

WINTER 2016
Newsletter No. 47

Newham & District Landcare Group



Working towards a
healthier environment



Address – PO Box 314, WOODEND, 3442



Grade 4/5/6 students and teachers on a nature based beach side camping experience at the Phillip Island Adventure Resort. This was part-sponsored by Newham & District Landcare Group as part of our environmental program.



DIARY OF EVENTS

N&DLG AGM August 19th 2016

7pm Drinks & Nibbles 7.30pm AGM

7.45pm Guest Speaker:

Professor David Karoly, Professor of Atmospheric Science, School of Earth Sciences, Melbourne University.

Climate Change: Where are we now ... and where are we heading?

RSVP Penny 54270795 or penroberts@bigpond.com

Would you like to suggest a topic for a future event?

Contact Nick Massie or Penny Roberts

Group contacts

President: Nick Massie. **Vice President:** Penny Roberts. **Treasurer:** Hilary Roberts.

Committee members: Howard Stirling, Karl Kny, Doug Dalgleish, Jim Sansom and Luke Spielvogel.

Secretary: Helen Scott.

New members, general queries: Penny Roberts; 5427 0795.

Roadsides: Sue Massie; 5427 0065.

Newham Primary: Jenny Waugh; 5427 0408.

Animal pests: John Luckock; 5427 0909.

Wesley Park: Fran Spain; 5427 0661.

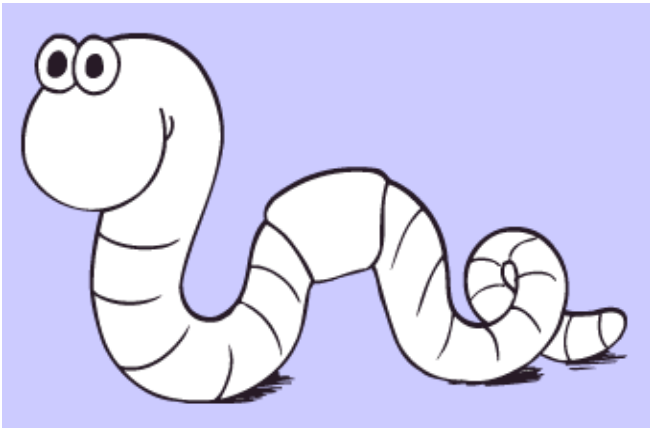
Flora, library, small tools, grants: Penny Roberts; 5427 0795.

Spray trailer: Doug Dalgleish; 5427 2666.

Website: <http://www.newhamlandcare.info/>

The committee meets on the first Monday of the month (February to December) between 7.30 – 9pm in Newham. All members are welcome to attend the Committee meetings to become more involved or raise specific matters. Please advise a committee member if you wish to attend. Meetings start and finish on time... and we enjoy them!

WORM FARM



In term one the grade 4/5/6s participated in a worm farm activity hosted by Mr Sam Harrison and Carol Tillyer.

We did a number of worm based activities during the session.

At one of the stations we looked through a digital microscope at the worm's features such as the setae and the miniature mouth.

We also had a test on which surfaces worms liked more, wet or dry? They preferred being damp

because if they're too dry then they might dry out and if they're too wet then then they will drown.

A few weeks later we split into groups of four or five. In this activity we filled milk cartons with materials such as sand, dirt, leaves and water then we added tiger worms. The purpose of this activity was to make our own group worm farm.

Big thanks to Newham Landcare group for making these fun activities possible.

Phillip Island Adventure Resort

In late April the Grade 4/5/6 students and teachers went on a nature based beach side camping experience at the Phillip Island Adventure Resort.

Our campsite was set in a lovely area with tea tree (swamp paper bark) forest all around. The forest was fun for all of us to explore & to have hut building competitions. We were surrounded by many animals including Cape Baron Geese, Kites and Fire Ants! The first day was warm and sunny, And although the next two days were wet and rainy we still had high spirits.

On the first night we went on a nature walk at the Koala Conservation Centre. We saw koalas up close and other amazing nocturnal animals including Brush Tail Possums and Wallabies. We learnt many cool things about koalas like they can sleep for 20 hours a day and are diurnal and that new born baby koalas eat something called pap that is meant to prepare their stomach for when they eat eucalyptus leaves.

We also went on a beach walk at Smiths beach on the 2nd day, although it was windy we still had an amazing time. We split into our classes and picked up interesting items as we walked to one end of the beach.

Then we shared what we had found including many types of sea weed, rocks and sea sponges. We learnt that sea weed has a really strong natural glue that holds onto the rocks, we found a piece of sea weed with the rock still attached. We also found many cuttle fish back bones and

learnt that they squirt ink when scared and duck down and swim away so there predator can't catch them.

We would like to thank Mr Allan, Miss Cassidy, Mr Harrison, Vanesa Jeffcoat, Taran Cater and all the Rangers at the camp. All of us really enjoyed The Phillip Island Adventure Resort camp and want to do it again.

We would also like to thank Newham Landcare for their generous support in donating money for us to do science and environment at school and for the awesome environmental activities at camp.



By Molly and Caelan.

Newham Primary School



Fun with Fungi

On Friday the 10th of June the Grades 4/5/6 at Newham had a special Kitchen Garden session on Fungi. Mr Harrison, his friend Eddie the Mycologist (mushroom scientist) and Carol our kitchen garden co-ordinator brought in all different types and sizes of fungi (mushrooms), which we cut up and studied.

We all learnt about all different types of fungi and how it keeps the soil and the garden healthy. We also found out about how fungi can reuse waste by turning them into mushrooms for food and Eddie brought in some bags of used coffee grounds that were sprouting oyster mushrooms.

They also told us where and how big the biggest fungi in the world. It was 10 kilometres by 10 kilometres squared. This type of fungi is the biggest living thing in the world.



We found this session really helpful and we learnt a lot about fungi. We would like to thank Newham Landcare for providing this session for our school and the volunteers that helped out.

By Lily and Paige

Macedon Ranges Indian Myna Action Group

Macedon Ranges Indian Myna Action Group now has a program running in Romsey.



It's almost impossible not to notice the Indian Myna in Newham. You'll see them in thuggish groups on the ground, resting on power lines and prowling shops and schools. They are assertive and aggressive. They take over nest boxes and displace native birds and animals, particularly hollow-nesting species. Mynas are capable of evicting large birds such as Kookaburras and Rosellas from their nests.

Indian Mynas are native to the Indian sub-continent and were introduced to Australia in the 1860s to control insect pests. They are now one of the 100 most invasive species in the world.

While enticing Mynas to our traps is easy enough, our job is made that much harder when the birds have easy access to other food in the neighbourhood.

You can help us to stop the invasion:

- Stop leaving birdseed out for native birds as soon as you see Mynas at your feeder or in the garden. They will quickly dominate.
- Feed pets inside, or put pet food inside during the day. Clean up spills and leftovers.
- Feed chooks in a secure pen so Mynas can't get to the food.
- Cover all compost bins to deny mynas access.
- Cover horse feed bins and clean up any spillage.

And of course, if you'd like to take part in our trapping program, please drop us a line at woodend58@hotmail.com or call John Luckock on 5427 0909.

Submitted by Ron Fink and John Luckock



Brush-tailed Phascogale sighting

In November 2015 Newham Landcare organised for us members a talk by Miles Geldard about habitat improvement and nesting boxes at this enchanting secret valley at the Luckocks property on the Jim Jim. We trotted through the undergrowth, watched nest boxes being mounted, learned about the importance of 6 inch nails and how and where to properly position nest boxes for the rare and endangered Brush-tailed Phascogale.

At the end of the session we took away 10 nest boxes sponsored and paid for by Landcare (thank you!) for installing on our property which used to be a contour-ploughed and pasture improved paddock with remnants of native vegetation. Over the last 30 years we had planted groves and forests and we occasionally noticed the odd Brush-tailed Phascogale in our patch. So we walked out the recommended distances, marked the boxes, hammered in the 6 inch nails, GPS'ed the locations – and of course decided that we needed more boxes for all our baby forests. (But this is another story).

Now imagine my delight when I recently spotted this little dude first week of winter on a beautiful crisp, sunny day, around lunchtime !!



To be honest here – I didn't spot the Phascogale. Our resident bird population did. They all shrieked "*Stranger-Danger*" and I just went to investigate what's going on. And there was this Brush-tailed Phascogale, in an *Acacia mearnsii* (Black Wattle) next to our garages investi

gating, digging into bark, chewing and totally ignoring me. I watched the little critter for over an hour zipping all over the *Acacia* feeding things from under the bark. Then saw him/her jumping along the ground into our *Banksia* where he/she paid lots of attention to the cones, where different insects took advantage of the gorgeous day to feed on.

Unfortunately I lost sight of the phascogale when it entered one of our youngling-forest areas. But as there is one of our phascogale nest boxes close by – I can hardly wait till Newham Landcare organises those special pole cameras to check out what is going on in our nest boxes !!

And yes I know - the quality of my photos is not the best. But wow – was this an incredibly fantastic experience !!

Feral Cat Population



This feral cat was on our property about 1 hour after sunset. A male, probably still young judging by the teeth, weight 7 kg and in prime condition.

I am just horrified by the fact that we most likely have a thriving feral cat population on our place. Just a few months ago, whilst monitoring one of our released wombats via night-camera, I got 'accidental' footage of another mighty big feral cat on the spy-cam. My attempts to trap it were unsuccessful.

The statistics of the amount of feral cats in Australia are staggering. Some people – like Minister for Environment Greg Hunt in 2014 – claim “...that there are up to 20 million feral cats in Australia taking up to four native Australian animals a night. That is over 20 billion Australian native species being destroyed a year ...”. And there are some groups claiming that there are 'only' 15 million feral cats, and apparently they occupy 99% of Australia, including most of our islands.

But what-ever the numbers – everybody more or less agrees that a cat needs around 300 gram of food per day. Here are some images what is on a nightly 'dinner plate' of a feral cat:



- 8 or so antechinus (native mice) ≈ 40 grams each, **a day**
- 30 little wrens (the little dudes weight only 10 grams) **a day**
- 3 Rosellas, ≈ 99 grams each, **a day**
- More than 50 or so little lizards, ≈ 5 grams each, a **day**
- 3 Sugar gliders, ≈ 130 grams each, a **day**

And the detailed listing of being a threat to 35 species of birds, 36 small mammal and 7 reptile species plus lots of froggies goes on and on. It is just awful.

To successfully trap a feral cat it's actually not just '*... borrow a trap and get them ...*'. It involves first monitoring the trap without setting it to see if currawongs, maggies, kookaburras or possums find it first. That needs patience and a night spy-cam (plus lots of various yummie food) to just find the right spot to set the trap.

Once the right spot for the trap is found – where only a feral cat inspects and eats the food in the trap – there is only a small window of opportunity to catch the animal. These buggers are pretty smart and don't get comfortable with a steady feeding station. Too early to set the trapping mechanism to spring the trap – the cat is still suspicious and then scared off by accidentally springing the mechanism during prowling around. Feeding the animal too long, it gets suspicious and is not coming back.

Everybody has seen or smelled or heard a fox on their own property or just somewhere. And lots of us 'Landcarers' have some sort or other fox extermination program ongoing.

But how many of us have seen a feral cat ?? Or have done something about eradicating that threat ??

Feral cats are under-estimated killers. Silent. Unseen. Ruthless. Efficient. Wary. Brutal destroyers that slay our tiny native wildlife.

In Germany I had 2 cats and they were my fabulous, well-loved and spoiled companions. But this feral cat issue here – that is totally different.



Brigitte Kny

Communities for Nature grant 2013

Two and a half years and \$173,250 later. What did we get for our money?

- Rabbit and weed management for Hanging Rock Reserve and surrounding roadsides.
- 30,000 indigenous native tubestock in the ground (5666 at 'the rock' and the rest on private land)
- Educational events – an ACUP course, rabbit control field day, 2 sessions with Grasslands ecologist Paul Foreman, talks on Moths and Gliders.
- Fencing of approximately 60ha to protect remnant or revegetated areas from stock

33 local landowners have benefited in one or more ways with financial support for plants, fencing, weed management or rabbit control. Or all.

Landcare funds allocated recently for extension works will cover the supply of plants and hardware, to bulk out original plantings and increase their complexity, fumigant tablets for rabbit warrens and assist with follow-up weed management in the coming years. If you are interested in undertaking works on your land that might add to the 'environmental value' created by this grant, *even if you were not one of the 33 participant landowners*, you could be eligible for funding support.

The 2013 Communities for Nature grant was officially 'completed' on June 30 2016 – but activities that add value to the Cobaw (or Campaspe-Maribyrnong Headwaters) Biolink will go on for many years.

UCLN field day May 22nd

Fifty five people recently attended a field day organized by the Upper Campaspe Landcare Network. They toured the Campaspe River, Five Mile Creek, important remnant grassland sites, and ended the day overlooking the landscape at the top of the Jim Jim, near Hanging Rock.

The day was the first of a series of workshops designed to feed into planning for regional landscape scale revegetation projects. The projects will tackle issues relating to biodiversity loss and climate change.

Establishing 'connectivity' between the Cobaw forest and the Campaspe River, one of the key aims of the UCLN, overlaps with and extends the work Newham Landcare has been doing, since its formation in 2004, between the Cobaw Forest and Macedon Regional Park.

The Field Day, presented by Uncle Larry and ecologists Damien Cook and Paul Foreman, gave participants an insight into the landscape and vegetation communities of the local region. It provided a forum for the discussion of ecological restoration techniques and priorities.



Participants were delighted to hear Taungurung Elder and knowledge holder, Uncle Larry Walsh, tell stories about local indigenous plants and animals and how they related to the lifestyle of Central Victoria oldest inhabitants.

Two of the sites visited on this day were Newham project sites – an area where rabbit control, Hawthorn hedge removal and revegetation were undertaken in 2008; the Jim Jim for a birds-eye view of the landscape and how it can be modified to the benefit of all.

Thanks to Sandy Scheltema for picture.

Review of the property management plan course

Twelve years ago I started formulating a plan to reinvigorate our land holding in Newham. A renovation to the existing house, maintenance of external sheds and fences, and water were early priorities.

Over many seasons I have watched the land shape and change, and recently I have been reminded that as custodians of our property we have a duty to leave it in better condition than we found it.

So with an open mind and pen in hand, I enrolled for the 'Property Management Plan Course' hosted by the Upper Deep Creek Landcare Network. I didn't know what to expect, nor I suspect did the fourteen other participants, but after only two consecutive Saturdays I have found new vigour, inspiration and have formulated a strong plan that will roll out over the next five years.

Week one of the course introduced us to our own landholdings and reiterated that observation and common sense were going to be two of the most valued skills we would take home.

Indeed, we learnt how to classify pastures, how to manage unruly and unproductive parts of our land, and how to best maximise the overall lot. We talked about fences, cattle, sheep, horses, grass types, weed management, working as a group, sharing knowledge and long-term planning for fire protection and legacy. By the end of the first day we had aerial maps of our farmlands, and three layers of future improvements mapped out on cellophane overlays.

On the second Saturday, everyone was early. We started the day by identifying weed samples from our various properties with Michelle Patrick (Macedon Ranges Shire) and Grant Godden (Landcare Facilitator). Unfortunately for me, I discovered an 'introduced' species of Bull Rush living in our dam. It will have to go!

For the remainder of the day we had our hands in mud examining soil clods from our respective properties. We learnt how to determine the soil types we were working with, measured acidity and alkalinity of various samples, discovered that throwing the highly alkaline wood ash directly onto our vegetable gardens would destroy most of our crops. We covered broad economic questions such as the cost of pasture management for large scale crop growth and truffle orchards. We debated why some properties had less fertile ground at pHs of 4-5.5, while others that had laid fallow for years were sitting at a healthy 6. We learnt how a range of basic tests and observations could give us a lot of useful knowledge. Most of all, we learnt how to correct our issues and build more fertile, productive properties.

Week three is close and we are looking forward to a farm visit to see all of these ideas at work.

My future plan is almost complete. Next Sunday my project begins with a series of landscape photographs of our property to capture how things look in 2016. Five years from now I will revisit these landscapes with the expectation that much has changed.

Robyn Nelson

Central Victorian Lepidopteran Ecology

Understanding fundamental invertebrate biology is one of the largest gaps in our knowledge of the Australian terrestrial environment and its associated ecosystems. Moths are an invertebrate group of great importance because most predators, including other invertebrates, like to eat them. To escape predation, early life stages are almost always cryptic, difficult to discover and the sheer number of species (ten times the combined number of all the Australian species of mammals, birds, reptiles and amphibians) means their investigation is wickedly difficult. Moths are also beautiful creatures (see below).



This undescribed *Cymatoplex* sp is one of the most beautiful and rarest moths in Victoria. Almost all of the small number of specimens encountered have been found in central Victoria.

Diversity

Moths are wonderfully diverse and successfully live in a wide range of situations where they feed on living, dead or decaying plant material or fungi. There are only a few moth species that are carnivorous. Therefore one of their key functions is to convert plant material into animal protein for other insects and higher animals. Australia is particularly rich in moth fauna and compared to other parts of the world there is still very little known about a large proportion of our species. This isn't surprising as there are over 20,000 different species here. This means that in Australia there are more species of moths than plant species and around ten times as many as all the terrestrial vertebrate animal species in Australia. Each moth species has its own unique biology. Moths have essentially four main phases in their life-cycle, the egg, larvae, pupae and adult. Each species may have a different life profile with the different phases present at different periods throughout the year. Each night of the year may see a number of new moths emerge and then continue to be active for a time and then subside. Some species may do this once, twice, three or be close to being continuously active throughout the year. Some examples of moths that utilise less conventional food niches are shown above.



Thallarcha trissomochla feeds on lichen and algae on rocks.



Sandva scitisignata feeds on mushrooms.



Scieropepla typhicola feeds on bulrush flowers.

Relationship between vegetation and moths

While some moth species have adapted to foreign plants, the majority have quite specific hosts and exhibit superb adaptation to our natural eco-systems. Because of the tight relationships between plants and moths, the more types of native vegetation that are present at a location equates to more moth species operating in that setting. This is important because when there are a lot of species the effect of seasonal variations on plants and the consequent impacts on particular species of moths can be smoothed out or buffered. In other words when a season favours certain plants then the moths using these may be advantaged and this may balance out the depression in those that feed on plants that have been suppressed. The peculiarities of each season will impact different moths in diverse ways.



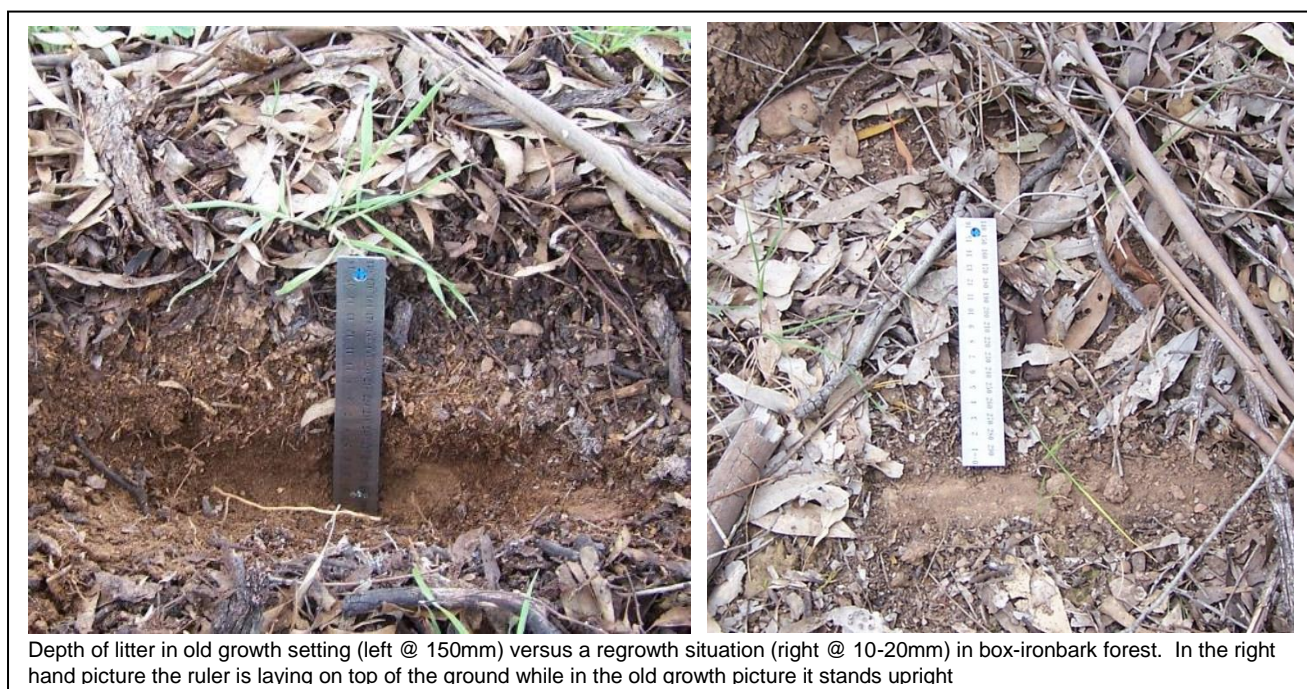
A large degree of plant and moth diversity at a site increases the likelihood that more will be able to adapt to a changed season thereby helping to ensure continuity in the food supply for higher animals such as our birds and mammals. Of course our ecosystems are gloriously complex and climate and seasons impact in other ways. They can also provide triggers to directly influence the moth's biological processes. For instance the Blotched Satin Moth (*Thalaina angulosa*) is one of a group whose eggs tend to be rain-activated; they require high moisture before they will hatch. Their wattle hosts will generally respond to a rain event with a rapid flush of new growth. Rain activation ensures that host and larvae growth cycles are synchronised. When larvae hatch (usually a number of days later)

there is high quality new growth available to feed upon. In central Victoria many of the species that use this strategy will fly in mid to late autumn and early winter to catch the "autumn break".



Similarly temperature can have a big influence on the emergence of adults. The last spring saw temperatures in October resembling summer followed by an abrupt decline in November. It is possible this simulated a short summer and autumn as some moths that would normally emerge in large numbers in February and March emerged in even larger numbers than usual in late October and November. Bird observers commented that last spring a number of bird species reared multiple broods and that the season was one of the better for bird breeding in recent times. While there are undoubtedly other factors at play the invertebrate response was probably a significant contribution to this outcome.

Because moths are so tightly linked to the vegetation in our landscapes they can provide great insights into the state and impacts of management of our environmental resource. Current landscapes are highly modified including those areas covered in native remnants. In particular in central Victoria our forest composition has changed significantly with a current bias towards eucalypt and wattles. It is no wonder that the largest component of our moth fauna at the moment are species that feed on these plants. Before white settlement it is extremely likely there would have been quite different profile of species and this would have included some that are now extinct. Many species using other vegetation components such as the native grasses are now under threat, such as the sun moths. The dead vegetation components are also very important. Many moths actually feed on dead leaves and can significantly contribute to the breakdown of litter. Others use the litter as a refuge where they pupate and many can stay there for up to a decade or more before they emerge when conditions are favourable. In a Central Victorian old growth forest the depth of litter and the decayed plant material can be 150mm or more. In contrast in a regrowth forest this may only be 20mm or less. As a consequence larvae that have grown feeding on the eucalypts have little cover if they pupate on the ground in a re-growth situation and little to protect them from the effects of fire. The process of forest regrowth suppresses floristic diversity and it is estimated this factor alone can half the number of moth species in these



situations. Controlled burning can significantly impact or remove greater than 90% of moth species when practiced in spring and autumn particularly in regrowth box-ironbark forests. Burning in spring kills the larvae or eggs of large numbers of species because this is the season when plant hosts are growing and many moths have adapted their life-cycles for the larvae to take advantage of this. Not so coincidentally this is also the time many birds and mammals are breeding and rearing young because the food supply is plentiful. Autumn burning can kill other moth eggs and larvae but additionally removes plant material for a period such that many of the moths flying in autumn will have no viable plants to colonise.

Citizen Science

With so many moth species and so much still to learn conventional research approaches will never close the knowledge gap in time. A citizen science model is the only practicable solution. Because the gap is so large individual citizen scientists can currently make real and lasting contributions to scientific knowledge routinely from backyard observation. These recognisable contributions are a powerful motivator for participants.



Citizen science in action: Plain Roll-moth *Phazaca interrupta* 14 May 2016, Eppalock Central Victoria. This represents the fifth record for this species in the state and the second location in the state where it has been found. When flying it resembles a normal moth but after it settles it moves its fore-wings forward and rolls them into the tubes. It then looks very much like a small forked twig.



Citizen science in action: Sharp Angled Carpet *Chrysolarentia actinipha* first recorded in Victoria from outside Bendigo on the 30th April 2016.

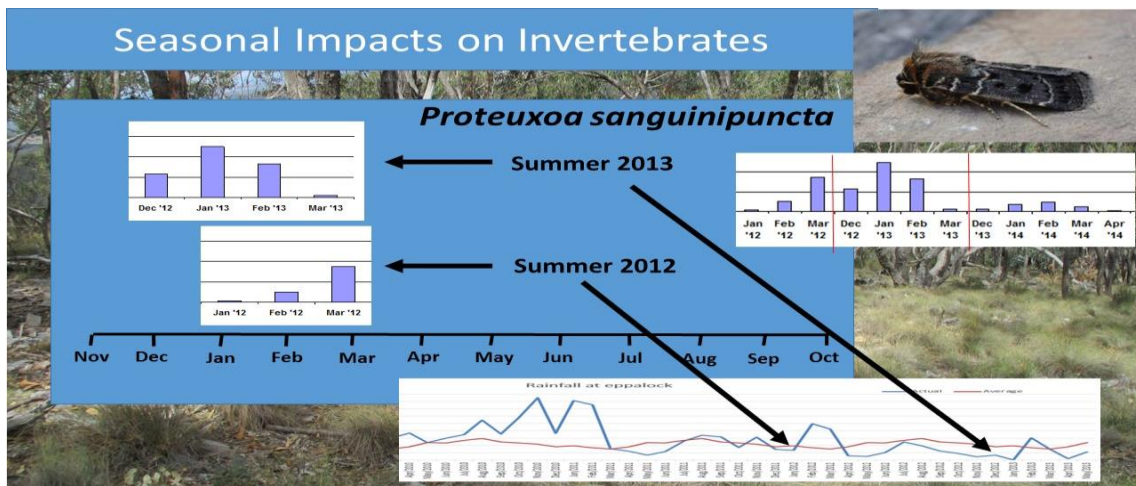
I have been researching moths as a citizen scientist for over 5 years using two main approaches. The first involves making nightly observations at an outdoor Mercury Vapour (MV) lamp. Even after a long period of time each week or day brings new discoveries. Only a month or so ago a number of Sharp Angled Carpets *Chrysolarentia actinipha* (see below) appeared at my light. This represents the first record of this species in Victoria and is a range extension in the order of 600 km. A female laid eggs and the life cycle is now currently being documented for the first time.

The second citizen science activity involves rearing studies and this is an ideal for schools or individuals. Eggs or larvae are collected and reared through their life-cycle. They are photographed once or twice a week during this process to document all the changes that occur. Some moth larvae can change markedly through-out their development. This is demonstrated in the series of pictures of the same individual larvae of the moth *Anthela connexa* (see pictures below).

By rearing a moth through its full life-cycle we get biologically feasible estimates of the length of time spent in the various growth stages. Putting this information together with nightly activity records at the light provides important knowledge that informs our broader understanding and management of ecosystems. Knowing where and when a moths eggs are laid, how larvae feed and when mature adults fly is invaluable in understanding how a species may respond to challenges.



For example the moth *Proteuxoa sanguinipuncta* feeds in the herb/grass layer. By monitoring adult activity we were able to see that in a “normal season” (such as occurred 2011/12) the adults fly in Feb/Mar ie. eggs are laid to hatch when grasses and herbs are sprouting. The spring of 2012 saw very low rainfall and grasses died off about 4-5 weeks early. As a consequence the monitoring showed the moths emerged 4-5 weeks early and laid eggs accordingly sooner. Because these were not in synch with the autumn break there was little food when they hatched and the population in the subsequent year collapsed. This is disturbing because these are the weather patterns that are predicted for climate change. This sort of analysis is only possible when the full life history of the species is elucidated and then combined with nightly monitoring of adult activity.



Steve Williams

Insect Hotels

In the middle of March 2016 the Newham Landcare Committee organised a talk and presentation for us on moths – and it was introduced as:

Senior researcher Steve Williams will outline life cycle information for individual species of moths, then groups, incrementally building a picture of the species operating in different landscape contexts to illustrate how increasing vegetative biodiversity promotes invertebrates (and hence higher animals in the food chain).

Ohh-kay.... now I don't know what the majority of people attending (and we were quite a lot) was expecting – but Steve's talk was quite an eye-opener. E.g. Australia has around 30,000 different types of night-time moths but only 400 species of butterflies.

And the "OMG"-factor never stopped during his presentation. There are moths that sit 360 days as eggs or larvae in some sort of dubious bush and only 'do their thing' 5 days a year. Some moths eat only grass, or fly only 10 meters, or need big rocks, need certain plants, live only in special habitats, need this and that ... or or or ... and the list of specialised behavior in only certain environments goes on and on. At the end of Steve's talk I was actually not quite certain if I should be feeling inspired or feeling totally devastated knowing that by some of our actions we can unwittingly wipe out a whole species of moths.

Whilst visiting my parents in Germany I've noticed that lots of towns and communities had in recent years installed "Insect Hotels" and I queried Steve about those. And I understood from his answer that all insects in degraded and formalised areas needed lots of help.

And that got us thinking. Aren't our newly established groves a bit like those 'clean cities' in Germany?? Yeah sure we have old growth areas on our place with stacks of habitat for ALL Oz critters. But aren't we currently mounting nesting boxes for Brush-tailed phascogales and Yellow-tailed black cockies that need help finding hollows amongst the young trees in our new plantations ?? And hey – why not encouraging and helping insects as well ??

So Karl and I got working. There are HEAPS of sites on the internet how to build an insect hotel. But how should we do it ?? There are no instructions really – you just have to think like a bug. For example – if you are a tender little juicy thingy, do you want your room next to a huntsman ?? Do you want to pounce onto your prey from up above or do you want to pull it down ?? Do you need stuff like clay or bracken ?? Or how deep should your egg chamber be ??

We had no idea. But inspired by all the pictures and info on the internet we stacked up logs and pallets. And we knew that huntsmen like to scurry behind tight places like picture frames and walls – so we squeezed in logs and bark and bricks. We also know that some native bees like having their nest in the ground – so we provided sand, litter, soil and gravel.

We found thingies in the exhaust of our chainsaw and the air filter of the lawnmower – of course they would love our old cut-up bamboo stakes. We offered rocks, mud, hollow logs, cardboard, big sticks, little twigs, wool, sand, banksia and pine cones, hardwood, softwood, hay and bracken, bits of slate, leaf litter, soil, moss and corrugated iron as well as a few broken pots with native geraniums and bulbine lilies to tempt a variety of creepy crawlies.

And the finished “Insectarium hotellus koloraii” looks (in our opinion) pretty awesome and rather inviting. And while I have already seen some daytime critters moving in – I really do hope that some of our night moths think it ain’t such a bad spot to lay an egg or two in there.

Brigitte Kny



HOW BIG IS OUR ECOLOGICAL FOOTPRINT?

IMPLICATIONS FOR FUTURE FOOD SUPPLY.

The concept of the “ecological footprint” was developed in the early 1990’s by Canadian academic Mathis Wackernagel. The idea was to try to come up with a number or index so that comparisons could be made about resource use by different societies around the world.

What standard measurement could enable comparisons to be made between rich and poor, developed or under developed countries?

Wackernagel and his team decided on **the area of good quality arable land required to support the living standard of one adult person in a particular country.** This would include such things as water collection, recreation space (eg. golf courses) provision for roads, housing, shopping facilities and of course food production and cash crops for profit and income.

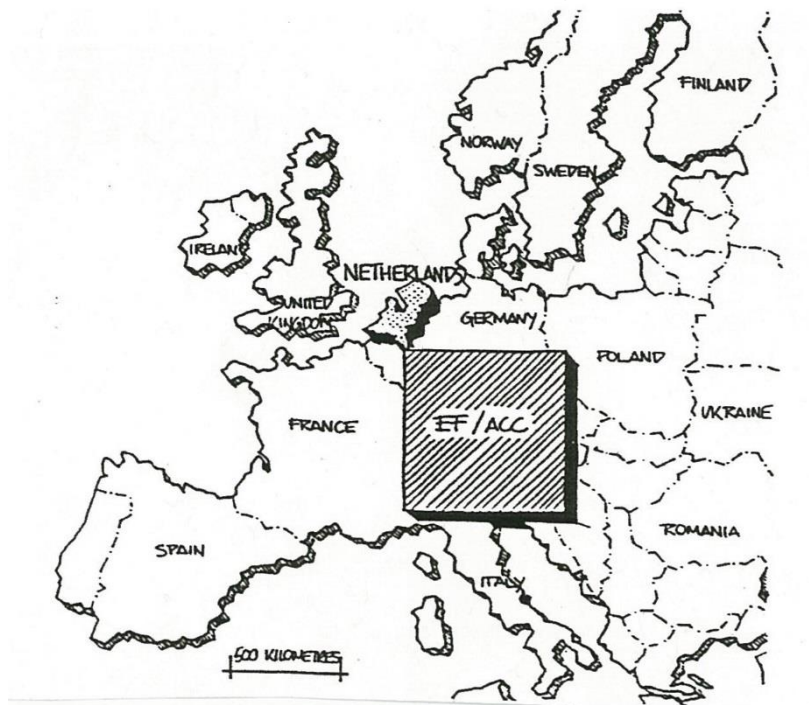
It was thought that by adding up the amount of quality land to provide all the facilities and resources used to support a population and then dividing by the population total, it would be possible to make valid comparisons between countries.

The land area, the ‘ecological footprint’ to support one average person, can be very deceptive. For example, small highly developed countries like the Netherlands, Belgium or Switzerland get food from large areas of land in other countries by trading high-value goods for food. China today has a huge population and is using its influence as a rising power to appropriate productive land in countries like Australia and Africa to supply its food needs

(My own belief is that we as a nation should be wary of so called ‘free trade agreements’ and their long term implications – who really benefits in the long run?).

So the ‘ecological footprint’ of a country can extend far beyond its territorial boundaries.

(Illustration: The Netherlands Ecological Footprint)



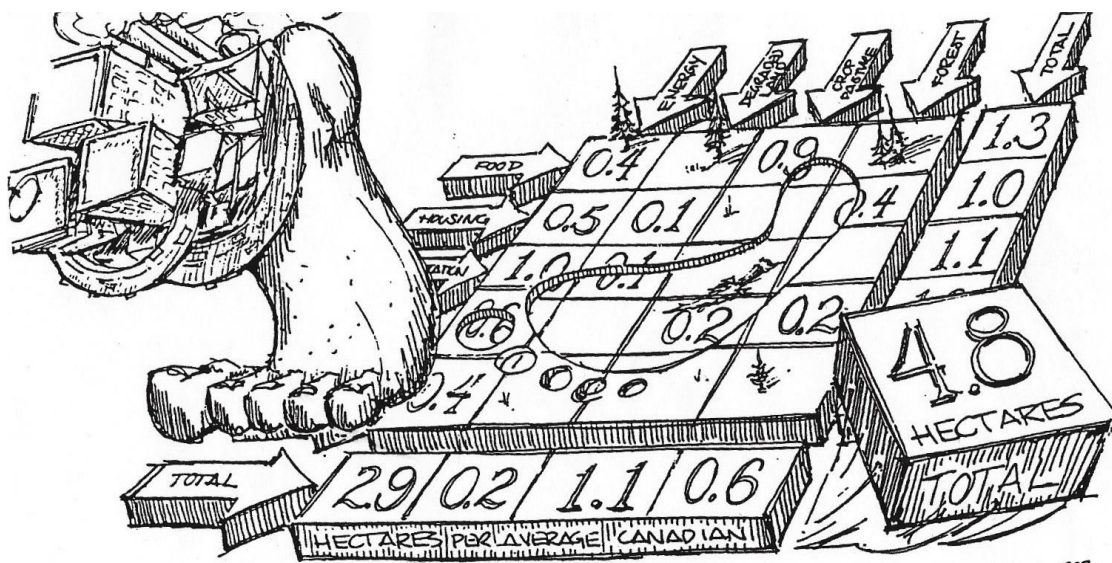
Also, look at technological developments to produce more food from less space. Hydroponic tomatoes are a good example. “What a way for the future?” I hear you say. But wait.

Analysis of all the inputs required to grow hydroponic tomatoes shows that 18 times more land per kilogram harvested is needed when compared with conventional open air production.

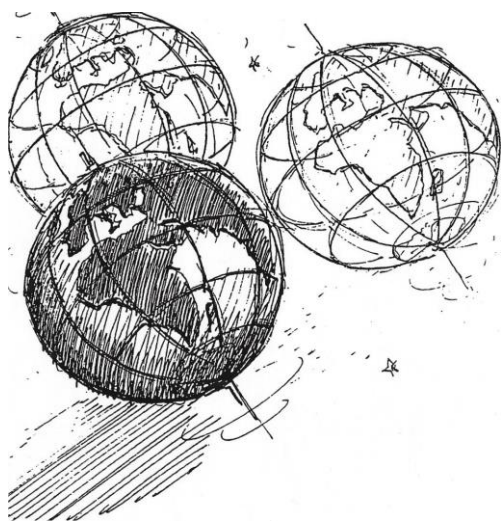
The study of ‘ecological footprints’ around the world reveals serious problems.

At the beginning of the 1900’s the availability of ecologically productive land was about 5 hectares per person.

Now, because we have vastly more people and because agricultural technologies are less efficient (contrary to popular belief) and because quality soils have become degraded as a result of poor management, a mere 1.5 hectares is now available to supply the living resources for each person on planet Earth. However the amount of productive land required to support the life-style of the average Australian or Canadian in the 2000’s is about 4.8 hectares!



Doing some arithmetic shows that it would be necessary to have about 3 planets the size of Earth if every person living today had access to the resources we enjoy.



What does this mean?

Clearly the **current** system of production, processing and distribution of food for our world is unsustainable and yet demographic predictions point to an increase of some 3 billion (this is about a 30% increase) by 2050

What is our response? How can humanity hope to provide for the population of the future? This is the gigantic question.

Some possible answers could be:

- It'll be a long time into the future, I'll be dead so I don't have to worry about it.
- We don't have to worry, science and technology will find a solution.
- We in Australia (and the 'developed world') are OK so we must put up our defences and protect what we have and keep out less fortunate people. (Hence big defence budgets and beefing up border security).
- It is obvious that population has to be controlled so that there is enough for all.
- Medical researchers tell us that the world is on the brink of a disease pandemic because of over-use of antibiotics in our health systems and food production so it seems likely that 'natural causes' will solve the problem!
- We must develop ways to SHARE. Rich countries should be prepared to do with a little bit less so that poorer ones can survive. (Can markets, supply and demand be the mechanism for this?)
- Wealthy countries waste a huge amount of food so waste must be drastically reduced and distribution networks improved.
- We must become more generous with our land and welcome many more refugees and immigrants to give them a chance to share and survive.

I CERTAINLY DON'T HAVE THE ANSWER, HAVE YOU?

Post Script.

Many ideas have been suggested to ensure food supply into the future.

How realistic are such ideas?

1. **Kelp farming in the sea.** This was recently reported in a Simon Reeve TV program on Ireland. While kelp can be a good food supplement – especially for minerals and vitamins – it has almost no calorific or protein value and it is high in sodium.
2. **Artificial meat based on tissue-engineering technology.** Widely reported as a wonder food for the future and based on research by Prof. Mark Post in Holland, it is not as simple as it sounds. Seeded stem cells from suitable un-born animals are bathed in a nutritious 'growth medium' to increase rapidly. But large resources have to go into producing the growth medium and special highly regulated conditions have to be maintained with considerable inputs of energy and technology. Nutrition scientists are sceptical about the final result.
3. **Food via the vegetarian pathway.** Food (meat) from animals is grossly inefficient. For example, water consumption to produce one kilogram of grain-fed beef is about 100 000 litres whereas one kilogram of wheat requires only about 900 litres! Vastly more protein and calories can be produced via vegetables than from animals using the same inputs of energy and land. Elimination of meats from our diet could well be the strategy for increasing food production but it is contrary to the demands of the developed world and the tastes of increasing numbers of wealthy people in Asian countries.

4. **The Cuban Experience.** With the collapse of the Soviet Union in the early 1990's Cuba was destitute. It lost its major source of food and energy supplies and its means of producing its main export (sugar) diminished. With the population seriously short of food drastic measures developed at the grass-roots level. Parks, gardens, nature strips, sports and school grounds were converted into small-scale vegetable plots. The transition from an economy hooked into a 'modern' capital oriented system to one making use of small plots with an emphasis on composting and re-cycling meant that survival became possible. In Japan, Tokyo has elements of the same self-sufficiency movement. With a population of some 38 million land pressure and resource acquisition in some areas are becoming critical and the move to small-scale local production is evolving as a sensible option.

No doubt other strategies and technologies will emerge as the world food crisis deepens in the years and decades ahead.

My own conviction is that we must avoid any solution that denies the rights of any human being on the planet.

Jim Sansom