



The Landcare Perspective

The Quarterly Newsletter of the Upper Shoalhaven and Upper Deua Catchments

**WINTER
2014**

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How We Communicate

By Margaret Royds, OAM

Recently I flew back from drought declared Queensland which has now received beneficial rain and we the tail end of it thank goodness.

The man in the seat next to me on the plane made the mistake of saying hello and where do you come from? When he found out I was off the land he put away his laptop and proceeded to question me about where I received my information from on rural matters. Turns out he works for CSIRO and I could be part of his homework for a meeting in Canberra.

He was most impressed that there is a staffed local office in Braidwood that supplies tools and information on everything, and runs workshops and field days for Land care members over a large area. He was interested also that I receive most of my information by email from the Upper Shoalhaven Office, the National Farmers organization and news letters from State and Federal politicians and only read the local newspaper.

It made me think about how do we get the message on Landcare to those in our district who are not involved. What we do is practical commonsense to me but there are a few who don't see the value of pasture management

and revegetation. I had my eyes opened to another field when our group invited the bird watchers of Canberra to visit our natural corridors.

I had always walked through the trees looking down for rabbit burrows and serrated tussock and erosion points. Suddenly, I looked up to another world of trees, with noises and birds and life became very enjoyable. How can I pass this pleasure on to local landholders who don't grow trees in spite of the fact that as well as sheltering and shading animals it is proven trees increase carrying capacity by protecting pasture which in turn slows the water down reducing the loss of soil and nutrients.



Casuarina in Araluen Valley. Photo by Alex Rea.

How can I tell others that goats eating all the reeds on wetlands can destroy the habitat for the black swans and it should be fenced off so as to enjoy the pleasure of the wildlife. The only polite way I can think of is to directly invite people to visit and see what we are doing. They will also the downstream damage caused by excessive runoff from depleted pastures further upstream.

Some of the problems in this world are caused by lack of communication. Something we could at least address locally.



Save the Dates
Champions of the Catchment
 Come to Braidwood and surrounds to celebrate some Landcare Champions of the Upper Shoalhaven and Upper Deua area
Friday 28 November—dinner and presentations
Saturday 29 November—Site visits

Update from the President

By Colin McLean, Hi everyone and welcome (belatedly) to Spring!

A bit of sun, sunshine, turning green, starting to grow – it's all looking good for Spring and into Summer. The USLC has been very busy since our last Newsletter, as Su will tell you all about, and we are looking forward to continuing on the next phase of work from the Regional Producers Project through to the end of 2014 and into 2015. The Xmas in July dinner and preceding Workshop coordinated by Su were great opportunities for the Upper Shoalhaven Landcare community to come together, network, exchange ideas and war stories and enjoy the hospitality provided. Thank you to all that were able to join us. Your input from the event will shape our work over the coming months and we look forward to more opportunities. See the article on p.18 for more.

The USLC AGM will be held in October (see notice on p13). and I will not be standing for the position of President. My belief is that the role of President of the USLC is an opportunity for individuals to bring to the role the resources, ideals and energy they have for a short period of time, that builds on previous work and helps set the direction for the next part of the never ending journey. I invite Landcare community members to consider nominating yourself for this or other roles on the USLC Executive at the AGM if you would like to have direct involvement in the decision making of the USLC, based on input from the broader USLC community. I thank my colleagues on the USLC Executive for their support and guidance during my two years and look forward to continue being a member of the Committee as an ordinary member, to further contribute to the work of this significant community based organisation.

Enjoy the lengthening days!

Colin McLean, President.



Howdy from the Temporary Landcare Support Officer

First of all, thank you to the Landcare champions who have written articles for this edition. Read Margaret Royds on how we communicate, Roger Hosking on the useful Autumn Rain and local climate trends, Tony Greville on the National Landcare Program, Paul Dann on the Braidwood Granites, Pete Hazell on Mulloon Creek, Chris and Michael Gill on Fox Trapping, Marina Tyndale-Biscoe on dung beetles, and Rowena Gillett tells WWOOFING stories. There's news from Upper Deua Catchment Landcare Group and Friends of Mongarlowe River too.

It's been a busy few months for Landcare support in the Upper Shoalhaven. That probably explains why I still think it's winter, when all around me the wattle is blooming. The Executive Workshop and Xmas in July were successful events and you can see the analysis of the feedback we received on p18. South East Local Land Services extended the Temporary Landcare Support Officer contract until the end of December, so I am thrilled to continue providing support to groups and individual landcarers in the district. Regional and National Landcare also seem to be going strong, despite the disturbing media messages about reduced funding. See more on the National Landcare plans on p5.

I've started working on a new look website at www.uppershoalhaven.com.au, and I'd love to know what you think and what else you'd like to see on it. The new site allows feedback, and there's a page where you can "whine about swine", which goes with the article of the same name on p17. 'Follow' us on Twitter on [@UpperShoalhaven](https://twitter.com/UpperShoalhaven) and 'Friend' us on Facebook at Upper Shoalhaven Landcare to get all the latest news.



There are some great events coming up including a Mongarlowe River Walk, and a day at Kindrachuk Farm learning how Carol and Conrad have managed to grow such lovely food for such a long time. The Biodiversity Program's revegetation field days continue.

If don't yet get this newsletter sent you to, but you want that to change, then get in touch and be added our mailing lists. See the membership information at www.uppershoalhavenlandcare.com.au/membership.

Su Wild-River, Temporary Landcare Support Officer USLC.

Contact details: upper.shoalhaven@gmail.com

Ph 48422594

Extending the Trees on Rocky Knobs/Braidwood Granites Project

By Paul Dann

What's in a name? It started as Trees on Rocky Knobs, and after several name changes it ended up called The Braidwood Granites project. Whatever we call it, the success of earlier stages are now apparent as a very successful example of environmental change through tree planting. Highly visible to travellers along the King's Highway, this project is something of which local Landcare can be very proud.

It all commenced in the early 1990's, when it was suggested that on a prominent rocky knob a tree-planting project be started on the relatively tree-less Braidwood Granites near the Shoalhaven River. Two then members of the USLC, the late John Loveday and myself approached Geoffrey and Sally White of "Mundango" and suggested that a suitable hill liberally covered with granite boulders, be planted with a range of tree species. A site was selected on "Mundango", several hundred metres to the east of the homestead and across the King's Highway, fenced, and in October 1993 planted with several hundred trees by a group of volunteers

The Whites then continued planting more rocky knobs on "Mundango": excellent results were obtained, and it was decided to expand the project.

A generous sponsor, Fuji Xerox, funded the infrastructure for the project, and 2000 trees were provided by Greening Australia based in Canberra. A big team of volunteers, including Fuji-Xerox staff from Sydney, were assembled and the trees planted in several corridors on "Mundango" on an October 1998 weekend. A memorable aspect of this activity was a barbecue held for the volunteers at "LaTreen" on the Saturday night. The success of this planting weekend prompted further activities, including the contribution of Fuji-Xerox for another planting weekend, Saturday night entertainment on this occasion being provided at the Braidwood CWA.

The great results of these years of planting are now



Trees on rocky knobs at Mundango



obvious to local landholders, as well as travellers on the King's Highway. "Mundango", with its vibrant landscape of pastures and clumps and belts of trees, is a striking example of what can be done in landscape restoration, with assistance from landholders and volunteers, local and from the city. Landcare could capitalise on this good work by erecting more signs to spread the message.

Upper Shoalhaven Landcare Council
Corridor Links & Carbon Sinks

REVEGETATION FIELD DAY

Saturday, 18th October 2014
10:00 am - 4:30 pm

At **Bungonia Hall 10am - 1:00 pm**
Machinery demonstrations 1:30 - 4:30pm
at **4850 Oallen Ford Rd**

Did you know the USLC has a range of hand tools & tractor mounted implements for hire?

- ✓ Practical tree planting demonstrations
- ✓ Site preparation & planting tips
- ✓ Tree guards & other products
- ✓ Why revegetate? shelter belt design

RSVP's ARE ESSENTIAL for catering

Register your interest by Wednesday, 15th October
Numbers Limited

CALL: Richard Stone - 0427 456 718

Email: richard_stone@clearmail.com.au



Useful Autumn Rain



By Roger Hosking

The rain in the last fortnight of August is a good foundation for Spring growth. Over much of the district the soil profile is saturated which resulted in substantial stream runoff.

Up to the 27th August, there was 151mm in Braidwood, which was the eight highest August total in 128 years. The wettest August was 251 mm in 1974.

A feature of the rain driven by the south-easterly winds is the marked decline with distance from the escarpment. There was about 500mm under Currockbilly to 100mm at Captains Flat.

As an added benefit, the wet soil has a greater thermal mass which should reduce the impact of frost in the near term, however, we had 105 mm last September, and a damaging frost (-4.5 degrees) on 18th October.

Check out Roger's new article considering whether there is a climate change trend evident in the Braidwood growing season at <http://www.uppershoalhavenlandcare.com.au/biodiversity/climate-change/>



Autumn rain flowing overland at Mongarlowe.
Photo by Mark Sullivan.



Mongarlowe River nature walk and plant

identification morning



Walk along the Mongarlowe River and learn about the plants in this landscape. Also visit the *Landcare Plot*, planted 16 years ago with 20 individuals of 20 species, planted to see which thrive in this landscape and could be used for rehabilitation, food production and other purposes.



Date: Sunday 26th October (**not** 19th, as listed elsewhere)

Time: Start at 9am for an easy 2 hour walk, then morning tea. Finish about 11:30.

Venue: Tyndale Biscoes' property. 13km along the Kings Highway East of Braidwood, turn Left into Northangera Road, then 3km to 268 Northangera Road on the right.

Assemble: At Railway carriage. Cross a cattle grid at Northangera Road, then another one inside the property. The carriage is about 1km in.

Led by: Keith McDougall, Lyn Ellis, and Mary Appleby

Morning tea to provided **FREE**

Please RSVP for catering to upper.shoalhaven@gmail.com or phone 48422594.

Brought to you by Friends of Mongarlowe River and Upper Shoalhaven Landcare Council

Report on the National Landcare Information Session Or What's happening with national Landcare funding?



By Tony Greville

The Federal Government is currently carrying out a process called the national Landcare Programme Consultation. As part of this, Sandra and I attended a community information session in Canberra on 11

August.

Landcare, as we know it at the local level/community level, seems to have been moved into a more bureaucratic and higher level structure with decreased direct funding to local levels. I suspect that to have our priorities recognised, obtain support and funding we will need to work with and through the Upper Shoalhaven Landcare Council and through the South East Local Land Services, particularly the Braidwood office.

As is shown below much of the funding is already earmarked. As local Landcare groups and networks, we will need to work smarter to obtain any slice of the funds.

"The (Landcare) programme is a key component of the Clean Land pillar of the Australian Government's Cleaner Environment Plan and will contribute to the Government's commitment to support a vibrant, innovative and competitive agricultural sector." (www.nrm.gov.au)

There is a commitment to fund the programme at the level of \$2 billion over 4 years, this includes:

- 20 Million Trees Programme
- Green Army programme
- Reef 2050 Plan
- Working on Country
- Land Sector Package
- Investments in the Great Barrier Reef foundation
- Carbon Farming Futures
- drought support package
- rural research and development corporations.

So what is in it for us at the local level?

20 million trees will receive \$8 million over four years through competitive grants of between \$20,000 and \$100,00

Green Army will receive \$525 million over 4 years – this is through 5 service providers – national or regional organisations

Landcare networks can receive \$2 million in 2014-15 to build capacity and to use the green army

Local community groups can apply for \$5,000 – 20,000 grants; details of which are to be released in mid-September 2014

Under the Regional Stream, through Local Land Services – funding could be provided to local NRM community projects and to support community engagement through Landcare networks.

Note from editor: Please let me know if you could use a Green Army mob, March-June next year, as we are starting to work towards Green Army project proposals. Su on 48422594. upper.shoalhaven@gmail.com



BWFM - Saturday Market Dates

Now twice a month. Buy your food from local growers, at the National Theatre in Braidwood

October 11 and 25

November 1 and 15

December 6 and 20

Landcare training event: Growing for the Market

Date: Sunday October 12

Time: 10am-2pm

Meet: Kindrachuk Farm, 5258 Moruya Road, Araluen.
6 kms dirt road past the village.

Led by: Conrad Kindrachuk

Cost: \$10, contribution to catering

RSVP: upper.shoalhaven@gmail.com, or Su on 48422594.

Topics will include soil management, climatic variability, growing cycles, weed management, water management, plant selection and more.

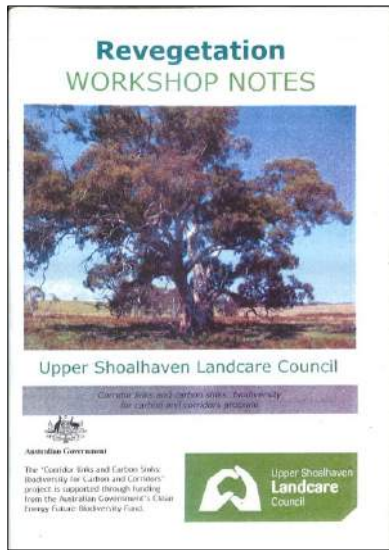


B4CC Program Update

By Felicity Sturgiss

Revegetation Field Days

Richard Stone from Wilkestone enterprises has been out and about running revegetation field days on behalf of the Upper Shoalhaven Landcare Council. A new booklet on revegetation techniques has been developed for the workshops. Drop in to the office at 42 Ryrie street to pick up a copy.



UPCOMING REVEGETATION FIELD

DAYS will be in Bungonia on the 18th of October (see advert on pg3) and in Araluen TBA. If you are interested in either date, please give Richard a call on 48428014 or email richard_stone@clearmail.com.au. Or call Felicity on 48422594.

Species Calendar Workshops at Windellama Public and Braidwood Central schools

Local artist Fran Ifould and Landcare's talented Professional Practice student Rebecca Klomp visited Windellama public school and joined Felicity Sturgiss at Braidwood Central Schools 4/5 class to work on some paintings of local species both feral and non-feral. 12 of the artworks will make a Biodiversity calendar for 2015, and there are some impressive young artists out there! Also some impressive stories from the kids about the medicinal qualities of about eels blood and yeti sightings....



Gang gangs in tree hollows by BCS student Hunter G.

Expressions of Interest for revegetation and restoration works

There are a range of expressions of interest currently being assessed for the upcoming season but we are always interested in more. If you have a revegetation project that is a minimum of 1ha in size, download or fill in a form from our website (www.uppershoalhavenlandcare.com.au) or drop into the office at 42 Ryrie Street and fill in an EOI form.



Sightings & Biodiversity Surveys.

We have some new monitoring equipment. Its. Very. Exciting.

The Songmeter. SM3BAT.

This is an acoustic recording device with an ultrasonic microphone and an acoustic microphone. We are using software called Kaleidoscope to

analyse sound data. Check out our webpage for more info on bats or google faunatech for more info on the machine (www.uppershoalhavenlandcare.com.au/biodiversity/fauna/mammals/bats)

Burrow Cam.. A simply little camera and light on a strong bendy cable with a hand held visual display..

Echometer EM3+ A handheld bat detecting device with a visual display.



We also have 2 x reconyx remote sensing motion detecting infra-red trail cameras which can be borrowed by Landcare members.

B4CC Program Update

Shoalhaven River Biodiversity Survey



In June some brave boffins headed out on the river to look for whatever was there to be found. We went to the top of the catchment and worked our way down at roadsides and on properties with permissions, and although it was cold we found a good range of healthy galaxids, many fine froglets and a huge haul of yabbies and mussels. No surprises but we are looking for surprises so this is a call -

out for anyone who thinks that a waterhole near you may hold an elusive spiny crayfish or even eels (I haven't seen any for a while - if you have please send me a line) or of course, Macquarie perch or trout. We are back in the water in mid-October.



WEBSITE and FACEBOOK

Natural Resource Management (NRM) involves everyone who lives anywhere. It is a cultural and scientific body of knowledge and insights into the world and how we manage, care for and relate to it, that everyone is a part of and everyone can contribute to.

The website for the biodiversity of the upper Shoalhaven is starting to take shape and is ready for anyone with a story, insight or research in our area to add to it.

So far we have contributions from Marina Tyndale-Biscoe on Dung Beetles, Roger Hosking on Climate (both also published in this newsletter), Tom Clarke on Platypus, Rob McCormack on

Crayfish, Steve Sass on Bats, Sky Kidd on Orchids and lots of others. Take a look: www.uppershoalhavenlandcare.com.au/biodiversity. The idea is that this will act as a resource of local information about the plants and animals of our area, as well a range of other resources such as hydro-geological survey data, geology and soil maps, local plant and animal survey data and current research on connectivity, climate change and weed and vertebrate pest and fire issues. NRM is constantly adapting to new research, new ideas and keen observation.

Sightings - what have you seen??



A brush-tailed phascogale - they require a wide range of hollows in their home range - with openings 2.5-4cm wide..

Have you just seen a Brush-tailed Phascogale but you didn't know what it was? Or a Bentwing bat that could be looking for a new maternity cave? A weird fungus or orchid or even a pelican, pardalote or platypus (sorry about the early morning alliteration). You can log your sightings very simply at our website - or email us at usudsightings@gmail.com. Even logging sightings of common species every so often can help us understand population health. The more data people contribute on species in the upper Shoalhaven and upper Deua the better decisions everyone can make about land management. Send us any photos or info you like and we will identify, verify and get back in touch with you.

www.uppershoalhavenlandcare.com.au/biodiversity/sightings/



What's Happening at Mulloon?

By Peter Hazell

Do you remember the Natural Sequence Farming demonstration at Mulloon Creek Natural Farm? How is it travelling today? In the eight years since the first leaky weir went in, we've had droughts and floods and just about every other extreme nature can muster.

The original project involved the construction of 15 'leaky weirs' along a 3km stretch of creek within a floodplain pocket in the lower reaches of the Mulloon Creek catchment. The area of the project represented about 5% of the catchment, with 71% of the catchment upstream of the site and 23% below.

The leaky weir structures were designed to dissipate energy (in space and time) during high flows, allowing the build-up, rather than erosion, of sediment. Many thousands of trees, shrubs and aquatic plants were planted in and around the creek and it was fenced to control stock access.

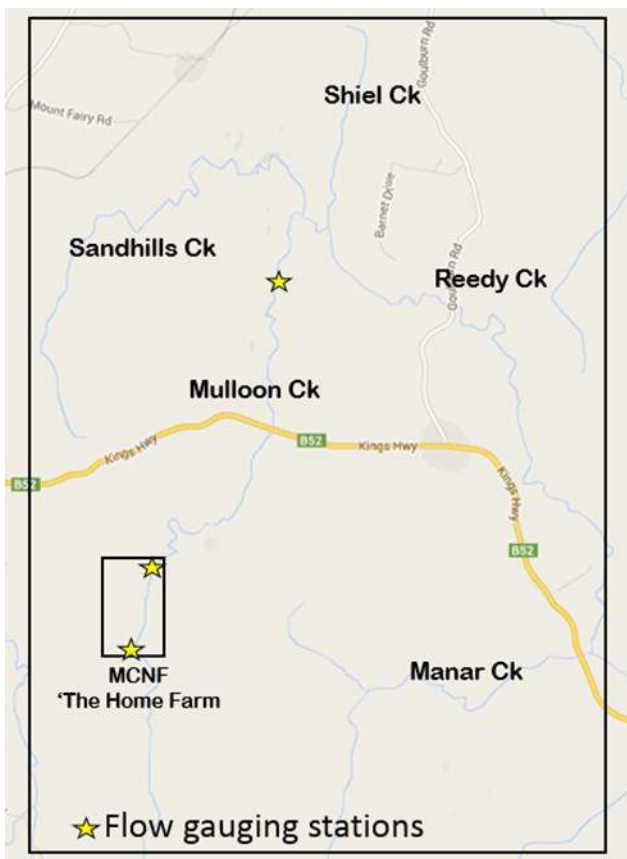


Figure 1: Location of the three flow gauging stations installed along Mulloon Creek in 2006.

The early work was designed to help the creek begin to self-repair – to regain the processes that built the floodplain pocket originally and many times over – to rebuild habitat complexity and species diversity - to buffer the whole system against extremes of drought and flood. So is this happening?

A key question is; how has flow been affected? Is this part of the catchment taking or giving water?

Data from automatic flow gauges at three locations along Mulloon Creek has been collected since just after the project commenced in 2006. There is flow gauging as the creek enters the 'MCNF Home Farm' Demonstration site, as the creek enters the gorge beneath the demonstration site, and there is a third gauge close to the lower end of Mulloon Creek (Figure 1).

Stream flow data collected to this point suggests that over time the NSF structures are increasing the amount of water stored within the NSF Demonstration area allowing this water to be slowly released during drier periods. This appears to have led to more consistent and higher creek flow out of the demonstration site compared to creek flow entering the area.

Being healthy sceptics, we never believe the data until it can be independently verified. Monitoring stream flow is tricky. There are five variables (cross section, depth, water velocity, slope of stream and surface roughness). An error in any one of those variables can throw the numbers right out.

Mulloon Community Landscape Rehydration Project – A Mulloon Institute Initiative

Since the original NSF project was put on the ground, The Mulloon Institute (MI) has formed to support research and experiential learning in natural, holistic approaches to agriculture and environmental management. MI is not for profit and has DGR and charity status.

The landowners downstream and upstream of Mulloon Creek Natural Farm have been observing the demonstration at MCNF as it has evolved. Impressed and/or curious about the results they are keen to participate in a major scaling up of the original project. Landowners adjoining or crossing Mulloon Creek from MCNF 'Home Farm' to its confluence with Reedy Creek (see Figure 1) are signing on. MI is facilitating a way in which all interested landowners can be involved as this proposition evolves.

The original NSF demonstration at MCNF has raised many questions, some of which have been well answered, some we want to take a closer look at. More water in the system? Increasing baseflows? Moderated flood peaks?

What's happening at Mulloon continued



Figure 2: DPI's Tony Bernardi, agriculture student and bee keeper, Scott Middlebrook, check the mid-stream gauging station under the supervision of Sonny.

With confidence, Mr Bernardi can say that during July this year, a drying period, the flow of Mulloon Creek into the demonstration site was around 61 Megalitres per day (61 Olympic size swimming pools). Discharge, or flow out of the demonstration site was 69 ML/day, a 13% increase in yield from only 5% of the catchment.

This is obviously only one reading, but it gives us a glimpse of how the system might be behaving as a result of the structural work carried out 8 years ago along with the natural and assisted regeneration of the creek since. The project appears to be banking the water during higher flows and maintaining higher low flows when the weather is dry (see Figures 3&4).

A key partner in this project is NSW Department of Primary Industries Hydrological Research team. Research Hydrologist, Tony Bernardi, is going back over the hydrological data collected to this point. He is also upgrading the existing gauging stations referred to above and is installing sensors in the 12 piezometers (groundwater monitoring) already spread across the floodplain at the NSF site. With the help of his hardy assistants, he is also remeasuring all the flow variables referred to above (Figure 2).

The respective discharge figures quoted above would lie somewhere on the tail of the respective graphs (figures 3&4), but at the same point in time. This is one of the key changes in system function that the NSF Demonstration has sought to achieve and is indeed one of the key goals of the Mulloon Community Landscape Rehydration Project.

For more information about what is happening at Mulloon, contact Peter Hazell, Project Coordinator for the Mulloon Community Rehydration Project, on 0427 075 397 or email peter@themullooninstitute.org.

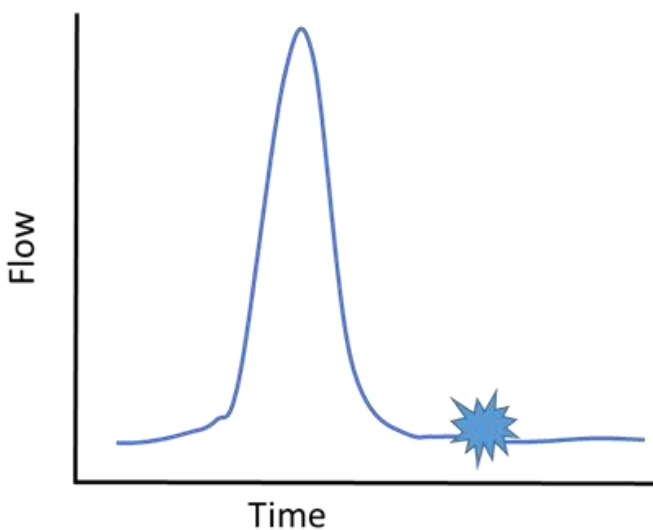


Figure 3: Simulated flow duration curve. Rapid rise and fall. High energy, fast flow, short duration.

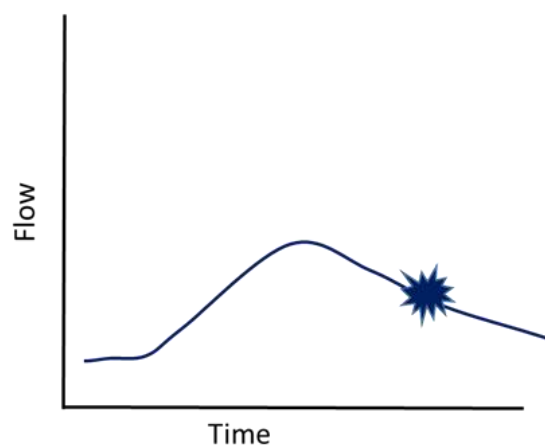


Figure 4: Simulated. Gentler rise and fall. Energy and water dissipate over space and time leading to more sustained flows

Fox Trapping at ILONKA Wildlife Refuge, Sheep Station Creek

Chris and Michael Gill

Chris and I have always had a genuine fondness for the Red Fox, but ONLY in its native habitat. It's intelligent, beautifully built and superbly coloured...

We feel the same way about cats – smart, strong and pretty...but both creatures are staggeringly efficient predators. They run rings around our native fauna (and, I suspect, around US, too – sometimes I swear I can hear them laughing at me as I creep about the paddocks in the dark wearing my stupid, bogan camo gear, humping my bang-bang and dribbling spit from my fox whistle).



I forget just how many native mammals, birds, reptiles and insects they are supposed to slaughter (even eels, yabbies and slugs, apparently) but it's TOO many.

Recently, we were driving home very late along the Araluen Road, when, right beside the Sheep Station Creek bridge, a fat, male Spotted Tailed Quoll strolled across the road in front of us – our first sighting in 16 years. Thank goodness we had decided to use humane cage traps to control feral carnivores instead of 1080 baits.

Thanks to Landcare, Felicity's Biodiversity Programme and the Foundation for National Parks and Wildlife, we now have five large cage "dog" traps on our 57 hectare Wildlife Refuge.

We bait them with tinned tuna (talking to Donna and Steve at Braidwood Outdoors really helped) – the strong fishy pong carries a long way and, whilst attracting cats and foxes, is of no interest to Wombats, which can hurt themselves badly if caged.

However, lots of beasts seem to just love tuna – to date, our count stands at 7 foxes, 3 cats, 1 Goanna, 2 Ravens and 6 Magpies. The cages must be checked every morning and the baits replaced or refreshed regularly – Antichinus (marsupial "mice") are also crazy about fish (not exactly their usual diet) and will scoff the lot.



We move the cages around the block every fortnight, sometimes sitting them out in the middle of a paddock, other times hidden in amongst bracken and shrubs and tall tussock,

also camouflaged (inside and out) with leaves, twigs and branches.



I have modified some of our traps, replacing the sheet-metal back end of the cage with a sheet of unbreakable, thick, clear Perspex. This gives the impression that the cage is open like a tunnel and may tempt those older, more wary foxes inside.

We often take our weeding tools with us as we do the rounds each day (pruners, secateurs, handsaws and backpack sprayers) to harass the blackberry, hemlock, tree of heaven, privet and thistle.

It's a beautiful property and all this work gives us a good excuse to spend time out there, keeping fit, monitoring our creek, our plantings, our native birds and animals and killing things we don't like.

I still stalk about at night sometimes (when I should be sucking champagne cocktails, watching Breaking Bad or Mythbusters), in my op-shop camo, especially in the fox mating season. We found some audio of fox calls online and I learned how to mimic that spookiest of screams. I'll be honest with you – at midnight, with an icy Monga Mist closing in, I nearly frighten the poo out of MYSELF making that dreadful sound.



Whether it attracts them or scares them off, I can still hear them laughing at me...

If anyone should have any experience, ideas and tips which might help us all control feral animals more effectively, I'm sure they would be welcome in these pages.

The Upper Shoalhaven Landcare Council has some fox traps available for hire – similar to those used by Michael and Chris for their trapping program.

Chris and Michael, ILONKA Wildlife Refuge, Sheep Station Creek Landcare Project.

Towards an answer to the question “is there a climate change trend evident in the Braidwood growing seasons?”

By Roger Hosking

BACKGROUND

This question was asked in the context of daily weather observations at Braidwood beginning in 1986 and models developed from these observations, including the adaptation for grassland of A.B. Mount’s Soil Dryness Index (SDI).

A method which I have found helpful in looking at longer-term trends in weather data is to use rolling twelve-month values (frequencies, totals, averages as the case may be) at monthly intervals. This gives a sequence of comparable values, each of which avoids the normal seasonal summer/winter variation.

The trends found in each of the three graphs here and on p.13 are significant at the 0.1% level. However, the trends are linear and are not sustainable if extrapolated into the distant future. For example, rainfall would eventually become a negative value.

Notes on MAXIMUM TEMPERATURE

Loosely speaking the trend in maximum temperature here extends the “summer” half of the year (Oct-Mar) by about 1.5 days per year.

Low temperatures suppress pasture growth. I have not documented my observations but there seems to be not much growth unless the maximum temperature is above 15°C, no matter how moist the soil.

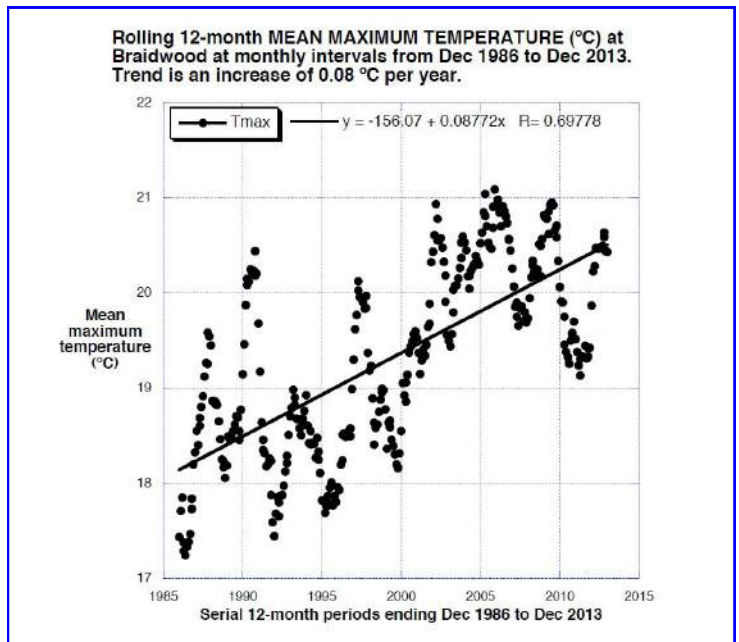
High temperatures also suppress pasture growth. USA research found that cotton, corn and soybean yields were reduced by 0.6 % for each degree day over 29°C. In my analysis the FIRST and SECOND criteria used for “GROW” days are days on which the maximum temperature is above 15°C AND below 30°C.

Notes on SOIL DRYNESS INDEX

The Soil Dryness index (SDI) is a measure of soil moisture deficit calculated daily and is driven by maximum temperature and rainfall. The model incorporates seasonal variation in evaporation (which is sensitive to temperature and wind). The model assumes a root-zone column of soil capable of holding 200 mm of rain equivalent. The index is self correcting with a range of 0 (saturation) to 200 mm (which in effect is never reached). The accuracy here is ±1 mm per month.

I have found that as a general rule pasture growth is suppressed when the SDI is above 50 mm. There is some variation depending on recent light showers.

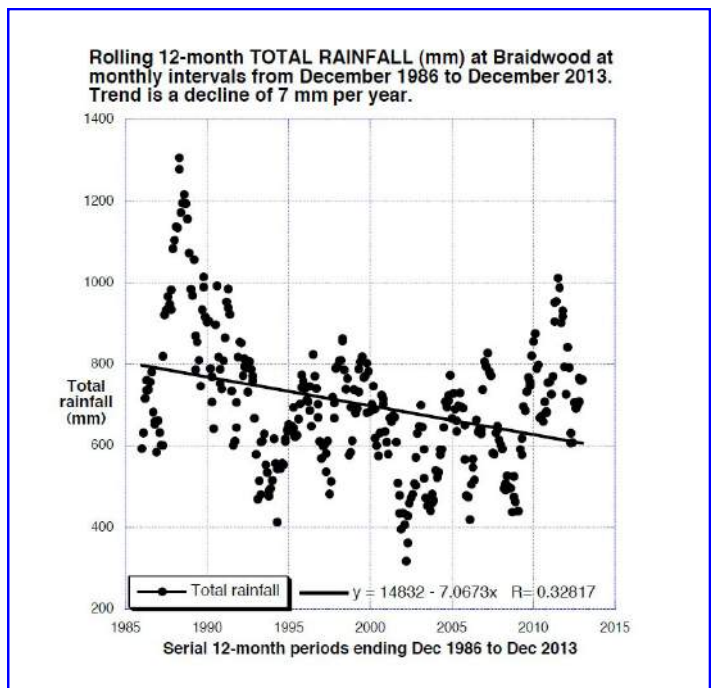
The THIRD criterion used for “Grow” days is days when the



SDI is below 50 mm (wetter).

“GROW” days are a model (artificial) construct which selects those days which are not too cold, not too hot and not too dry. Each plot point takes account of all three criteria and is comparable with every other plot point.

The recent post-drought recovery reflects the influence of a double La Nina episode which is a relatively rare occurrence (mid fifties, mid seventies).



Continued on p.13

How Dung Beetles Influence your Eating Habits



Photo from <http://www.dungbeetlesolutions.com.au/dung-beetle-faqs/>

By Marina Tyndale-Biscoe

Have you ever given a thought to the influence that dung beetles may have on your eating habits?

No, not what you eat, but where you eat. All of you that can remember back 30 years or so will surely remember that there were no outdoor cafes or restaurants without screening protection in the cities, and it was a struggle to have a picnic or barbecue in daylight hours during the warmer months of the year.

Walking in the bush or in the paddocks one's back would have hundreds of bushflies sitting on it, and a goodly proportion of them would attempt to get into your eyes or mouth or nostrils. The Australian salute was well known – in an attempt to keep these pesky insects out of your face. Many had hats with corks suspended from the rim which warded off some flies, and I remember sewing a bag made out of see-through netting which I pulled over my head any time I went outside.

Have you noticed any difference between the situation now and back then? Canberra, and indeed Braidwood, have stacks of outdoor tables and chairs for eating and drinking, and barbecues are not nearly as fly-blown as they used to be. As a result many people now happily sit in the streets and consume food and beverage without being particularly inconvenienced by flies. And the credit for this pleasant change goes to the humble dung beetle.

The bushfly season in south-eastern Australia usually starts around the middle of October, when warm north-westerly winds bring the first influx of flies from regions further north where they can survive the winter. These flies lay eggs principally in cow or horse manure, though other dung will also be used by the flies. The eggs hatch out in a few hours, and depending on ambient temperature adult flies will emerge within a week or so. Since dung is of good quality due to good pasture growth in spring, most fly larvae used to survive and the fly population exploded within a few weeks. As the warm season progressed, pastures often hayed off, and the quality of the dung then dropped off to some extent. This reduced the survival rate of the fly larvae in the dung,

but the numbers of flies by now had become so great that people did not notice any variation in nuisance levels. And this situation used to continue till the weather turned cold in the autumn.

Then in the 1960s and 70s CSIRO introduced dung beetles to the district. About 6 species became established, and now beaver away, scarcely noticed by most people except the dedicated farmers and landcare enthusiasts. Newly emerged adult dung beetles suck the juices out of the dung pad – they do not have chewing mouth parts and thus can only live on a liquid diet. When there are lots of them, they will totally dry out a pad, so only dry chaff-like matter remains on the surface of the ground. They ingest this food while developing their own eggs. The resulting dung pad becomes a totally unsuitable environment for the fly larvae, which die. When dung beetles have developed their eggs and are ready to lay them, they make balls of dung out of the pad (brood balls) into which they lay them, and bury these in the ground under the pad. During this phase there are usually fewer adult beetles in the pad, and often some dung remains on the ground surface, mixed with soil, which the beetles have excavated in the process of burying their brood balls. Often there seems to be an intact dung pad, but when the crust is removed there is little fresh dung left for flies to breed in.

However, our summers are not always totally bush-fly free. Like most biological control agents, beetles work most of the time, but not all the time. They sometimes are a little slow in starting in the spring, giving the flies a bit of an early advantage. Drought affects them, as does soil type. Birds and foxes prey on them. The chemicals used in drenches and on pastures have a major impact on the survival of beetles and flies, but the flies can bounce back much faster than can the beetles. Thus often there may be a farm/region where beetle numbers have temporarily decreased, allowing flies a clear window of opportunity to breed successfully. Since flies are very mobile and are carried on the wind, at times they are blown into areas where there is a lot of beetle activity, much to our consternation and disgust.

Continued from p.12

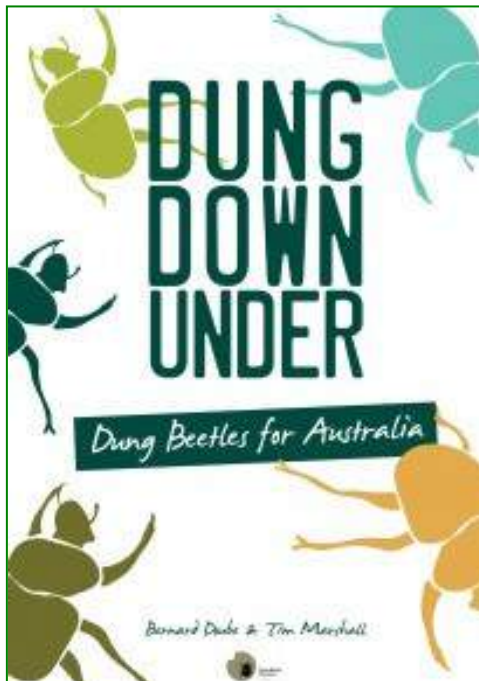
“Is there evidence of a climate change trend in

But on the whole, SE Australia is now a whole lot more pleasant during the warmer months, due to the activities of these little beetles which, when present in good numbers, are really having a great impact on the pest status of the bush fly. Al fresco eating is now an accepted and enjoyed fact of life, quite different from the days when the Aussie salute was the norm, and most eating was done indoors or in the evening when flies are not active. The biological control of bush flies by dung beetles is one of the great success stories of our times, not much lauded by the public, mainly because the absence of a nuisance is seldom noticed or commented upon. Only when these pesky flies are in our faces are they really noticed.

If you would like to read more about dung beetles and their effects on soil, pastures, on pests and parasites, read “Dung Down Under - dung beetles for Australia” by Bernard Doube and Tim Marshall. They can be contacted on www.dungbeetlesolutions.com.au.

I want to end on one final note. Dung beetles do NOT control blow-flies, nor house flies. The former breed in carrion and both feed and breed in compost, and the introduced dung beetles will not go to either of these sites. Blow-flies are about twice the size of a bushfly, they come into the kitchen when cooking smells attract them, and they are also attracted to light at night. The house fly is smaller, generally the size of a bushfly, but it lives in and around houses quite readily. Bushflies don't like being inside, and if some are inadvertently brought in

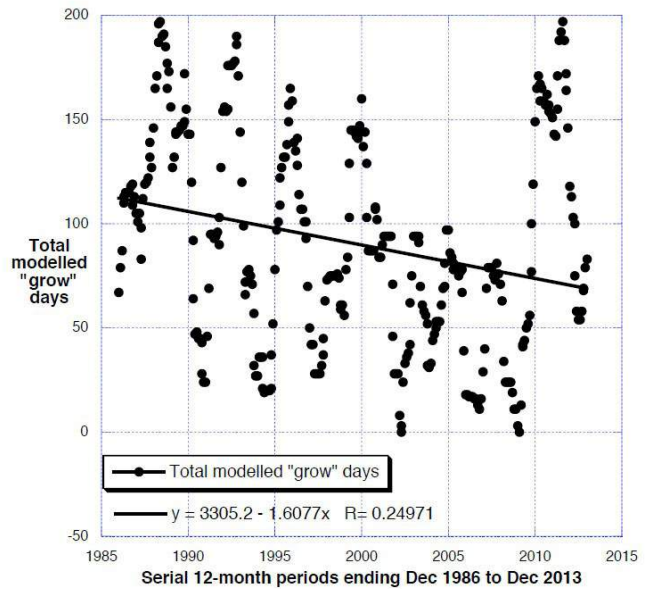
on someone's back, they will immediately fly to a window or glass door in an attempt to escape outdoors..



Buy *Dung Down Under: dung beetles for Australia* from <http://www.dungbeetlesolutions.com.au/buy-dung-down-under/>

Continued from p.11

Rolling 12-month total "GROW" days (Tmax >15° AND Tmax <30° AND SDI <50 mm) at Braidwood, monthly intervals Dec 1986 to Dec 2013. Trend is a decline of 1.6 such days per year.



To answer the question about climate change trend in the length of the pasture/crop growing season:

The data show a decline in growing days of about 1.6 days per year. This is significant both statistically and agriculturally.

These results need to be taken as a preliminary answer to the question of a climate change impact on Braidwood's growing days. We will have a better idea of the long-term trends in a decade or so. .

**Upper Shoalhaven Landcare Council
Annual General Meeting**

Wednesday October 22

Windellama Hall,

AGM 6pm

Dinner 6:30

General meeting 7:30

RSVPs, carpooling, proxies etc phone

Su on 48422594, or

email upper.shoalhaven@gmail.com

A Plan for Managing Araluen Creek

By Su Wild-River

It's been a big few months for the Upper Deua Catchment Landcare Council (UDCLG).

The UDCLG has a strong history of successful Landcare projects, including rehabilitation of 21 sites along Araluen Creek between 1998 and 2004. That work sprang from community interest as well as many research projects into the groundwater, conservation, heritage and other features and values of the Araluen Creek. Work included stream bank stabilisation with rock and stone structures to slow the flow and raise the bed. There was also substantial weed clearing and riparian zone planting.

UDCLG has now commissioned Upper Shoalhaven Landcare Council to manage a new project which will develop a 5-10 year plan for the management of Araluen Creek. The plan builds on highly successful previous work and will ensure the creek's sustainability, particularly given possible future weather events.

The plan is being developed with input from various experts to coordinate the many factors to be considered in planning for the future of the waterway. It will define future work in a coordinated way to attract grants and enable funding bodies to be confident of the capacity of the group, and the high quality of the work being undertaken.

The plan is being integrated to take into account water management, native vegetation, biodiversity, weeds, tree planting, pest animals and bushfire risk management, in partnership with relevant land holders. The plan will also address institutional plans such as the Palerang Council Local Environment Plan, NSW Department of Water, Water Sharing Plan for the Deua River and the unregulated and Alluvial Water Sources Plan.

The planning process is drawing on the **National Riparian Lands Research and Development Program** guidelines for planning river restoration. These guidelines describe five benefits of a project like this. First, planning provides public accountability and justifies why investment decisions are made. Second, the planning sets clear, measurable objectives allowing the project to be evaluated. Third, planning can help to distance site managers from the most obvious/visible issues and allows us to think on a catchment scale. Fourth, setting priorities avoids working on symptoms rather than causes, ensuring that work is done on the most important issues, instead of the ones that appear superficially important. Finally, planning avoids inefficiency in project management so that we do things in the right order.

Even before its completion, this planning project has helped to attract further grant funding. It was influential in assisting Upper Deua Catchment Landcare Group to receive a \$103,000 grant from an Environmental Services Order imposed on Big Island Mining as a result of licence breaches from Dargues Reef Mine. This grant will be used to continue rehabilitating the 21 sites worked on from 1998 to 2004, clearing the creek from encroaching casuarinas, removing privet and tree of heaven infestations, and excluding stock to optimise creek stabilisation strategies.

Upper Deua Catchment Landcare Group are to be congratulated for their solid Landcare achievements, and their best practice approach to moving forward wisely.

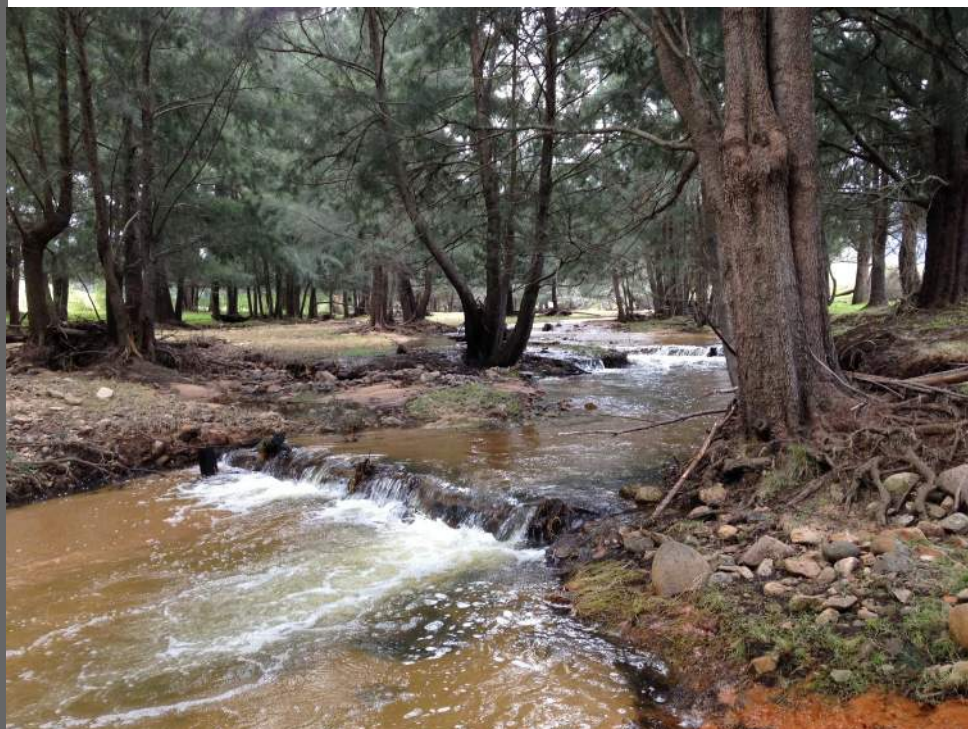


Photo by Rebecca Bradley, showing Araluen Creek with strong flow and entrained sediment, taken during recent site surveys.

The Bank Job continues

By Su Wild-River

The Friends of Mongarlowe River (FMR) "Bank Job" is project that has improved knowledge, water quality and community engagement and that continues to do so.

The idea for the project came from an earlier FMR project to protect the Macquarie Perch in the river. That project involved a 'downriver assessment', in which three FMR members—Su Wild-River, Paul Dann and Paul Bott—paddled kayaks the length of the river, looking for Macquarie perch habitat and threatening processes. We found over 40 sites that were ideal Macca breeding grounds, weeds that came and went along the length of the river, a largely intact riparian zone and very few other threatening processes. One stood out starkly. A 10m high vertical wall, towering above us just upstream of the Mongarlowe's convergence with the Shoalhaven.

The active bank erosion was being caused largely by a massive, old crack willow, growing in the river bend, and diverting water into the eastern river bend of highly erosive sodic soils. Ongoing erosion, with water quality impacts seemed sure to continue in the absence of remedial work. And this was one of the few sites where Macquarie perch breeding had been confirmed as still occurring.

The Catchment Management Authority and Upper Shoalhaven Landcare Council helped FMR to put in a grant application under the Fish Habitat Action Program in 2009, but we were unsuccessful. The grant feedback helped us to improve the application for the 2010 round and we were successful in receiving \$26,650 for The Bank Job rehabilitation works.

The final design was first to remove the willow, and then to install 5 rock groins along the bend, to stabilise the bank and enable sedimentation instead of erosion.



Sandra von Sneidern and Neale Pryor at the Bank Job



The Bank Job—before—above, and after, below, taken from opposite ends of the eroded bank.



Removing the willow was no easy first task. This was made difficult by the thick blackberry vines guarding its base. The Willow Warriors were called in for expertise in removing the beast. The final design for bank stabilisation involved bringing in rock and making five rock groins. These can be seen in the second photo above.

Eight major rain events later, the rock groins are holding, and sediment has built up behind them. Many of the trees and shrubs we planted are growing well.

The bad news is that the river continues to undercut the bank which has now moved back from the groins. This suggests that the project may have been under-engineered for its task. The battered banks both upstream and downstream of the cliff bank appear to be holding their form through floods. Discussions suggest that we need to evaluate the outcomes of the first project to inform the design of further work to reduce erosion at this site.

To be continued.....

Willing Workers on Organic Farms a WWOOFer's story

By Rowena Gillett

What is WWOOFING? What does it stand for?

I'll tell you my story of WWOOFING experiences. I'll start from the present and work backwards in time. It's four o'clock in the morning and I'm sitting in the upstairs sitting room of a charming country pub where I've paid \$70 to lay my head down for the night. Yesterday, after being made homeless, I joined WWOOFING over the phone for \$70. This gives me a year of free farm living in return for 4-8 hours of work a day. Back to barter, back to basics.

I'm also provided with a wonderful book full of WWOOFING hosts all over Australia. Their entries tell me about their farms and what jobs they'd like help with.

I can find out where I'll be sleeping, who I'll be eating with and if I can take the kids etc etc. All this for \$70 a year. Oh, and yes, I'm covered by insurance. So can you guess why I joined? Again?

Back up.

As there's no emergency accommodation in Braidwood, I now have the security of a roof over my head and food in my belly, to garden, care for animals and cook and clean, all things I love to do (except for the cleaning – ask my husband!).

I've had two other experiences with WWOOFING. One in England, when I went to visit my mother and the other in the Coffs Harbour area when my daughter asked me to be at the birth of her third child (to care for her two other children). Ever willing to be an active grandma, I packed up our gear, joined WWOOF and moved south to a caravan park while looking for a rental house. Then I stayed in the local country village pub while phoning around to arrange a WWOOFING stay. Well, I found a lady running a small cattle property. She'd recently been run over by her neighbor and was understandably nervous and depressed. So my husband and I set to removing fireweed, gardening, cleaning, cooking and house washing. Unfortunately, due to her heavy smoking habit, I got ill and we had to leave, as I couldn't work. So I paid her \$20 for the day's food and electricity and booked us back into a caravan park.

Now let's travel back into the mists of time when I was a sprightly, single

woman between marriages. Off to England to visit mum. Planned a walking and WWOOFING holiday in good old Pommyland. Six weeks of hotels, WWOOFING and walking around Lands End at the bottom of England.

That was the plan. However, mum booked me into a couple of B&Bs where I had no company and not much to do. At least I fitted in one WWOOFING experience. Got there by train and walking along beautiful green English country lanes. Saw a tractor working in a field and knew I'd found my new WWOOFING hosts. As I enjoy cooking and organic vegetable gardening, I put my hand up for weeding and harvesting in the large poly-tunnels. So many kilos of tomatoes later, I'm in the kitchen making a massive pot of tomato soup for our evening meal.

Tree planting was another activity going on, but I was happy to gather wild berries and make a pie. I'd brought my own swag and slept in a large room with long term WWOOFERS in their own separate bedroom next to me. I loved the land and relaxed. Reticent residents and their quiet appreciation of my culinary capers.

I have very fond memories of this WWOOFING experience. A pity it was only for a few days!

So I'm looking forward to my next working holiday as soon as I can find someone to mind my 2 cats and the rooster.

Yours in WWOOFING,

Rowena.



Conrad Kindrachuk working the land, and looking forward to his next WWOOFER

Have a whine about swine

By Su Wild-River

I suggested this article, but I feel pretty scared about writing it all the same. Because one thing I've learned in five months as the Temporary Landcare Support Officer, is that pigs are contentious here. Feral pigs that is, not the cute, clever, delicious ones we breed and raise to eat. Those ones are trouble, but at least there's some value to them. No, I'm talking about feral pigs. The sort that make you weep by ploughing up acres of soil and pasture in a single night.



As far as I can tell, no-one doubts their destructiveness. No-one wants feral pigs in their back yard or fields. The big questions are: Is the problem getting worse? What caused it to do so? And what's the best way to beat the curly tailed curse? I've listed some of the different ideas I've heard around the district, and read about in reports below. You can see why it's not easy to be on the receiving end of these comments.

So for the rest of the article, I'll share some of the published research from around NSW. The sort of information that most people agree on.

First, one of the reasons pigs are such a problem, and perhaps getting worse quickly is that they breed like—well, like pigs. Feral pig populations can double in size annually. So control campaigns need to be highly effective to have an impact. This also means that monitoring to understand a population is important for a coordinated effort.

Control options

Poisoning and trapping both require free-feeding first to attract pig activity before setting out to kill the pigs. 'HogHoppers' are available to ensure that baits are targeted to pigs, but I've been told that the pigs avoid them and

putting free feed on the ground seems to work better. Once you have pig activity at the free feeding site, its time to set the bait or trap. Baits laced with 1080 grain will poison the pigs, but they can also kill native, non-target animals. You need a licence to lay the baits and can contact South East Local Land Services for training or to renew your licence. Traps need regular checking, but are also quite flexible because you can move them around fairly easily. When you trap pigs, you still need to kill them, so people without guns will need help to clear out the traps.

Another thing to know is that South East Local Land Services can help. They have some traps available that you can use on your property to catch pigs. They'll advise you in how to set up a free baiting program.

For my own part, I've heard so many people whining about swine that I think it's time to get the coordination going. Upper Shoalhaven Landcare Council is inviting all of you to share your stories about feral pigs so that we can start to work together to tackle the problem.

You can leave comments on our website at: <http://www.uppershoalhavenlandcare.com.au/44-2/whine-about-swine/>, or email us on upper.shoalhaven@gmail.com

For practical help, contact South East Local Land Services on 48422536.

We'd love to hear from you.

Some say	Others say
Pigs are worse this year than ever before	They were worse before, and not so bad now
Shooting is the only way to clear them. For dense populations, shooting from helicopters is the first step.	Shooting them breaks up the families, and then stay start new ones. It makes the problem worse.
Dogging can make ground shooting campaigns more successful, especially in dense habitat. Dogs can help find and kill residual pigs after populations are reduced.	Pig dogs also break up the families and stimulates young boars to start breeding. The dogs keep doing this when they escape and keep on hunting.
Traps don't work.	National Parks and Wildlife Service established 6 traps in this region, and caught 55 pigs from March to June. That's more than 70 now for the year.
Different strategies work in different places.	Coordination is the key

Results from the Landcare Executive Workshop and Xmas in July

By Su Wild-River

This year, Upper Shoalhaven Landcare Council hosted a Landcare Executive Workshop and Xmas in July dinner. It was marvellous to get so many Landcare people together in the one room for these events, and we also gathered the memories, visions and ideas from everyone about local Landcare priorities. This is a short report from the event.

Our goals in hosting this event were to:

- celebrate Landcare achievements,
- educate and inform Landcare members about resources and initiatives,
- contribute to district Landcare momentum, and
- help to steer Landcare initiatives over the future for the greatest benefits.

26 local Landcare executives described the wonderful work they have been doing over the last few years. The table on the right is a summary and we'd love to add to it from the other groups.

Landcare Executives worked together to envision a future landscape shaped by successful Landcare work. Figure 1 below summarises our vision for changes that we hope that Landcare can achieve over the next 25 years.

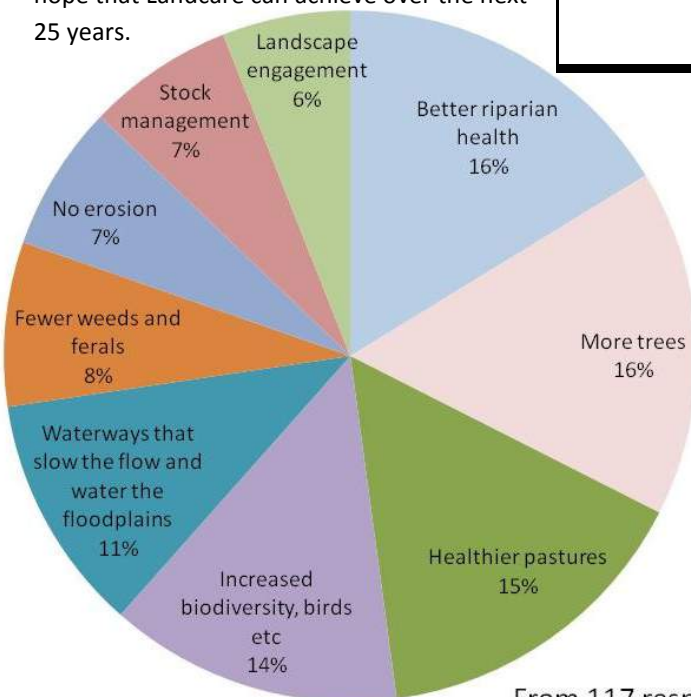


Figure 1. Future landscape changes to arise from an upcoming 25 years of successful Landcare

From 117 responses

Group	Focus issues and most significant changes
Bungonia Park Trust	Protecting the village from becoming a quarry haulage route, planning for Woodward's Creek improvements, planting out the riparian zone, establishing and planting out a creek walk, coordinating project submissions, establishing a creek walk and establishing the Bogong Bushfood Garden.
Mulloon/Reedy Creek	Tree planting, including paddock trees and arranging relevant talks such as bushfire recovery.
Jacqua Creek	Raising the level of Jacqua Creek to achieve water overflow to the flood plain, revegetation of the creek and riparian zone, nick point stabilisation and natural sequence farming.
Braidwood Rural	Tree planting that has transformed the landscape with some really significant plantings.
Snowball	Weed management, feral animal management especially pigs and winning the Local Environment Plan debate about proposed RU2 and E3 zones.
Braidwood Urban	Food sustainability including establishing a community garden, native vegetation, public amenities for the community including a path along Flood Creek and a footbridge.
Windellama	Locals linking landscapes project, establishing biodiversity corridors, achieving erosion control by nipping it in the bud, fencing and preserving crown land areas and helping to raise local resident awareness of local environmental problems.
Friends of Mongarlowe River	Protecting the Mongarlowe River catchment and its biodiversity, particularly through projects to protect the endangered Macquarie Perch and to stabilise a large, eroding bank.
Mongarlowe	Bed control structures in Tantulean Creek, broom and crack willow control, farm forestry demonstration on Northangera/Budawang Road, Clean Up Australia day for the past eight years, and Streamwatch.
Upper Deua	Improving riparian health along the Araluen Creek including sediment control to stabilise the creek bed, reducing erosion pressure by removing debris blockages, improving water quality, environmental health of the stream and increasing ponding within the creek system.

About 65 people joined us for the Xmas in July dinner. Food was from Vanilla Catering, using as much locally-produced food as possible. We ate local beef, locally-smoked ham, local carrots, parsnips, beetroots, broccoli, pumpkin, kale, coleslaw, potatoes, lemons, berries and rhubarb. Suppliers included Jillamatong, Kindrachuk farm, Hazelwood Farm and others. Wine was from Braidwood Estate and truffles from Tarago Truffles. The food was an absolutely delicious celebration of sustainable local produce.

Naturally, the good food and cheer got the cerebral juices flowing alongside their digestive companions.

A rather cheeky Santa introduced the formal part of the dinner session and handed out gift packs of worms..... for the compost heaps of people who had been very, very good.

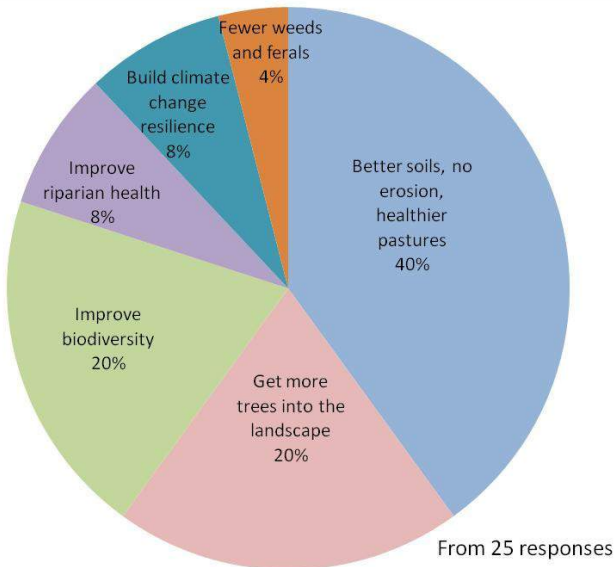


Figure 2: The most important things for Landcare to do - focus of physical and practical work

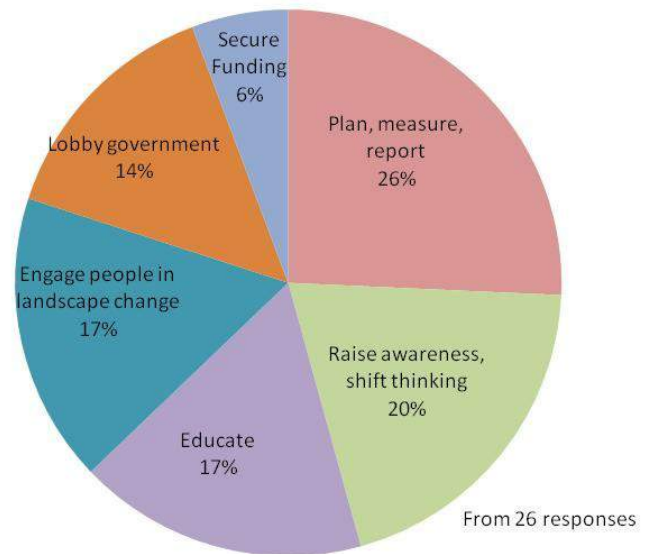


Figure 3: The most important things for Landcare to do - types of

I ran through a short presentation about the ideas Upper Shoalhaven Landcare Council has for its work in the next six months and beyond. During the presentation, Landcarers were invited to complete a survey form to give us their ideas, inspirations, feedback and direction for the months ahead.

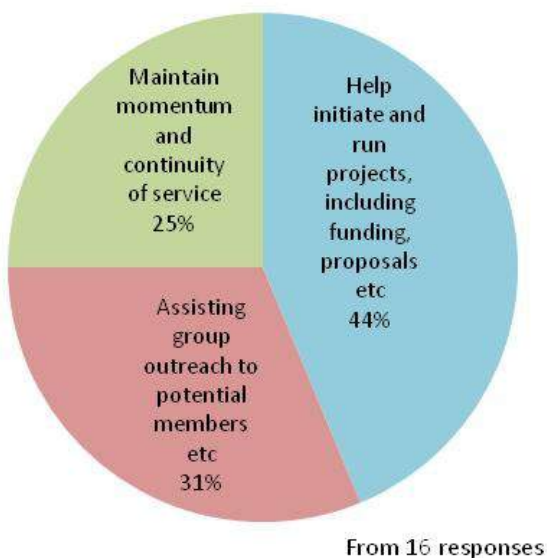
A few of the key messages we received from the survey are shown here. The most important things for Landcare to do included a mix of physical and engagement actions. The most important focal areas for physical work was to achieve better soils, no erosion and healthier pastures, getting more trees into the landscape, improved biodiversity, riparian health, climate change resilience and feral animal and weed control.



Engagement priorities are shown in Figure 3 and include planning, measuring, reporting on projects, raising awareness and shifting thinking, educating, engaging generally, lobbying government and securing funding.

Some people shared their ideas about how Upper Shoalhaven Landcare Council can best help the local Landcare groups. Figure 4 shows the priorities to be initiating and running projects, assisting outreach to potential members and maintaining Landcare momentum.

A full report will be available very soon on our website at <http://www.uppershoalhavenlandcare.com.au/news-and-updates/publications/>



How Upper Shoalhaven Landcare can best support local Landcare groups



Australian Government

The 'Corridor links and Carbon Sinks: Biodiversity for Carbon and Corridors' project is supported through funding from the Australian Government.

Sender:
Upper Shoalhaven Landcare Council
PO Box 9
Braidwood, NSW 2622