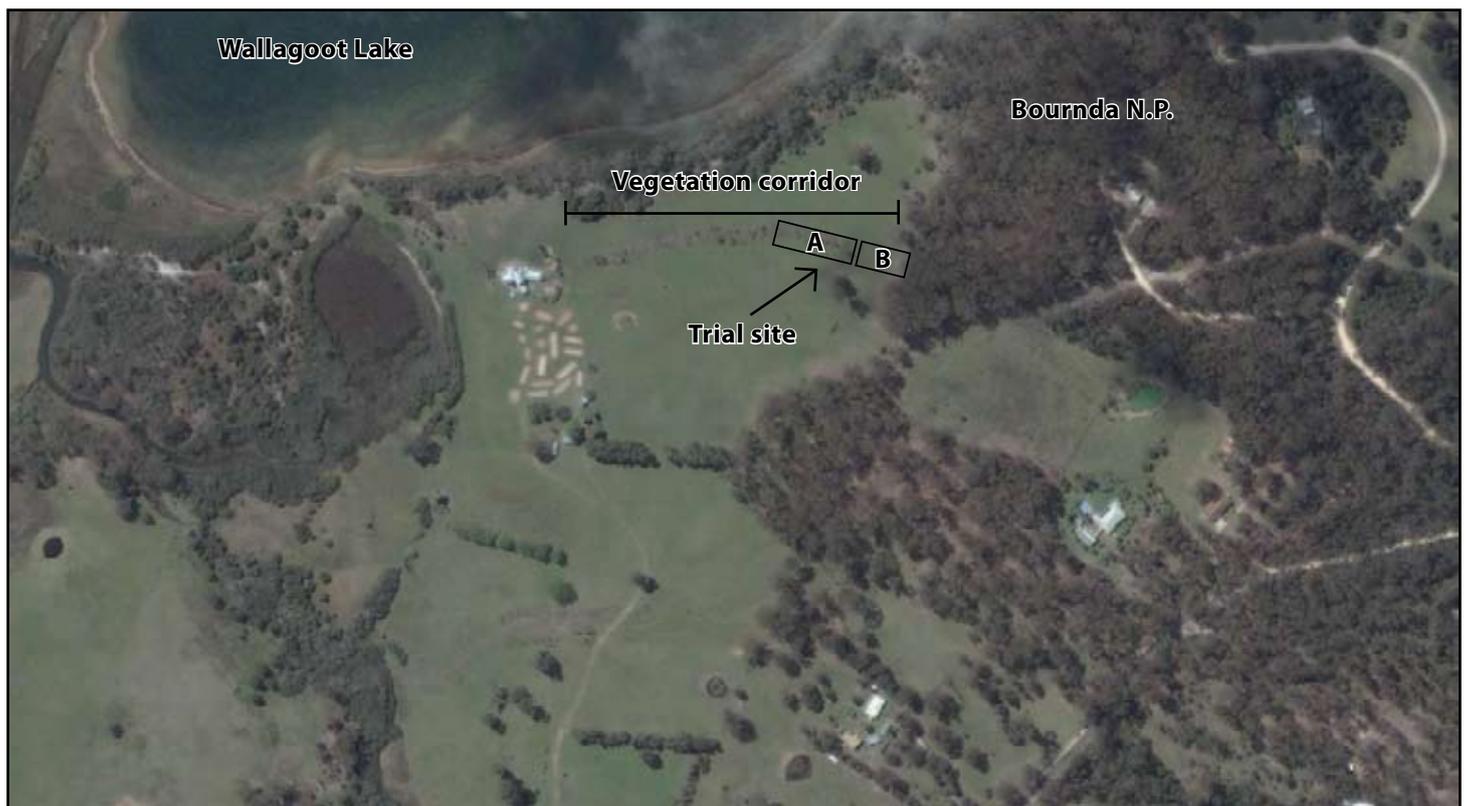
SO... in just four months the most obvious result was that invertebrates have been the initial colonisers. It was impossible to count the different numbers of species let alone the sheer volume of inverts that had moved in. Under every pile of bricks, wood, tin or tile there was some degree of invert action to be seen, in fact under most there was significant action. Now we can assume that most of these



Above and Left: Just two of the invertebrates found amongst the microhabitat

inverts were already there but with an increase in their habitat their populations have boomed in under half a year.

The other significant observation was the numbers of small grass skinks. These were the only reptiles observed at this stage but the number of them was quite surprising. Grass skinks in general only move up to 30-40 metres in their entire life. The fact that they were seen in great numbers is a significant change in only a few months. It was also noticed that their existence was higher in the artificial habitat that was closest to the natural and less disturbed vegetation of Bournda National Park which joins the landholders property. This shows us that the skinks are using the artificial habitat to migrate along the corridor and populating along the way.



Trial layout

The trial was set out on a private property in Bournda. The property has been owned for 11 years and was a sheep farm previously. Cattle are still used to maintain exotic pastures.

The property has Wallagoot lake along one of its boundaries, Bournda National Park along one and three private property neighbours. A Voluntary conservation Agreement is in place on parts of the property protecting 55% of the land, including a registered wetland plus remnants of Bega Dry Grass Forest, an Endangered Ecological Community (EEC).

The aerial photograph (left) shows the micro habitat trial in relation to the surrounding environment on the property. The boxes marked A & B indicates the trial site. A being the area of habitat in the corridor and B indicates the cleared gap section.

A revegetation corridor is visible where four rows of native vegetation have been planted to link the national park on one side to the EEC on the other. As the corridor runs through a productive paddock it has breaks of between four and 15 metres wide in it to allow for cattle movement. Whilst most avian fauna will fly over and larger fauna cross the gaps, small animals such as reptiles, some mammals and invertebrates would find a gap of two metres or more a barrier to movement.

The aim of the habitat placement was to help bridge the gap (section B) between the national park and the corridor (section A).

The image below shows participants in a the gap section of the trial between the established vegetation corridor and the national park in the background. You can see that artificial habitat needs to be within three metres of each other to allow for fauna to move safely and freely.



Safety and Respect

One of the main things we hear when talking about the materials we used is 'what about snakes?'. Whilst we did not encounter any on our first visit, most people would recognise that corrugated iron sheeting is a great place for snakes to shelter.

The photo below illustrates the safest technique to use when looking under corrugated iron or other materials. Lift it from the side furthest away from you so that the sheet itself acts as a barrier between you and whoever is underneath it. This can be used for small objects as well like roof tiles and bricks.

We certainly encourage you to implement a similar project of micro habitat on your property but don't encourage too much disruption of the habitat once in place. By all means get out there and monitor who is moving in, just remember to replace material in the same position you found it and avoid stress by minimising how much you pick up or handle fauna.



Key Outcomes

- Invertebrates were the first to move in. Practically all 100 artificial structures had inverts under them.
- Grass skinks were the first reptiles to move in and there was evidence they were nesting with sightings of 1-2 week old juveniles.
- No evidence of small mammals were present as yet.
- Placing numerous structures close together and in a 'corridor' fashion seemed to help recolonisation for the skinks.
- Ordinary house bricks with small round holes were most preferred by the skinks.



Key Points for Micro Habitat at Home

- Use natural materials as much as possible.
- Consider what poisons or chemicals may leech from any artificial materials used i.e. treated wood, plastics.
- Think about how you can link up different habitat that might be isolated by lack of ground layer habitat.
- Be mindful not to destroy habitat in one area in the process of finding appropriate material.

Your Vegetation as a Carbon Offset

By Cliff Wallis, property owner at Bournda and CMN member

Have you ever thought about how many trees you'd have to plant to offset your carbon emissions? Some of you may even be doing it.

One of our CMN members has given it a go and reported his finding for us.

Carbon storage through native vegetation is having its time in the media these days, particularly surrounding the native forest logging issue, but what about your revegetation project or even your established native veg? Is it worth anything in terms of carbon storage?

The term "carbon offset" is often mentioned in media reports. At last year's Four Winds Music Festival organisers claimed that they had offset all projected carbon emissions and were "carbon neutral". All the talk got me wondering about our own carbon impact and what we could do to offset our own emissions. Even more important was our business – a hotel / ski lodge in the Snowy Mountains that accommodates 90 guests – only open in winter.

Typing "carbon offsets" into google brought many results. A West Australian site carbonneutral.com.au run by a non profit agency will plant trees to offset emissions. The site has an on line calculator to work out your carbon impact and how many trees need to be planted. You can pay the agency to plant the required number of trees, but in our case we have planted over 2,000 trees – was it enough? Included here are the calculations (combined personal and business).

Assuming all the scientific assumptions behind the calculations are correct we have planted sufficient trees to offset our carbon impact. To engage the agency to plant the trees would cost \$4275.

Looking at the calculations, the impact of energy use stands out. If our electricity came from renewable sources then our carbon impact drops by over half. We are keen to install some solar panels at the hotel but would need to see some incentive from government, not necessarily cash, but perhaps an attractive feed in tariff or accelerated depreciation.

Now you can log on, check your own impacts and plant some trees. How landowners who plant trees will be treated in carbon emissions trading is another question.

Cliff Wallis



One of Cliff's planting sites, a vegetation corridor linking national park on his boundary to other vegetation on his property.

Waste

Estimated emissions	27.58 tonnes of CO2
Trees to offset	165
Percent of total	12.3%

Diet (assumed 90% red & white meat; 10% vegetarian)

Estimated emissions	56.07 tonnes of CO2
Trees to offset	335
Percent of total	24.9%

Vehicle Travel (20,000km in med 4WD diesel)

Estimated emissions	6.67 tonnes of CO2
Trees to offset	41
Percent of total	6.67%

Air Travel (15,000 annual km)

Estimated emissions	6.8 tonnes of CO2
Trees to offset	41
Percent of total	6.67%

Energy Use (10,000 kwh electricity/month; 1000 litres of gas/month)

Estimated emissions	127.99 tonnes of CO2
Trees to offset	768
Percent of total	56.8%

TOTAL EMISSIONS	225.11 tonnes of CO2
TREES TO OFFSET	1350

Motion Sensing Camera On Loan for CMN members

How often have you wondered who is lurking around your property when you aren't looking?

The CMN is all about fostering interest, skills and knowledge about native vegetation management. One innovative way we're supporting this is to supply a motion sensing camera for members to loan. Our aim is for members to borrow the camera for a week or so at a time to help build up a fauna list for your property.

We've acquired a Moultrie 160 digital motion sensing camera that can be set up in remote places and left to capture photos of what ever wonders past. It can be installed and left for a day, a week or longer. Photos are taken day or night (with flash) at high resolution to allow for enlargement and ease of identifying the subject. It comes with a 1GB card which has not reached capacity on location before.

Each photo records quite detailed information including date, time, barometric pressure, temperature and moon phase. There's no doubt this camera isn't a toy but a precise fauna monitoring tool. Thus there is a bit to learn about how to use it.

This is a great chance to help you build a better understanding of the ecology that functions around you and help you develop a stronger management plan.



We expect the camera will be in high demand so it may take a while to get a go. We'll have to use first in best dressed approach.

To book it out for 2 weeks contact Dan on 6492 5558 or info@fscmn.com.au

We'll need to arrange a time for you to pick it up from us and have a short session on how to use it.

Photos. Above; the camera itself showing flash panel, motion sensor, laser aim, menu panel, controls and attachment in location. Left; day shot of Superb Lyrebird and night shot of Long-nosed Potoroo taken in Guluga National Park.

Tree Planting Methods Field Trip

Saturday 6th December

10am - 4pm

Starting in Bega



To complete the workshop series 'Grow Your Own' we're holding a local tour of revegetation methods. While there will be some planting shown, the aim of this day will be to demonstrate results from a selection of revegetation sites as well as over different time frames.

Information on the day will cover:

- The best time to plant natives
- Ground preparation
- Ripping or digging
- Handling seedlings
- Tips to get a good success rate
- pre and post Weed removal
- Herbicide use
- Water needs
- Species selection and where to get them

Bookings and more info contact:

Dan 6492 5558 or info@fscmn.com.au

