

TUBBUT TATTLE

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December 2016—January 2017

Next deadline: February 3 2017
Tubbut Neighbourhood House

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Open Wednesday, Thursday and Friday in school terms

<http://www.tubbutnh.com>

Like us on Facebook

TNH will be closed from until Wednesday February 1st



Merry Christmas and a fabulous new year from all of us at Tubbut Neighbourhood House—Deb, Lisa, Sue and the rest of the DVICG team

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Christmas Lights at Sue & Russells. Photo by Sue Collins, worth a drive-by

CLASSIFIEDS

FOR SALE

Large extendable table – white
Comes with 4 chairs, can seat 8 people
when extended \$80.00

Mazda RX4 sedan 1975 currently being
rebuilt, comes with extras \$6,000

Please contact Julie on 64588262

Wanted

Young working ram, Wiltshire horn, dorper or
other shedder.

Contact Dave at 0264580360

Please tell us whether we need to place your ad again.
If you sell your stuff or get that job—we need to know

For Sale

Post hole digger, suit Fordson or Ford 5000
\$300
Ring Laurie Neven 64588021

Bobcat contractor for hire

Slashing, clearing, small earthworks, levelling,
preparation for sheds, carports, water tanks and
paving

And clean ups

Ring Steve 02 6458 0303 or email
stephenscroope@bigpond.com

2017 Astrological Calendars for Sale
\$8—contact Deb 0264580399

Buying meat at Delegate Store

Order meat before Saturday, receive Monday from
Bombala butcher

Order by Tuesday, receive Thursday, Pambula butcher.

Mobile butcher will come to area if enough
demand

Currently looking to visit end January—ring Fred
& Sheena Whiter 0422230790 if interested

Need a cleaner?

Contact Natasha 64588162 or 0408477774

Computers with Sharon
23rd February 2017
10-2

Come for computers, come for
lunch.

Do you have a favourite film
you'd like to see on the big
screen? We have a data
projector, a screen and
speakers and would like to use
them for community movies
every now and again.

Talk to us about your ideas for
screenings.

Best wishes to
Julie Ingram who is spending
the summer reading books with
her feet up.
We wish her ankle a speedy
recovery

4 roosters free to a good home/oven
10-12 months old, mixed breed
Ring Sue 64580287

Advertising is free to local residents

To ensure you get your Tattler, ask to receive it by email
and/or remove your No Junk Mail Sticker—or add to the
sign that you want the Tattler—as the postie thinks the
Tattler is junk! The Tattler is also available on our web
site. If you receive your Tattler by mail, we appreciate a
contribution to the stamps

Gippsland Community Legal Service—free to
residents of Gippsland. Monthly visits to Orbost.
Contact 1800004402

Need an electrician?

Ben of Country Wide Electrical Services (based in
Newmerella) comes to our area on a regular basis .
He is the school's electrician so visits can be timed
to coincide with his work there. Solar a specialty.
Please ring Ben on 0434 038 395

News from Tubbut Neighbourhood House



Community Planning Workshop

Our second community planning workshop is scheduled for Saturday 1st April next year. Because Dave and Liz's availability is limited we can only hope that as many people as possible can make it to Bonang on this day.

The plan is only as good as the people involved in it. If you are not able to attend, please look at the draft from the last planning workshop and have your say to Deb and/or Lisa. We will provide you with another copy if you don't have one.

Neighbourhood House Renovating

A Huge 'THANK YOU' to Committee members Caroline and Sue for joining Lisa on Wednesday 7th to empty the NH into the hall ready for a new look for next year.



Streetscape—The Map & Bonang

There is still a copy of the draft map at TNH, Goongerah and Bonang Halls for people to add places of interest and make sure that information is right. Please take some time to add any information so the map can be as informative as possible.

Grants

We've applied for a grant to erect a 10 metre square shed at the tip for better than average discards to be placed for reassignment elsewhere. Shire officials have said that it can only be available to people when during the tip's opening hours.

So looks like the tip's restricted availability is still on the agenda. What are your thoughts about this?

CFA grant

Unbelievable. Applied for in October funds to assist people to prepare their properties against fire, much back and forth and still waiting for the decision 2 months later. If it comes through there will be funds to assist you to slash, trim, mow and advice as to ways of making your property safer. Ring Deb for more info—at home as TNH closed during January.

Cancellations, Date Changes and local news access

Sometimes our workshops or meetings may need to change or be cancelled due to certain circumstances. We try our best to let you know of any such changes but sometimes we cannot get that information to you quick enough. If you have Facebook, please like our page for quick access to information, or send us your email address if we don't already have it.

Dog Yarns

No dog stories this month, still waiting for offers. Enjoy Frank Hardy instead.

WORKSHOPS WE WOULD LIKE TO RUN IN 2017

- Working with clay
- Rock wall workshop
- Pizza oven building with community at Bonang and Tubbut
- Wool workshop with Heather and Margie
- Sponge cake bake off
- Mosaics
- Cake decorating
- Glass slumping
- felting
- Grasses workshop
- Community lunches
- Days out

We would love some feedback or input on what workshops you would like us to run and where you would like them to be held.

We are also always looking for community members to run workshops with their knowledge, please contact us next year to discuss, either through our Facebook page, phone or email.

WANTED

Front cover photographs for the Tattler. Historical. People. Natural scenes. Art works. With a local connection. Please contribute

The Tubbut Tattler is your newsletter—'the Community' - so please contribute in any way you can with your ads, stories, articles, cartoons, knowledge or anything of interest that others may benefit from.

Working Bee at TNH

We expect TNH to be ready for painting and carpet laying late in January so in anticipation we are calling for helpers from 10 am on Saturday January 21st to give us a hand. We will supply meat for a BBQ, please bring along other food to share. There will be films for the kids and we will take a look at the Zucchini Clan's new video, with the potential to show another film if people are interested.

LOOKING FOR A GRANT?

THE FREE GOVERNMENT GRANT FINDER HELPS FIND GRANTS AND ASSISTANCE PROGRAMMES THAT ARE RELEVANT TO YOUR OWN BUSINESS.

[HTTP://WWW.BUSINESS.GOV.AU/GRANTS-AND-ASSISTANCE/GRANT-FINDER](http://www.business.gov.au/grants-and-assistance/grant-finder)

Out & about

Library Bus will visit Bendoc and Delegate River *only* during the school holidays, on January 12th.

Wilderness First Aid

New dates

May 13, 14 & 15

Payment \$50 in advance to TNH

New participants welcome

Please note this course is made affordable by a Volunteers' Grant from DHS

Contact Lorelee for more info 0427 850457

Help Bruce Pascoe & the Yuin People Regenerate Aboriginal Agriculture

[Pozible campaign](#) to raise funds to purchase a grain harvester & a cool plate flour mill

Aboriginal people domesticated grains and tubers and a multitude of other foods - most of which have never been eaten by Australians. Gurandgi Munjie Food Company (Yuin country) have been growing murrnong yams for five years and are close to being able to sell them commercially thanks to the support of Pozible in 2015.

"This year we are preparing for the harvest of two Indigenous grains; kangaroo grass and panicum decompositum. We've made bread from both flours and the aroma and flavour is superior to wheat flour. Ben Shewry (Chef of the year 2016 at Attica Restaurant) ate two thirds of our kangaroo grass loaf on his own. He was amazed at the taste and texture.

Our harvest will require an enormous effort by volunteers. Last year we hand harvested these grains but this year we want to purchase a Bandicoot Native grass harvester so that we can take on broad acres. Can you help us?

Our aim is to raise \$15,000 to purchase the harvester and start Australia on a whole new agricultural journey. These grains are perennial grasses with amazingly large and deep root structures to take advantage of relatively poor soils and low moisture levels. Being perennial means the land doesn't need to be ploughed so the ground is less compacted and the farmer uses less diesel and saves a mountain of labour."

See the Gurandgi Munjie facebook site at <https://www.facebook.com/gurandgimunjie/>

Permaculture Open Days

Sat 28 Jan & Sat 4 Feb (2 sessions per day), Brogo
Guided tours at two small acreage properties (Brogo Permaculture Gardens and Sauveterre Permaculture) both located in Brogo.

See 20 years of development and permaculture in action and talk to the owner-developers.

Features include:

- passive solar house design
- extensive food growing systems integrated with poultry
- innovative water harvesting techniques
- mitigation strategies for fire and wind.

Bookings essential at <http://permaculturedesign.com.au/visiting-or-working-with-us/>

Entry - \$30 adults & children free. Part proceeds to Permafund.

Contact - John Champagne on 6492 7306 or brogopg@bigpond.net.au

WE OFTEN HAVE UNEXPECTED GUESTS
WHO ARE BOTH GLUTEN-FREE AND
VEGAN. WHAT CAN WE GIVE THEM
THAT'S SWEET? TRY THESE.

AMARETTO SNOWBALLS



- 2 cups blanched almonds
- 1 cup gluten free icing sugar + extra for coating
- 2 tsp almond extract
- 1-2 tbsp amaretto liqueur (or all-natural amaretto extract for a non-alcoholic, child-friendly version)

Soak the blanched almonds in water for 4 hours or more (overnight is great) in the refrigerator. Rinse and drain completely (even pat dry with a paper towel) and grind in a food processor until a very smooth paste forms. Add the icing sugar, almond extract and amaretto towards the end and continue processing to combine all the ingredients well. At this point the mixture may be too runny and it will be hard to shape into balls. Simply, place in the refrigerator or even freezer for a few minutes to let it harden and then proceed to shape the mixture into small balls. Roll in extra icing sugar for a snow-covered look. ps. please read through the comments for additional tips! Store in the refrigerator in an air-tight container for up to 5 days. Makes 12-15 balls.

Wairewa's 10th Bush Bash

Celebrate the birthday with us!

Unveiling of the Trustle Bridge gift
No alcohol event
Supper plate please

Adults: \$7.50, Conc: \$5,
Family: \$25

Sunday 1st January 2017: 7:30

Supported by

East Gippsland Shire Council



Zucchini Clan's Solar Power film clip adventure



Lily and the Professor share a cup of tea with a wombat

Last December locally bred free range music faves Zucchini Clan (Jamie Antonio & Madeline Hudson) set out on an ambitious schedule to shoot a variety of scenes across Far East Gippsland for a film clip to their upbeat song 'Solar Power'. Working with long time friend and well known Wombat Creek film maker Peter Vaughan, the team was rounded off with John Flynn and 'Nemesis' the Geco truck as support vehicle transporting the tandem bike and other props. Over the next 5 days they shot spectacular scenes in Cape Conran, in Marlo with the local school kids, then a variety of scenes in Orbost including Ruskin Street and Orbost North primary schools, Lochiel House jamming with long-time Orbost identity Edie Zucolo, Morganics, Snowy Growers Community Garden and a scene with Peter Dreverman and his 1880's penny farthing and Sam Mitchell and his hand built solar powered bicycle. This last scene Jamie edited into a quirky short vignette 'Bicycle Hi JinX!' The next day the team shot scenes in Cabanandra with Keith Bradshaw and his horses, then off to Tubbut to shoot scenes with the school kids, Deb and also the classic "No money no honey" scene with Helen and Alan Neven. From there they shot scenes at Greg Tantram's with him, Sage and the ferrets, then off to McKillop's Bridge for the spectacular closing scenes shot with a drone. Rounding off the shoot the following day was a scene on Gap Road, then back to Goongerah for some more community scenes with local adults and kids. A scene was also shot on the helipad of Mt Taylor with the Auer clan, with spectacular 360 views.

The aim of the clip was to showcase the people and natural environment of our Far Eastern region (which it spectacularly does), so the band applied for a funding Arts grant from the East Gippsland Shire for the project. For some reason the project was unsuccessful in obtaining any of the \$77,000 available, so they took the initiative to successfully crowd-fund the \$5000 required to cover their expenses. The epic 'Solar Power' film clip adventure was recently launched at the

well attended Snowy Growers Twilight Market in Orbost, where Zucchini Clan also performed to a rousing response from the enthusiastic audience who cheered for the clip to be played twice on the big screen. All of Zucchini Clan's film clips are online at their YouTube channel simply by typing in Zucchini Clan to any search engine, and their music is also available to purchase @ zucchiniclan.bandcamp.com. You can also find them and like them on Facebook @ Kooky Zooks. The band wishes to thank all involved who were many, and encourage everyone to check out their work and share it across your networks. Further clips will be created in 2017 with the abundance of fabulous footage the band has at hand, so stay tuned, good free range folk!

Professor Ecocentric (aka Jamie Anthony)

Our Yearly Dementia Test-- only 4 questions

It's that time of year for us to take our annual senior citizen test. Exercise of the brain is as important as exercise of the muscles.

As we grow older, it's important to keep mentally alert. If you don't use it, you lose it!

Below is a very private way to gauge how your memory compares to the last test.

Some may think it is too easy but the ones with memory problems may have difficulty.

Take the test presented here to determine if you're losing it or not.

Get something to cover the answers with as you scroll down the page, relax, clear your mind and begin.

1. What do you put in a toaster?

Answer: 'bread.' If you said 'toast' give up now and do something else..

Try not to hurt yourself.

If you said, bread, go to Question 2.

2. Say 'silk' five times. Now spell 'silk.' What do cows drink?

Answer: Cows drink water. If you said 'milk,' don't attempt the next question.

Your brain is over-stressed and may even overheat.

Content yourself with reading more appropriate literature such as Auto World.

However, if you said 'water', proceed to question 3.

3. If a red house is made from red bricks and a blue house is made from blue bricks and a pink house is made from pink bricks and a black house is made from black bricks, what is a greenhouse made from?

Answer: Greenhouses are made from glass. If you said 'green bricks,' why are you still reading these???

If you said 'glass,' go on to Question

4. Without using a calculator - You are driving a bus from London to Milford Haven in Wales. In London, 17 people get on the bus. In Reading, 6 people get off the bus and 9 people get on. In Swindon, 2 people get off and 4 get on. In Cardiff, 11 people get off and 16 people get on. In Swansea, 3 people get off and 5 people get on. In Carmarthen, 6 people get off and 3 get on. You then arrive at Milford Haven ..

Without scrolling back to review, how old is the bus driver?

Answer: Oh, for crying out loud!

Don't you remember your own age?

It was YOU driving the bus!!

If you pass this along to your friends, pray they do better than you.

Contributed by Bianca Stephani

NEW VIC EMERGENCY APP LAUNCHED

The new VicEmergency app provides access to warnings and incidents for fires, floods, storms, earthquake, tsunamis and water safety. The VicEmergency app replaces the FireReady app and is now available from the [App Store](#) or [Google Play](#).

Victorians can now get emergency information from the VicEmergency app, ABC radio or other emergency broadcasters, Sky TV, VicEmergency on Facebook and Twitter, www.emergency.vic.gov.au and the **VicEmergency Hotline 1800 226 226**

STATE OF THE CLIMATE REPORT RELEASED

The CSIRO has released its biennial report on Australia's climate with findings:

- Australia's mean surface air temperature and surrounding sea surface temperature have increased by around 1 °C since 1910
- the duration, frequency and intensity of extreme heat events have increased
- since the 1970s, extreme fire weather has increased, with longer fire seasons
- May-July rainfall has decreased by about 19% since 1970 in southwest Australia
- rainfall Australia's southeast declined by around 11% in the April–October growing season since the mid-1990s
- oceans around Australia have warmed and ocean acidity levels have increased
- sea levels have risen around Australia, amplifying the effects of high tides and storm surges.

Green Army cuts will not help already "hopelessly under-resourced" Landcare sector, volunteers say

[ABC Rural](#) By [Anna Vidot](#) 8 Dec 2016



Community Landcare volunteers are worried that a decision to dismantle the Green Army will mean less money for conservation projects. Some are also disappointed to see the end of the program, saying it delivered good results for conservation and for unemployed young people.

The ABC understands the Green Army will be scrapped in the Federal Government's mid-year budget update. The pet project of former prime minister Tony Abbott was announced in the controversial 2014 budget, and funded using \$500 million ripped from the community and volunteer-driven Landcare network.

While that put many conservationists offside from the start, veteran Landcarer Ross Webster from Yass on the NSW southern tablelands was more optimistic about its potential. Which is why he's sad that the program will be shut down. "Certainly here at [Yass] Gorge, we were very happy with the work that those participants carried out," he said.

"It gave young people a start, the discipline of getting to work on time and getting the work done."

"If the government is going to decrease these types of programs, I think they should take up the slack in other areas, like greater apprenticeship positions being made available." Senior ministers, including Prime Minister Malcolm Turnbull, have refused to publicly confirm or comment on cuts to the Green Army. The government will deliver its mid-year economic and fiscal outlook on December 19.

SOME GOOD JOB OUTCOMES REPORTED

The Green Army was designed to get jobless young people into work, and teach them skills to improve their long-term employment prospects.

"We had one young lad who walked into a job [at a local nursery], had two or three years there and moved down the coast - still in full time employment," Mr Webster said.

"We had another young lady from two programs ago who got a horticultural apprenticeship with the Yass Shire."

Other landcarers remain resentful of the program, which, while delivering some benefits, gutted resources for community groups. National Landcare Network chairman Terry Hubbard said the Green Army should have been treated - and funded - as an employment program.

"In effect, putting it mildly, the Green Army was an employment program rather than an environment program and probably should have been funded from other departments and not the Environment Department," he said.

LANDCARE "HOPELESSLY UNDER-RESOURCED": HUBBARD

One of the Green Army's harshest critics, Mr Hubbard said its demise was not a straightforward cause for celebration, because the overall pool of money for conservation would suffer.

The movement received an unexpected \$100 million windfall last week, as part of the government's deal with the Greens over the backpacker tax.

"While we've been able to claw back \$100 million of those funds, there is a compelling argument that we should have clawed back the entire amount because that it was Landcare funding that was taken to start that program," he said.

"[We understand] Australia is in a fairly difficult situation with regard to budgetary issues. But I think it's a grave mistake to be dipping into the Landcare funds because it conveys the impression that the government doesn't pay full credence to the value of the Landcare work."

Mr Hubbard said cuts over many years have left Australia's conservation effort "hopelessly under-resourced".

"If you believe in climate change and environmental repair, and if you understand that everything we don't do now becomes that much harder to do in years to come, we are hopelessly resourced."

"Unfortunately that has been the trend of several successive governments."



We were serenaded by Tubbut School at our Christmas lunch

Review of the native vegetation clearing regulations now complete

After extensive consultation with the community and key stakeholders, the Victorian Government has completed its Review of the native vegetation clearing regulations. The outcomes of the review are detailed in the *Review of the native vegetation clearing regulations - outcomes report*.

The review outcomes will be delivered through a program of ongoing improvements for those actions that are independent of the Victoria Planning Provisions (VPP) and an amendment to the VPP.

The review team has developed the proposed changes using the ideas and views gathered during the consultation process. We welcome comment about any potential implementation issues before the VPP amendments are adopted. We are especially seeking comment from people who may be affected by, or who are responsible for, implementing the proposed system changes.

The attached documents available for comment are:

- *Review of the native vegetation clearing regulations – summary of proposed changes to the Victoria Planning Provisions*, and

the draft *Native vegetation clearing – assessment guidelines*. For a high level overview of the main changes proposed and information about how to have your say, please read *Native Vegetation Clearing Regulations Review - Information sheet December 2016*.

We encourage you to visit the website <https://engage.vic.gov.au/native-vegetation-review> to comment on the proposed changes.

Submissions close at 5:00pm AEST on 5 February 2017.

How good are our Nature Protection Laws?

East Gippsland is one of Australia's richest regions for biodiversity, with unique bioregions and close to 60 threatened fauna species. This makes strong laws to protect wildlife vitally important.

With this in mind, Environmental Justice Australia (EJA) arranged to meet with East Gippslanders at two meetings early in December, to explain the government's review process. Environmental lawyer Sarah Brugler, met first in Bairnsdale with over 20 members of Gippsland Environment Group (December 6) and, a day later, in Orbost's Neighbourhood House where 16 people attended.

The EJA (previously the Environmental Defenders' Office) operates on the smell of an oily rag as donations are its main source of funds. While its lawyers assist groups in court, a major thrust of their work is advocating for better environmental laws.

The Flora and Fauna Guarantee Act (FFGA) was voted into law in 1988. Its 'guarantee' is that all species can survive and thrive and retain their evolutionary development in the wild. After nearly 30 years, the problems with the legislation are showing and the Victorian Government which came to power on the back of strong environmental promises has promised a review to ensure that 'endangered species protection is world's best practice'.

With the next Victorian election less than 2 years away, its time the government got on with it and EJA is doing all it can to ensure that people have the information they need to contribute to the review.

How does the FFGA work?

Since 1988, a list of threatened species and ecosystem processes has been drawn up and an Action Plan published for each species (although there are still species without one). In the early days, DELWP's equivalent employed ecologists and officers had special expertise to identify and monitor species and prepare Action Statements. Now DELWP has few biological scientists and says that the process of preparing Action Statements is too resource intensive. There have been

no new Action Statements drawn up over the past decade. Furthermore, there is no requirement for the Action Statements to be enforced. The Victorian Auditor-General's office has been critical of the Act and its implementation. EJA's has a five-part plan for fixing the wildlife protection laws:

1. Public authorities must act consistently with the FFGA Act.
2. Landscape scale conservation and ecological restoration should become a central focus of the FFGA Act.
3. Threatened species provisions must be retained and overhauled so that listing processes become easier and more efficient to administer; and the tools used to protect threatened species expanded and made mandatory.
4. Environmental justice provisions should be incorporated into the FFGA Act.
5. The foundations of the FFGA Act – its purpose, objectives and environmental principles – need to be updated.

However, experience has shown that the only legislation that currently allows ecosystems to be saved is the FFGA. EJA has saved precious forest areas by taking VicForests to court to prevent them from logging areas with endangered species. In the absence of DELWP and VicForests prelogging surveys, it is up to citizen scientists to find and identify threatened species. The law provides the mechanism for enforcing their protection but the courts are the decision making forum.

DELWP is charged with conducting the review but does not appear to have begun the process. EJA is working so hard to ensure that we all have a say in this review. To find out more, go to their website at <https://envirojustice.org.au>.

Deb

Sarah Brugler
talking to 16
people in Orbost



VICTORIA Environment, Land, Water and Planning
Flora and Fauna Guarantee Act 1988
Notice of preliminary recommendations of the Scientific Advisory Committee
Item supported for listing
In accordance with section 14 of the Act, the Scientific Advisory Committee (SAC) has made a preliminary recommendation to support the nomination of the following item for addition to the Threatened List.

Item number	Scientific Name	Common Name	Criteria Satisfied
879	<i>Petaurus volans subsp. volans</i>	Greater Glider	1.1, 1.2, 1.2.2

Item 879 is eligible for addition to the Threatened List as it satisfies at least one of the criteria for listing.
Eligibility for listing is outlined in section 11 of the Act and criteria by which the eligibility for listing is determined are outlined in the Flora and Fauna Guarantee Regulations 2011.
Public comment invited on the preliminary recommendations.
The SAC welcomes comments on the preliminary recommendation. Public comments on the above preliminary recommendation may be made to the SAC until **Friday 24 February 2017**. Copies of the recommendation report on the above item and details on how to make public comments to the SAC on the preliminary recommendation can be obtained through the Department of Environment, Land, Water and Planning website (www.delwp.vic.gov.au) or the Customer Service Centre (136 186).

The Greater Glider is in serious decline and now recommended for listing under the FFGA. Comments due by Feb 24th.



Pavlov's plants: new study shows plants can learn from experience

The Conversation—December 7, 2016 [Prudence Gibson](#)
The first time I met the Australian evolutionary ecologist [Monica Gagliano](#), she was wearing colourful paisley trousers and was giving an animated talk at a 2014 environmental humanities conference in Canberra.

Despite her passionate presentation, trouble was brewing. Something was not right in the room. A woman beside me in the audience kept shifting her weight. A man to my left had crossed his arms and released several voluble sighs.

Why? Because Gagliano was using phrases such as “plant cognitive ecology”, “learning and communication”. And because she was, and is, opening up areas of knowledge that some might feel threaten the sovereignty of humans over nature.

That day in Canberra three years ago, Gagliano's time frames were questioned. The frequency of her experiments were interrogated. Her apparatus was cross-examined. Yet, despite resistance, I believe her work is ground-breaking and opens up debate about plant subjectivity and ethics.

SENSITIVE PLANTS

In a famous 2013 New Yorker article by Michael Pollan, [The Intelligent Plant](#), Gagliano was introduced to readers as someone whose experiments are extending the concept of cognition to the plant world.

The problem she is addressing is that if plants have brain-like functions and make sentient-like decisions, our existing perception of nature and ourselves must change.

These implications need further analysis. But, first: the experiments. What Gagliano did with her [Mimosa pudica](#) plants – also called “sensitive” plants – was to custom-build an apparatus whereby the plants could be [suddenly dropped](#) a foot or so on a regular basis.

Initially, on dropping, the plant retracted and curled its leaves, but after repeats, it stopped reacting. Not only [did it appear to “learn” a behaviour](#) (without a brain, mind you) but it also remembered. Gagliano repeated the experiment at intervals and found that even after a break of a month or more, the Mimosa would still not retract its leaves after being dropped.

How does this work? According to Gagliano:

Plants may lack brains and neural tissues but they do possess a sophisticated calcium-based signaling network in their cells similar to animals' memory processes.

Gagliano has published her findings and edited [various scholarly books](#) on plant research, ethical implications and changed perceptions. She has collaborated with environmental lawyer [Alessandro Pelizzon](#) and others on the language problems of writing about plant life.

There is no vocabulary that can be used to talk about brain-like plant structures beyond mere vascular and survival processes, nor about decision-making, sentience, intelligence, learning and memory in the plant world.

There is much more work to be done by artists and humanists to develop these vocabularies together. Scholars such as [Michael Marder](#), [Dalia Nassar](#), [Natasha Myers](#) and myself are working in this field where there may be a realm of sophisticated activity in plant life that humans have not yet even fully comprehended.

A forthcoming book titled [The Language of Plants](#) is edited by Gagliano and colleagues, and deals with this complex and provocative problem, following on from her book [The Green Thread](#).

PAVLOV'S PLANTS

Gagliano and her colleagues have just published a [paper](#) in Nature Scientific Reports that could rock our sense of human “self”.

This is a major coup for the plant scientist, who has suffered rejection from journals, for moving plant physiology into the domain of philosophy, for extending animal studies concepts of sentience to plants and more. Does this caution by journal editors reflect a fearfulness about our human place in the world?

The new paper explains her recent experiments where she sought to show plants can “learn” via classical conditioning, similar to the classic [Pavlov's dogs](#) experiment.

Instead of food as the reward (the unconditioned stimulus) and a bell as a neutral cue (the conditioned stimulus), she used light as the reward and air flow as the cue.

Gagliano and her colleagues used the air flow caused by a fan to predict the location and time of light. They found that the plants conditioned by the fan would grow towards the source of the air flow even when the light was not present, but only if they were “trained” to do so. This is like Pavlov ringing the bell and the dogs salivating, even if there was no food around.

Gagliano's peas, *Pisum sativum*, also behaved according to a simulated circadian rhythm (temperature and light/dark control) and a sense of time of day, which is known to modulate behavioural processes such as learning in animals.

This experiment appears to show associative learning in plants. Gagliano has shown that plants don't just respond to light and food in order to survive. They also choose and predict.

These findings will get people asking some tough questions. Do plants, like animals, have consciousness? If plants learn, choose and associate, what does this mean for our ethical relationship with them? Can humans learn from the adaptive capacities of plants?

To respond to light, fans and temperature in this way suggests that plants have far more sophisticated abilities than previously thought. The philosophical and ethical implications of this information are confounding.

It provokes further questions about the plant world that we have historically seen as inert and lacking in agency. With no brain, how can plants have cognition? Yet they exhibit functions we typically only associate with a brain.

Where does all this lead us? Well, into troubled waters, so grab your boat and paddle. We are in for a rough philosophical ride.



Mimosa pudica is also known as the ‘sensitive plant’, and appears to be able to learn from experience.

You may have seen this sprawling pink-flowered weed on roadsides or in lawns in tropical Australia. Touch its pinnate (feather-like) leaves and they fold and droop. Keep annoying the plant and the nearby leaves collapse as well until all the foliage dissolves before your eyes, leaving behind a few slender stems and disguised stacks of leaves.

This performance is a dramatic trick to avoid being eaten. The nutritious leaves recede from view, leaving behind prickly stems. Leaves droop by losing water from the base of the stalk. Potassium ions migrate across cell walls and the water follows. After the disturbance stops the leaves return to position slowly, taking up to an hour.

The drooping response can be induced in any number of ways, including sharp changes to temperature and barometric pressure, light and X-rays. This plant really is sensitive. But it can also learn to ignore actions that don't matter, such as drips of water. It can even ‘remember’ to ignore drips it last felt a month ago.

Known also as tickle-me plant, touch-me-not, shy plant, humble plant and sleeping grass, this weed has intrigued naturalists for hundreds of years. Latin America is its native home, but because it spread around the world long ago, Australia became one of many places where it was studied.

Nature & Wildlife

Laughs, cries and deception: birds' emotional lives are just as complicated as ours

The Conversation December 7, 2016 [Gisela Kaplan](#) Professor of Animal Behaviour, University of New England
July on the Northern Tableland, near Armidale in New South Wales, is usually the beginning of the breeding season and field observations start early.

I sat and watched in freezing temperatures. The sun was just rising above the horizon of this 1000m-high plateau when through binoculars I saw a young lone magpie, walking gingerly, literally tip-toeing, occasionally interrupted by little bouts of running and, unusually, heading straight for its territorial boundary.

In the last stretch to the border, the bird edged along a row of pine trees, staying low, and kept looking over its shoulder, especially when crossing the neighbour's border. Shortly afterwards, a female was seen in his company.

Later, the male backtracked and, when far enough into his own territory, started foraging rather aimlessly as if nothing had happened.



What had he witnessed? Did this young male magpie understand that he was breaking several important magpie social rules and could face punishment for this transgression if caught? Did he have a sense of morality?

The magpie who snuck over the border. Gisela Kaplan

Science has traditionally shunned the idea of emotions in animals, not just for fear of anthropomorphism or over-interpretation, but also because there is a very long cultural history that played out a divide between mind and body and reason and emotions.

Reason, thinking and making judgements were stubbornly thought to be outside the capacity of animals. For a long time it [was not believed that animals were even capable of feeling pain](#), let alone complex emotions. We now know that is far from the truth.

BIRDS WITH FEELINGS

Pet owners have always known that their pets can be affectionate, sulky, jealous, sad, excited and deliberately naughty, as well as doing extraordinary things for their owners. The animals we know best in this regard are obviously dogs and cats. [Charles Darwin was the first to discuss emotions in animals](#) in the mid-19th century. A century later, [Niko Tinbergen addressed the vexing question of emotions](#).

Following on from Darwin, he identified "four Fs" as part of survival: fight, flee, fornicate and feed. These translate into basic feelings of fear, hunger and sexual drive – now called motivational states.

Tawny frogmouths are monogamous. [cskk/Flickr](#), [CC BY-NC-ND](#)

But there is a lot more to bird emotions. Dangerous and horrible experiences are usually remembered. Memory helps survival.

[Modern urban birds have been shown to remember faces](#) of people considered dangerous and threatening.

We now know that the bird brain is lateralised (each side of the brain controls a different set of functions) as in humans and other vertebrates. The [right hemisphere expresses intense emotions](#) (such as fear and attack). The left hemisphere has routine, considered responses and may inhibit some of the strong responses of the right hemisphere.

So birds are more similar to humans than had ever been thought, but with an important difference: birds are generally not aggressive without cause. Technically, aggression is an emotion that is dysfunctional, has no purpose and often even harms the

individual displaying it.

Birds can certainly get very angry – and the owner of a galah or corella would be well advised not to get near this bird when the head feathers are raised — but birds can be joyful and playful, can get depressed and, as studies have shown, [a neglectful or bare environment can even make them pessimistic](#).

Birds may feel for others (have empathy) and even console them, may have a sense of justice, may show deep affection for their partner and grieve for their loss. I witnessed the mate of a fatally injured tawny frogmouth not moving from the spot next to its dead partner for three days, and then dying on the fourth.

SOCIAL SMARTS

Australian native birds have an unusually high percentage of pair-bonding (over 90% of species) and the highest concentrations of cooperative species (relatives or siblings helping at the nest) anywhere in the world. Cockatoos bonding for life often have intense close partnerships, which are nurtured by constant grooming and attention to each other's needs.

Such intense cohabitation of individuals, often for many years (how about 60 years of "marriage" in sulphur-crested cockatoos?), may also create frictions and dissatisfactions that require solutions to [keep the pair or group together](#).

For instance, the lazy helper at the nest who only pretends to help in feeding, as happens among white-winged choughs, may get scolded by an adult. A group of apostlebirds building a mud nest together, transporting mud to the nest in relays, may spot an individual that is not pulling its weight.



Apostlebirds breed in families, and all are expected to pull their weight. Gisela Kaplan, Author provided

I have witnessed on several occasions near Copeton Dam (in Inverell, NSW) apostlebirds become so outraged that they approach the individual with heightened calling and may even peck it until the intimidated individual falls back into line and does its share.

[Empathy, altruism and consoling the injured or vanquished](#) have all been observed in birds, thought to be the ultimate in consideration for another individual's state of mind.

For instance, there are observations of dusky wood-swallows (belonging to the same family of birds as butcherbirds and magpies) in Western Australia's Wheatbelt hassling a restless flycatcher with a larva in his beak, perched on a branch. One wood-swallow flew above the flycatcher, while the other simultaneously flew directly at it, snatched the larva from its beak while it was distracted by the other bird hovering overhead, and took it away. So who got the prize?

If all behaviour in animals is selfish, then the one who caught it should have gulped it down, but it did not. It gave it to the bird that had [distracted the flycatcher](#). Perhaps the two birds reversed roles in the next, similar, situation. But it still meant overcoming the temptation to eat.



The noisy miner who defended a puppy. Gisela Kaplan, Author provided

A noisy miner, one of the cooperative honeyeaters, I had hand-raised grew up over several weeks in the company of very young ridgeback pups near the edge of a nature reserve in a NSW coastal area.

One pup was sleeping on the porch in the sun and I was some distance away. I was alerted by the alarm calls of the noisy miner and turned around to see it swooping right down to a lace monitor's head – doing so over and over again. I ran as quickly as I could, by now also shouting once the risk to the pup was more than apparent. When the monitor spotted me, it turned and fled. The noisy minor had risked its life to save the pup. At no other occasion did the bird attempt to swoop a lace monitor. Its response was very specific to this situation. And, as I have been asked often, could birds have a sense of humour? Perhaps. Our galah, Philip, deeply affectionate (and jealous!) had learned the names of all our dogs and was such a good mimic of our voices that he could easily and effectively call the dogs to attention. Imagine the picture: a bird less than a foot tall, standing on the floor and calling four massive Rhodesian ridgebacks to attention. Then, when he got them all in line in front of him, he walked away, swaying his head and even making little chuckling sounds. The degree to which emotions and complex feelings for others were developed may well depend on social organisation. It may be that birds with long-term social bonds show more complex behaviour and brains than those whose associations are only fleeting. What they get out of it is perhaps not debatable — more joy, more grief, but also a greater degree of safety and usually a longer life. There are clear benefits of sticking together in a difficult and fickle continent.

VICTORIA LEADS IN FOOD AND FIBRE EXPORTS

Victoria is exporting more food and fibre than any other Australian state, with a total value of \$11.9 billion in 2015/16 and accounting for 26% of food and fibre exports, according to the 2015-16 Food and Fibre Export Performance Report. More than 80% of Australia's dairy exports, 48% of horticultural exports and 39% of prepared food exports come from Victoria. The report states that:

- China was Victoria's top food and fibre export destination, valued at \$3.1 billion, up 10% from 2014/15
- Horticulture exports increased 31% to \$1.1 billion
- Wine production increased by 26% to \$251 million
- Prepared foods rose by 38% to \$1.3 billion

Victorian export values were: red meat-\$2.7 billion, dairy-\$1.9 billion, animal fibre-\$1.6 billion, grains-\$967 million.

www.agriculture.vic.gov.au/exports

Farmers & Growers

'Fake fur' coats made of Aussie wool a hot fashion item in China, help drive Australian wool price

SA Country Hour By [Cassandra Steeth](#) 9 Dec 2016



"Fake fur" overcoats made of Australian wool are in hot demand in China as its winter season sets in. Independent wool consultant Andrew Dennis said up to 10 million kilograms of wool, most of which had come from Australian sheep, had gone into manufacturing the material. Mr Dennis said the material saw sluggish demand when it was first manufactured six months ago but during the last month demand had increased considerably. "It looks like a sheepskin, except it doesn't actually have the skin on the reverse side of it; it's got a knitted fabric where the wool is," he said.

"They're calling it a fur-like material because they can dye it different colours and make it resemble a fur."

Last year, double-faced reversible jackets were the hot thing in China but this year woollen three-quarter length overcoats are trending.

Mr Dennis said this year's fashion gem was a "heavy" product, with a high wool concentration.

"Up to a kilo and a half of wool per metre goes into this product," he said.

"It actually chews up a lot of wool, which is great in terms of the volume of demand it provides."

WHY CALL IT FAKE FUR?

Australian wool products sell well in China with the the Australian brand UGG boot being a classic case in point.

So why brand it as "fake fur" instead of Australian wool or sheepskin?

Mr Dennis said sheepskins were aligned with ugg-style boots, but a fur was "more of an overcoat material".

According to him, it came down to marketing.

HELPING DRIVE PRICE OF AUSSIE WOOL

The majority of Australian wool is classed at 19 microns, and that is the preferred wool type in the mass production of the "fake fur" coat.

Elders wool broker Andrew Howells said that, due to the "retail success" of the coat, demand was "certainly" increasing for 19 micron.

"We've seen a large rise in the price over the last three weeks," he said.

"The Chinese have made a lot of these garments in anticipation for winter sales, because they have proven to be pretty successful at a retail level — that's driven demand for more of that wool micron." China is Australia's largest player in the wool export game, followed by India and Europe.

Farmers & Growers

Study targets Indian chickpea consumption to boost Australian exports

ABC Rural By [Laurissa Smith](#) 5 Dec 2016, 1:54pm



Photo: [Indians prefer to buy their chickpeas in packets at a supermarket rather than at traditional food markets](#) (Supplied: [Anthony Saliba](#))

A researcher looking into how chickpeas are used in India has found consumers on the sub-continent use the pulse in hundreds of ways. Charles Sturt University consumer sensory scientist Anthony Saliba found India's obsession with chickpeas was "something else". He spent time in India interviewing people in their homes, at outdoor food markets and in supermarkets.

About 70 per cent of Australian chickpeas are exported to India. It is a valuable market and one that is expected to grow.

Dr Saliba said gauging how the pulse was used in the kitchen and where it was purchased was important when delivering a more targeted Australian chickpea export program on the sub-continent.

"With the increased competition, not just from traditional markets like Canada and the USA, but from lots of newer countries entering the market producing really high quality chickpeas, we need to make sure that Australian growers are armed with the newest information about where the highest value is and how to meet market demand in the future," he said.

Dr Saliba said India's passion for the chickpea was extraordinary. He was served many dishes, including one appropriately named "gunpowder".

Photo: [Dr Saliba says Indians have hundreds of ways to cook with chickpeas.](#) (Supplied: [Anthony Saliba](#))

"It's basically crushed up chickpeas with a couple of other spices, and it's used as a kind of dry dip," he said.

"Some other really interesting things were chutneys.

"Another really interesting one was a facial, so they mix it with a couple of things, curd and some spice of course.

"I am assured people have used it for many, many years and it's good for your skin."

Dr Saliba said he had been surprised by some of the buying trends.

"Most Indians we spoke to were really aspirational about buying in supermarkets and in packages," he said.

"So the supermarket preference was for convenience and speed, and the packaged preference was for reliability.

"Indians tend to only shop for pulses once a month, so they want to take it out of the pack and put it into a container and want it to last for a month or more."

Victorian sheep and goat producers prepare for mandatory electronic tagging

Vic Country Hour By [Bridget Fitzgerald](#) 6 Dec 2016,



Photo:

[Sheep producers consider the different options from a range of sample electronic identification tags.](#)

Farmers and livestock agents are concerned about how saleyards will cope with electronic tags when they become mandatory for sheep and goats from [January 1](#).

Agriculture Victoria held its first producer workshop at the Bairnsdale Livestock Exchange on Monday to teach farmers how the electronic identification (EID) tags would work.

Several farmers who attended the workshop said they were confident they would be able to effectively transition to EID tags.

One East Gippsland farmer said she believed the electronic tagging system would be beneficial to producers.

"There's a lot to iron out, but I think it'll work and I think it is a really good thing for sheep producers," she said.

But many producers shared concerns about how the saleyards would cope with the new system.

Tambo Crossing farmer Kevin Dean said he thought the EID system was "a good thing".

But he said he could foresee problems "with the saleyard side of things".

Bairnsdale livestock agent Graeme Fullgrabe said agents and saleyard operators still had not seen anything from the State Government to help them prepare for the EID tags.

Mr Fullgrabe said he and other livestock agents were all for the new system, but they needed more information from the Government.

"We'll participate in it for sure," he said.

"But please, could someone show us how it's going to work?"

Mr Fullgrabe said there should also be more consultation with meat processors, who would end up dictating much of how the new tagging system would be used.

"At the end of the day, what the abattoirs want, the abattoirs will get," he said.

"It's all very well to sit behind a desk and say scan them ... but physically, how do we get them through a scanner?"

EXISTING ISSUES WILL COMPLICATE NEW SYSTEM

Agriculture Victoria officer Kate Linden said she and her colleagues did have systems in place to assist the saleyards to transition.

But she acknowledged more work needed to be done with saleyards and livestock managers.

Ms Linden is the manager of Meat and Wool Extension Services for Agriculture Victoria.

She said saleyards were more likely to be inhibited by existing problems that existed in livestock sales.

She referred in particular to producers failing to keep accurate national vendor declaration (NDV) forms, which document the movement of livestock in Australia.

"The big challenge is not actually scanning and moving sheep, the big challenge is actually managing the data," she said.

Ms Linden said NDV forms would still be an important part of the new EID system.

"They are a legal document and they are a statutory declaration," she said.

"The onus is on a producer to fill that out correctly, and they're not meeting their legal requirements if they don't fill them out correctly."

Agriculture Victoria will continue EID producer workshops until mid-December.

Farmers & Growers

Combined results for all auctions Emissions Reduction Fund

Released 24 November 2016

Graphic by Clean Energy Regulator. All rights reserved. No part of this graphic may be reproduced without the written permission of the Clean Energy Regulator.

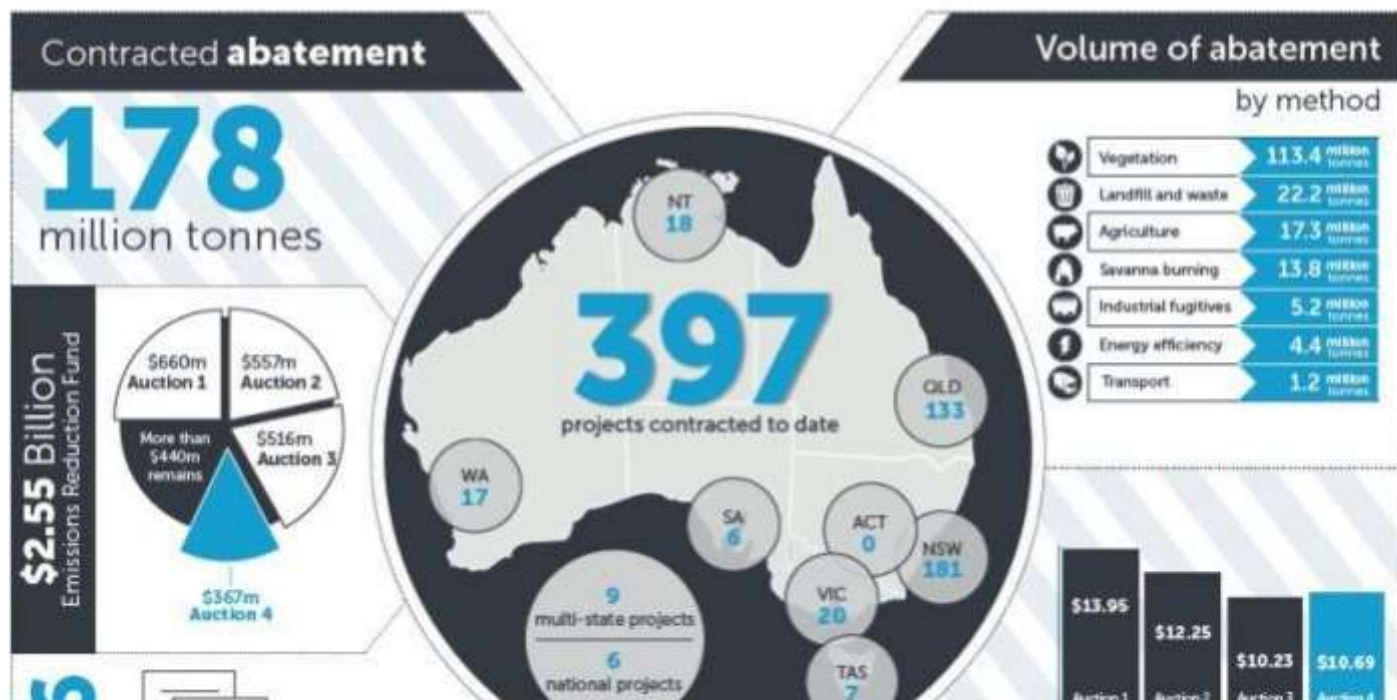


Photo: A graph of the all the auctions to date from the Emissions Reduction Fund. (Supplied: Clean Energy Regulator)

The Government's flagship direct action climate policy replaced the carbon tax, which was repealed by the Coalition in 2014. At its core is the Emissions Reduction Fund (ERF), which is designed to do the heavy lifting in reducing Australia's emissions. Comprised of \$2.5 billion of taxpayers' money, the ERF will directly pay polluters not to pollute and, among other things, encourage farmers to develop carbon sinks.

'Massive frustration' among country internet users in sights of new lobby group

By consumer affairs reporter [Amy Bainbridge](#) 30 Nov 2016



In a desperate bid to fight the "data drought" in the bush, farmers and rural groups are joining forces with consumer advocates.

KEY POINTS:

Members of the coalition say poor coverage is impacting lives and work

They want the universal service obligation for telephone services extended to the internet

In 2015-16, more than a quarter of new telco customers were people in the country

The new Regional, Rural and Remote communications coalition comes as [complaints to the ombudsman surge outside the capital cities](#).

Their biggest gripes are internet drop outs, low data allowances,

slow speeds, and poor National Broadband Network (NBN) connections.

The coalition of 14 groups being launched today includes the Australian Communications Consumer Action Network (ACCAN), the National Farmers' Federation (NFF) and the Isolated Children's Parents' Association.

ACCAN chief executive Teresa Corbin said there was a "massive level of frustration" in rural and regional areas.

"Every day people struggle to get the connectivity they need and the amount of data they need," she told the ABC.

"It's not just for entertainment and fun, it's to actually live and work.

"They can't get plans that allow for enough on-peak and off-peak data, so people are staying up late into the night to do their banking and to upload their children's homework."

The group has five priorities for consumers and small businesses outside capital cities, including legislative change so there is a universal service obligation (USO) to provide data to all households and businesses.

Under current laws, only standard telephone services are required to be supplied to all people across Australia.

"Ultimately, we want the universal service to cover standard telephone services and the internet," Ms Corbin said.

"We also want the standards that hang off that service that relate to customer service guarantees and reliability to ensure that they're actually across the board and that they make the providers and the NBN accountable."

'2017 HAS TO BE THE YEAR TO END THE DATA DROUGHT'WEIGHTED DELIVERY OF NBN SKY MUSTER A PRIORITY

Other coalition members include the Broadband for the Bush Alliance, NSW Farmers, Cotton Australia, the Country Women's Association of NSW, Better Internet for Rural, Regional & Remote Australia, AgForce Queensland, GrainGrowers, the Northern Territory Cattleman's Association, the Victorian Farmers Federation, Rice Growers of Australia and the Australian Forest Products Association.

Farmers & Growers

Honeybee industry calls for more work to protect Australian bees from varroa destructor mite invasion

ABC Rural By [Sarina Locke](#) 25 Nov 2016



The Australian honeybee industry is concerned pests will get past Australia's border surveillance, saying the situation is like a game of soccer without a goalie. "In the end, if you get past that, what's your next line?" Honeybee Council chief executive Trevor Weatherhead asked.

Honey products are worth \$90 million per year, and pollination services are worth between \$620 million and \$1 billion a year.

Australia is the last major honey-producing country without the varroa destructor mite.

The Standing Committee on Agriculture and Water Resources has heard the industry wants hundreds more detection traps, despite the \$1,000 price tag.

"We have 20 in Australia but only in Queensland," Honeybee Industry Council chairman Lindsay Bourke said.

"They are first-hand alert systems, we need to have them. Plant health are monitoring the cameras, they are up on the screen," he said.

"But if they get into a sentinel hive, it's far too late."

PROBLEM NEEDS TO BE TACKLED BEFORE MITE ARRIVES

The CSIRO has reported 84 ports around Australia are vulnerable.

Mr Bourke said New Zealand had the varroa destructor mite for two years before it knew what it was, by which time it was too late.

"A sentinel hive is a hive of bees that defend any other bees from getting into the bee colony, but they didn't work for New Zealand," he said.

"They're there to let us know when it's too late and we've got it. We've got to do something more immediate."

Asked about the state of the industry, Mr Bourke said beekeepers were an ageing population, but there was good money in pollinating services.

"Myself, I can earn \$500,000 this year pollinating crops, many crops, working every day, with carrots, or almond orchards," he said.

BEE SMUGGLERS POSE A THREAT

But Mr Bourke said there was a shortage of bees.

The risk to European honeybees comes from the varroa destructor mite and the viruses it carries, such as the deformed wing virus.

The committee heard Horticulture Innovation Australia had collated \$17 million worth of investments to manage European honey bees, improve pollination and identify alternative pollinators.

But there are also threats from smugglers, bee breeders seeking to bypass lengthy quarantine to bring in livestock free of chalk brood disease or resistant to the varroa mite.

"There's work overseas to breed a bee resistant to varroa ... and that's the incentive to smuggle them," Mr Weatherhead said.

"We had the importation protocol for queen bees. They just didn't want to go through that."

"There was a famous one — bees were brought in through the post, and the others were smuggled in in boxes, pens."

DEPARTMENT SAYS IT IS SURVEYING FOR PESTS

Mr Weatherhead said monitoring for Asian honeybees and the recent less lethal varroa mite *Jacobsonii* was thorough, with surveillance tracing back to hives, but it was not enough.

"My concern is concentration on the borders. It's like a soccer game without a goal keeper," he said.

But the Department of Agriculture said it was surveying for bee pests in neighbouring countries Timor Leste, Solomon Islands and Papua New Guinea.

Plant Health Australia's Greg Fraser disputes not enough was being

done, telling the committee about the bee inspectors in every state, and data from all the monitoring.

"The two programs, the sentinel program and bee biosecurity program, are about a \$10m investment over the next few years," he said.

"That's about all those people, Research and Development Corporations (horticulture, rural industries and grain), all trying to improve the chances of picking up varroa at the border or just after the border, but also the training in what to do," he said.

"We have a lot of learning from New Zealand. There's a massive amount going on at the moment, which is actually quite positive."

Coal seam gas mining costs farmers millions, CSIRO study finds

By Anna Gibbs 16 Dec 2016

KEY POINTS:

- Sample area averages a loss of \$2.17 million over 20 years
- Biggest cause of losses to agricultural production from gas industry access tracks, lease areas
- Peak body says industry has brought benefits for farmers in many cases

According to the model used by the CSIRO, a sample area averaged a loss of \$2.17 million over 20 years when CSG mining activity was present.

The study, to be published in Land Use Policy at the end of December, measured the losses to productive land under 24 different scenarios.

It found the biggest cause of losses to agricultural production was from gas industry access tracks and lease areas.

Study author Dr Oswald Marinoni said he hoped the model would be used to influence future practice of the CSG industry.

"Coal seam gas mining is a multi-faceted research area, and it requires critical research as it is a new, rapidly expanding industry," Dr Marinoni said.

Environmental group Lock the Gate Alliance welcomed the study, but said the true losses to landholders went deeper.

"This study has estimated the costs and the impacts to the footprint on the land — but doesn't take into account a range of complexities associated with CSG mining," national coordinator Phillip Laird said.

Dr Marinoni acknowledged that more research was needed on CSG impacts.

"This model does not assess the impact to groundwater, greenhouse gas emissions, or socioeconomic impacts," he said.

The Australian Petroleum Production and Exploration Association (APPEA), the country's peak body representing the industry, said CSG companies owned some of the land that was used in the study.

"The study area includes several farms but it's important to note the area also covers treatment plants, lay down areas, camps, etc, on company owned land," APPEA's chief executive Dr Malcolm Roberts said.

Dr Roberts said the CSIRO study was useful research, but warned it should not be misrepresented by environmental activists or lawyers wanting to sell their services.

"The CSIRO research in no way suggests landholders in the study area are not adequately compensated," he said.

"It is worth noting that gas companies have paid more than \$238 million in compensation to Queensland landholders over the past five years."

Dr Roberts said the industry had brought benefits for farmers in many cases.

"Farmers gain a stable source of drought-proof income, access to new sources of water for irrigation and livestock, improved roads," he said.

Farmers & Growers



Photo: There are more than 5,000 active CSG wells in Queensland.

COMPENSATION DOESN'T MATCH ECONOMIC MODELLING

But Mr Laird said he "very much doubts" the compensation paid back to landowners came close to the \$2.17 million figure assessed in the study. "Changes in farm amenity, vehicular traffic, disrupting GPS signals, farm management, land values, erosion, changes in water flows and biosecurity changes are impacts caused by CSG not considered in the model," Mr Laird said.

Shine Lawyers' Peter Shannon represents many landholders in CSG mining cases.

He said the standard Conduct and Compensation Agreement between the CSG companies and farmers was a "classic commercial negotiation".

"In that negotiation, the mining companies are looking at what the court would do — that is, assessing the value of the land before and after the CSG mining," he said.

"It's a commercial code of conduct, there is no regulatory guidelines which the industry has to abide by.

"There is no clear code of conduct or provision, nor are they easily held to account in the negotiation context."

Mr Shannon said a farmer has no knowledge of what they are walking into when they are signing a Conduct and Compensation Agreement.

"We can only deal with the short-term known impacts, that's one of the difficulties assessing compensation," he said.

"There's a significant imbalance between knowledge and understanding, and if landholders don't get good representation they are taken advantage of."

LANDOWNERS CONCERNED ABOUT REGULATIONS

There are more than 5,000 active CSG wells in Queensland, with estimates that will approach 20,000 wells by 2030.

Dr Marinoni said his study was conducted in response to landholders' concerns about unconventional gas mining on their land.

"Communities and landowners were worried about regulations for such a new industry, so we focused our research on the economic impacts to the land," he said,

The authors of the study stressed that the estimated losses to gross revenues must not be equated to compensation payments.

"Compensation will have to account for a whole range of additional impacts of CSG on farming operations."

Women have 'better eye' says trainer taking dog trapping course

NSW Country Hour By [Sally Bryant](#) 19 Dec 2016

A previously untapped workforce is being drafted as trappers to fight the growing problem of wild dog predation on Australian livestock.

A recent two-day dog trapping training course at Gumbooka Station near Bourke, in far western NSW, was targeted specifically at women to give them the skills and confidence to trap wild dogs. Rangelands graziers, like many, are operating with far fewer full-time staff than in previous years, with many run by married couples with no permanent additional help.

As the problem of dog predation has grown in recent years, dog control has become just one more job that needs to be done and now more women are keen to take on that work.

USING MULTIPLE TOOLS TO STAY ON TOP OF PREDATION

The course was organised and hosted by grazier Liarne Mannix who said she and her husband Ben had been very proactive in addressing the problem they had with wild dogs.

"The situation here at Gumbooka is better than it was — touch wood," she said.

"We are suspicious there is something going on at the moment in one area, and we are working on that with multiple tools to get on top of it.

"Ben caught a big dog here in May, [which] had caused a lot of damage before we trapped him."

Ms Mannix said she and her husband did not rely on just one method to fight back against wild dog predation.

"We use a variety of tools; we trap and we have cameras to keep an eye on what is going on," she said.

"And now we have three wild donkeys on the place as well, as companion animals against the wild dogs.

"I think I laughed when I first heard of people using donkeys, but now I'm happy to eat my words.

"It's all about building a suite of tools that help you beat the dogs."

COURSE ORGANISED TO ENCOURAGE WOMEN

She said the impetus for an all-female training course arose from a conversation she had with trapper and trainer Paul Billsborough.

"We just looked at it and thought, 'the need is there', let's just do this," she said.

"So we have gone ahead and done it off our own bat, and Paul is doing it out of goodwill."

Trainer Mr Billsborough said he believed the women of western New South Wales were an untapped resource that could tip the balance in a battle that is causing hardship and grief to landowners.

"The aim of this training is to actually give them a base knowledge," he said.

"A lot of the women see the men suffering and the men are so busy doing lots and lots of other stuff that they don't do this well.

"I believe that a lot of women would make good trappers because they have a better eye.

"You need to be neat, you need to be tidy, you need to be clean — a lot of guys just aren't like that."

KEEN TO LEARN TRAPPING

The women who have gathered at this workshop were keen to learn.

Clare Robson said she had no previous experience in trapping, but was confident the two-day course would give her a solid foundation.

"I'm glad it was a women's only course; that way I could say to my husband 'I'm going to do this'," Ms Robson said.

"Before this course, I had never touched a trap, I had never set a trap, but I reckon I'll be fine with it.

"I'm definitely going to set myself up, get myself a trap bag and see how I go."

Mel Mills travelled from Cobar to join the course; she used to go rabbit trapping with her father, but has not trapped dogs before.

"I'm definitely going to do this. What is failure? If I catch a cat, or a fox then that is a bonus," she said.



Traps are coated in wax to guard against rust and have their metallic odour masked by the scent of native scrub. (ABC Rural: Sally Bryant)

Read down the columns for continuity

8. WHEN SANDY MITCHELL WON THE LOTTERY

No good ever came of a working man winning the lottery; he can't solve his problems that way. Take the time old Sandy Mitchell won first prize with the only ticket he ever bought in his life. The depression was at its height at the time. A mob of us used to drink at the old Royal Oak Hotel in Benson's Valley. I mean we used to drink there when we had any money—which was seldom.

Old Sandy didn't drink in our school. He was one of those dull fellows who just don't fit into a drinking school, so he drank modestly with the flies. In fact, until he won the lottery, he never had a friend in the world, except his wife, and it was said that she didn't think much of him either.

The school I drank in was as militant a body of men as you would find in any country town, even in the hungry thirties. The system of Capitalism would have been destroyed by us, that's it harsh, class-conscious words and singing 'The Red Flag' would have done the trick.

There was Col MacDougall. Poor old Col had been a member of the I.W.W. in the old days but had gone to seed when it put the shutters up. Then his wife died and this upset him for some reason or other and he took to drink. He finished up yardman at the Grand Hotel.

Then there was Bluey Armfield. Bluey had done a lot of riding over the jumps and had broken every bone in his body at one time or another. There was no horse that he

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wouldn't ride until he became too old and bent, and was refused to sweeping out stables at a stud farm owned by Solomon Solomons, Leviathan bookmaker and punter, on the outskirts of Benson's Valley. The thoroughbreds lived better than the local unemployed.

Then there was Darcy, of course, and Ernie Lyle; Arty MacIntosh, needless to say, and Turas-Around Atkins.

When one or more in the school had money, we could all have an occasional drink and old Bung Manners was generous with credit as publicans go in the hope that the depression would eventually lift. But his hopes were receding and our thirsts rising when, one afternoon, old Sandy Mitchell came into the bar and announced coyly that he had won the lottery—five thousand lovely quid.

Needless to say, we made a bit of a fuss of him. He insisted on shouting and Arty MacIntosh said: 'We'll try to force one down, Sandy.'

We forced down several before the pub shut. Old Sandy was a little wisp of a man with wrinkled skin and a slow sad voice. The fact that his unexpected wealth purchased a welcome in our school instead of drinking Jimmy Wooders' pleased him no end and, anyway, we never had anything against old Sandy, and he wasn't a bad poor old bloke when you got to know him, as it turned out.

We gave Sandy a lot of advice on how to spend the money. The first thing we reckoned he should do was buy a house, but he said he had lived in the old place all his life, and it was good enough for him.

Bluey Armfield advised him strongly to buy a racehorse; a jumper that Bluey would ride in the Grand National at Flemington and we'd all back it and clean up enough to keep us in beer for the rest of our lives. But Old Sandy didn't trust the racing game, so that scheme fell through.

Then Col MacDougall suggested Sandy should make a donation to the Unemployed Workers Movement. Old

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Sandy had been in and out of work for years so he agreed to put in a hundred quid, which he pulled out of his pocket in cash. It turned out that he and his missus had split the five thousand fifty-fifty, and he was carrying his share about with him because he didn't trust banks, and he might have had something there. Col took the ten bricks down to the Unemployed Workers headquarters and gave it to Tom Rogers before his thirst got the better of his principles.

Then Darcy told Sandy some heart-rending stories about families who were just a bit poorer than others in the town and old Sandy distributed another hundred in fives and tens amongst them. Once when old Sandy followed his beaten track to the bar I followed him and advised him to send his four kids to the Melbourne University. This suggestion was debated at length but when Col MacDougall said such a procedure would only make bloody toffs and potential scabs out of them old Sandy decided against my well-meaning suggestion.

Darcy concluded: 'You'd be better off to settle a hundred each on 'em to collect when they're twenty-one and educate themselves.'

This was agreed to and Sandy went to the local lawyer and fixed the matter up all legal (I heard afterwards: he spent the rest of his life trying to get the four hundred quid back).

One way and another old Sandy had spent nearly seven hundred quid by the time the pub shut the next day, which wasn't a bad effort, but he still had eighteen hundred quid in tenners to carry on with.

During the next six weeks we put up the best exhibition of squandering money since the fall of the Roman Empire.

In every man are hidden qualities that only exceptional circumstances can bring out. So it was with Sandy Mitchell. Get a few beers under his belt and he could tell a good yarn and sing old bush songs like a nightingale. Then ten of us

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used to turn up at the Royal each morning and wait for it to open and spend the day there drinking and playing billiards and darts. When we got hungry we went to the fish shop opposite and bought some good fish and chips off Luigi, the Italian, who'd turned up from Melbourne imagining that our taste for his products would somehow be matched by our pockets. After the pub shut we retired to the little room Col had in a boarding house around the corner and annoyed the landlady and the other boarders every night, talking and singing. Sometimes we drank beer, other times champagne to put on side.

All the time, Old Sandy reported how his wife was solving the problem of getting rid of her share. She bought plenty of good tucker and clothes for the kids, household gadgets of every kind, a fur coat, a washing machine, an ice-chest and, for some unknown reason, a grand piano worth over seven hundred quid (we heard afterwards that when the dust fell on it in the old house she threw a bucket of boiling water over it and its insides were never the same after, but old Sandy reckoned that, as no one in the neighbourhood could play, it didn't matter much).

She performed so well as an economist that at the end of a week we calculated that she had spent about fifty quid more than Sandy and he was doing a good job himself.

Yet Sandy was spending his more wisely, or so Arty MacIntosh reckoned, confining his output to liquid refreshments and fish and chips.

At the end of six weeks we discovered that Sandy had only a thousand left and a hasty conference was convened in Col MacDougall's establishment.

'Something has got to be done to halt old Sandy's economic crisis,' Col declared gravely after taking a big swig of Victoria bitter. 'He's down to his last thousand and things is serious.'

Sandy defended his policy. 'The missus has only got four

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He broke into 'The Wild Colonial Boy' with a cracked, squeaky voice and we all joined in.

We wandered over valleys and gulped over plains, but we scorned to live in slavery bound down by iron chains.

By midnight we'd forgotten all about Sandy's severe touch of the shorts.

On the following Saturday night, Col's landlady ordered us and her star boarder out of her respectable place. This outraged our feelings and we departed after telling her that Col didn't think much of the table or conveniences and would shift immediately to the Emma Coffee Palace.

Instead, we headed for Luigi's fish shop and found that worthy in bed. Annoyed, he agreed to let us use the back room as a meeting place. He was fond of a drop of beer and cheerful company and valued our distinguished patronage.

After a week, by the following Sunday evening, we were still there. Old Luigi turned out to be a former Italian socialist who had fled from Mussolini. He left the shop shut and joined in the talk and singing, obliging now and then with a Neapolitan folk song or 'Bandiera Rossa'.

The only fish and chips cooked were fed to us at intervals. Each day, Blucy Armfield and Arty MacIntosh retired to the Royal for fresh supplies of ammunition which they brought back first in sugar bags then in crates to save transport costs. Each night or at any time suitable to a particular individual we took turns to sleep it off in Luigi's bed.

As the week progressed, the school became larger as thirty locals heard of the proceedings and nipped on the front door demanding admission.

Col MacDougall placed stringent conditions on the honour of joining the conference.

'Do you stand for the workers' revolution?' he asked each applicant.

A negative answer brought a push in the face from Darky;

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an affirmative brought a rousing welcome that another worker had seen the light.

By the following Sunday there were twenty-five revolutionaries and about three Christians gathered together. And at half past seven that night, poor old Col MacDougall started to imagine that the booze-up was a meeting of the old I.W.W.

He delivered a long address on the need for education, sabotage and organization, and the evils of the master class. Then he turned to Blucy Armfield and Arty MacIntosh.

'The revolution has arrived,' he announced, and we believed him, at the time. 'It will begin in Benson's Valley. We will occupy the Shire Hall and the police station and spread the revolt throughout the length and breadth of Australia. Brothers Armfield and MacIntosh will occupy the police station at eight o'clock tonight. Do you accept this dangerous assignment, brothers?'

'We do,' Blucy and Arty replied in grave chorus.

'And if the minions of the capitalistic state resist, and produce offensive weapons, to wit, batons or revolvers, suppress them by force, take charge of the arsenal, prepare the cells and handcuffs for the capitalists that we will arrest before daybreak.' Old Col was carried away. 'The rest of our army will assemble in order of battle outside this worthy establishment, including our brother from over the seas, and march on the Shire Hall.'

We all staggered out into the street and Blucy and Arty headed off on the mission of poetic justice. The rest of us lined up in military formation under Col's orders and, though the weeks of drinking caused our feet to shuffle and our ranks to wobble, we were ready for the fray.

Satisfied at last that his army was in correct formation, Col led us towards the Shire Hall, but not before he had exhorted us to ask for and give no quarter in the struggle with the exploiters and their lackeys, like Tye, the Shire Secretary and Engineer.

He led us in the singing of 'The Red Flag', but we hadn't proceeded far when the Salvation Army came out of the side street en route to their Sunday night chevoo.

In front of the Salvos marched two lassies in uniform carrying a banner which announced, 'Jesus loves me'. They marched to the beat of a drum and the clash of cymbals.

We marched towards them. Col would not divert his army. Our ranks became jumbled with theirs in the middle of the road. The major in charge of the rival army was none other than Ambler, the grocer, who had handed out the bags of groceries on dole day. At the sight of him, Col MacDougall broke ranks.

'You ought to be ashamed of yourself,' he said aggressively, 'walking with your hat in your hand while these young ladies carry that heavy banner.'

With these words he endeavoured to take one pole of the banner from the Army lass. She was clearly frightened, but resisted valiantly, her religious zeal aroused. Col was determined and, the pending invasion of the Town Hall forgotten, he and Turns-Around Atkins seized the banner. The Salvation Army was in retreat.

When the ranks of the two armies reassembled they were one in formation if not in spirit and marched in the same direction, away from the Shire Hall, with Col and Arty carrying the banner proclaiming that Jesus loved them.

Col MacDougall's revolutionary army was mixed up with the lassies and lads of the Salvation Army. Our men carried out their new role with aplomb but the lads and lassies were afraid except for Darby Munro, who was being brought to the meeting on the promise of a feed and clothing if he announced publicly that he was a sinner of the deepest dye, which he felt he could do without further blemishing his soul with prevarication.

The affluent grocer, in the belief that Jesus definitely didn't love Col and Turns-Around, tried to wrest a pole of

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the banner but Col pushed him aside indignantly and shouted, 'So you want to carry it now that two gentlemen have shown you good manners. You've repented too late of that and all the sins of exploitation and thievery you've committed.'

The entourage proceeded along the middle of Main Street. Col and Turns-Around struck up 'The Red Flag' and not to be outdone we joined in raucously. Ambler ordered the band to strike up a hymn and led the singing of it.

Passers-by stopped and stared in wonder at the strange demonstration as one group of singers shouted to out-do the other.

*Though cowards flinch and traitors sneer,
We'll keep the Red Flag flying here.*

*Onward Christian soldiers marching as to war,
With the Cross of Jesus . . .*

All had sung themselves hoarse by the time the procession reached the Salvation Army Chapel. Col had led us through his whole repertoire of workers' songs including 'The Internationale', while Luigi, after unsuccessfully protesting that we should proceed with our intention of storming the Shire Hall, obliged with 'Bandiera Rosa'.

When we entered the hall, Col and Turns-Around folded the banner with care as if it was a Red Flag and two lassies took it and placed it on the platform behind the table.

We sat down in the back seats, the Salvationists in the front. Ambler, the grocer, mounted the platform with his watch-chain flapping on his big stomach and, though trembling with fright, showed foolhardy courage.

'We will not tolerate a disturbance in the house of God,' he said nervously.

'And we won't tolerate exploiters,' Col MacDougall shouted.

Darby Munro then declaimed on the evils of drink, to be

greeted with groans and catcalls from the back of the hall and hesitant cheers from the front.

Ambler again rose behind the table and said: 'If the workers didn't drink so much they'd have plenty of money,' which was true in Sandy's case even if not in ours.

'The workers'd be all right if you salves weren't pickin' over the boots and clothes you get donated and selling the best of 'em for yourselves,' Darky shouted.

After Ambler had delivered an oration on the evils of gambling and horse-racing in particular, during which Blucy Armfield interjected constantly and bitterly in his high-pitched voice, Col MacDougall came shakily to his feet and said: 'I want to ask a question. Is it a sin to black list a man and stop him from getting employment?' This being a reference to recent attempts to black list Tom Rogers in the town.

The Salvationist flushed, coughed and called for the singing of a hymn which the front seat brigade joined in with gusto.

'Aw, come on. I'll turn around and tell yer: we'll learn nothing here.' Turns-Around turned around. 'Let them turn around and save their souls if they can.'

Quick as a flash and displaying both courage and initiative, one of the Army lasses approached with a collection plate. And old Sandy, apparently moved by the speeches and the singing, put in a handful of tenners. The Salvation Army lass nearly collapsed at his feet but she recovered quickly enough to pull the plate away and flee when Col MacDougall tried to snatch the notes back.

Outside we held a council of war.

Col delivered an address about the evils of organized religion and concluded: 'Let us not be diverted any longer from our tasks. We'll storm the Shire Hall as they stormed the old Bastille.'

Suddenly, he looked around and said: 'Where's Blucy and Arty?'

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'You sent them to capture the police station,' someone reminded him.

'So I did and quite right too; but they might need reinforcements. Come on, men, to the barricades.'

After the long route march to the police station, our thirst had returned and hangovers long frustrated by the hair of the dog that had been biting us day and night for many weeks left us without our earlier morale.

Col, however, entered the police station belligerently and asked By-the-Way Lawton if they had been occupied yet by the revolutionary army of the proletariat.

'I don't know about that,' Lawton said from behind the counter. 'But a couple of drunks came in here and made a scene an hour ago.'

'Where are they now?' Col demanded.

'In a cell, where do you think? And handcuffed too, by the way. They'll get six months for this. They came in here and assaulted me. I arrested them and charged them with assaulting the police, abusive language and with being drunk and disorderly...'

By this time several of us had gathered around Col.

'We demand the release of the political prisoners,' he shouted.

Old Sandy stepped forward with gentle manner and produced a handful of notes. 'I'll put up the bail,' he said.

Sergeant Flaherty came out of a room at the back. 'They won't get any bail tonight. Come back in the morning.'

'You can have fifty for yourself,' Sandy suggested, subtly proffering a fistful of ten-pound notes.

'Get us out of here, for chrissake,' Arty MacIntosh entreated from the cells beyond.

Both limbs of the law looked enviously at the money but the sergeant said: 'Get out of here or we'll put you in, too.'

'They must have put up a valiant fight,' Col said, shaking his head.

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'It is the beginning of wisdom never to argue with a policeman. I can turn around and tell yer that,' Turns-Around Atkins counselled with mock gravity, and after some debate we retreated to the footpath.

'We'll go back to Luigi's and regroup our forces,' Col said, and this met with a chorus of approval—we either had to drink or sleep and had lost interest in the revolution temporarily.

Back at the shop we gathered in the back room and opened a dozen bottles. By midnight we were armed with legs off Luigi's chairs and all was in readiness to release the prisoners. But wiser counsel prevailed when Luigi said: 'Let them have a good sleep up there and we'll bail them out in the morning.'

Next morning, after we'd all had a livener, Col and Sandy and I went to the police station but bail was again refused.

Blucy and Arty, chastened by a night in jail and a hangover, appeared before the Court and got seven days each without the option.

The spree continued to drain Sandy's dwindling resources and his wife kept her head by purchasing a brand new radio set, more expensive clothes, two oil paintings by Arthur Straton and a pianola.

'Where are you putting all this stuff?' the old Godger asked Sandy one day.

'Ah, you can't move in the bloody house. If it weren't for the fun we've had I'd be sorry I ever won Tatts.'

Anyway, by the time Blucy and Arty came out of jail the spree was over, Sandy's money was all spent and things were back to normal.

They were given a martyr's welcome on Sandy's last liver. I met old Sandy years afterwards and he said he had no regrets.

'The Lord giveth and the Lord taketh away,' he said. 'And it was the happiest three months I ever had.'

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The moral of this story is that no good ever came of a man winning the lottery.

Nevertheless, Col MacDougall always said that we were a bit unlucky. He reckons the revolution would have started that night if we hadn't met those bloody Salves.

BRIEF BIOGRAPHY

Frank Hardy was born into a large Roman Catholic family in 1917 and was brought up in Bacchus Marsh, a small town to the west of Melbourne, Victoria. He left school at 13 to work as a fruit-picker, a road-construction work, seaman, grocer and cartoonist. This varied work influenced his political leanings to the left and he joined the Communist Party of Australia in 1939. He enlisted in 1942 and was posted to the Northern Territory. Hardy left the army in 1946 and commenced work as a part-time journalist in Melbourne. It was during this time that he collected the material for *Power Without Glory*, a semi-fictional account of the life of John Wren - a legendary figure on the criminal fringe in the inner Melbourne suburb of Collingwood. Although subsequently accepted as one of the great Australian novels Hardy had difficulty getting his work published and was later sued by Wren's wife over certain allegations about "her" in the book. The trial lasted nine months and was eventually won by Hardy.

Frank Hardy died in Melbourne in 1994.



A Farewell to Ice by Peter Wadhams—Review by Rory Shannon

Our planet is changing. The first photograph of the Earth rising from behind the moon, taken by Apollo 8 astronauts, shows a delicate blue sphere white at both ends. Today, from space the top of the world looks blue. We have created an ocean where there was once an ice sheet.

The poles dictate climate. The Antarctic is a large continent almost centred on the south pole and covered in ice to a great depth. The Arctic on the other hand is ocean, free of land, but for many millions of years it has been covered in sea ice. The Arctic in particular is changing at a very rapid rate, and the consequences will be felt by all of us.

Peter Wadhams' book *A Farewell to Ice* is not just another tome by a scientist on climate change: it is a definitive statement on our future. The future that worries him is not generations away; it will manifest in the current generation.

Peter Wadhams is the UK's most experienced sea ice scientist. He was Director of the Scott Polar Research Institute in Cambridge from 1987 to 1992 and Professor of Ocean Physics at Cambridge University from 1992 to 2015. He has made more than 50 expeditions to the polar regions, working from ice camps, ice breakers and aircraft and in 6 submarine voyages under the north pole.

From this extensive almost 50 years of experience and study he has written 'a report from the Arctic' (the subtitle), which is a comprehensive, clear and easily read transcription of Arctic science in particular and climate change in general. It covers climate history, sea ice science and behaviour, and the feedback systems that are now being unleashed in the Arctic.

Sea ice at the north pole has been crucial for maintaining the stable climate we have experienced during this interglacial period. Now the Arctic is warming faster than any other area of the planet. It is warming far faster than previous predictions. When will the Arctic be free of summer sea ice? Wadhams is clear that the data indicates this will happen in a matter of years, although he is contradicted by scientists who rely on models who say it will be decades away.

Decisions based on models which are clearly contradicted by data are a worry, and Wadhams finds this and a number of other issues in the reports of the IPCC (Intergovernmental Panel on Climate Change) quite disturbing. He sees complacency and a failure to admit to conclusions that are self-evident in the reports. For one, to keep warming to 2 degrees will require more than just stopping carbon dioxide emissions.

Ice cores have given us a clear record of the atmosphere's make-up and temperature, going back 400,000 years. From this we know that the climate has oscillated between lengthy ice ages and shorter warmer periods. There is a very strong relationship we dither over correcting what we have done to the atmosphere. This is not an alarmist throwaway line: if the temperature rises beyond 5 degrees, the agriculture that has underpinned our civilised evolution since the end of the last ice age will not be possible.

between carbon dioxide/methane levels and global temperature. Generally over this period, carbon dioxide levels went from 180 ppm (parts per million) during ice ages to 280 ppm during the warmer interglacials. From this we can calculate the natural climate sensitivity to carbon dioxide.

If we apply that to current emissions, what will ensue when the climate has fully adjusted to the increase? For a carbon dioxide doubling, from 280 ppm to 560 ppm, it indicates a 7.8 degree warming, which means that with the current carbon dioxide concentration of 400 ppm an increase of 3.6 degrees (half the doubling figure) can be expected eventually. This is not what the IPCC indicates. One degree of that warming has been recorded so far. If that scenario is correct, what is happening in the Arctic now is truly scary. As Wadhams details, because of the different positive feedback systems occurring and likely to occur in the Arctic, warming of the climate there will accelerate and possibly cause the release of enormous amounts of methane—a gas that has 20 times the greenhouse effect of carbon dioxide.

Although for the past few years we have not increased our yearly emissions, they have not decreased: the amount of carbon dioxide and other greenhouse gases in the atmosphere is steadily building up. Even if we stick to the more conservative IPCC estimates for possible warming, ceasing to burn fossil fuels now will not be enough to stabilise the temperature rise to a 2 degree increase. The Paris Agreement, while a major step towards that goal, falls a long way short of being able to achieve it.

What this book shows, in no uncertain terms, is that to keep the climate human-friendly we need to urgently act now. This means not just stopping emissions but also taking carbon dioxide out of the air and sequestering it, through a process known as DAC (direct air capture), a form of geoengineering. All other proposals to date for actively intervening to reduce temperatures are solidly debunked by Wadhams.

This book should be read by all who think about what we are doing to the climate. It is a cry from the Arctic to wake up to what is unfolding there and what it means for all of us now. It is time for a global Manhattan Project to invent and develop the technologies that can extract carbon dioxide from the atmosphere. And it is time for all of us to change our ways, for we may well be unleashing a runaway warming of the planet.

While the political-economic debate and procrastination carry on, much of what warming the planet will mean is manifesting now, in wilder weather. There is consensus on trying to limit the rise to 2 degrees because beyond that point weather will become much wilder and more unpredictable. For some scientists, including Wadhams, it raises the issue of whether *Homo sapiens'* experiment with civilisation can survive, if

Farmers & Growers

The last time temperatures were that high was during the Pliocene era, 3 million to 5 million years ago, when the sea level was 25 metres higher than it is now. Since then, the global temperature has declined. An ice age set in about 2.5 million years ago, and the average temperature of the planet continued to slowly decline until the industrial revolution began, around 1750. What is happening now is truly dramatic. We have probably ended the ice age era. A major consequence will be pressure from large numbers of people caught in unviable areas. This is a serious concern in a world which is not handling the current warming very well, as shown in the conflict in Syria. The large movements of people there have been primarily precipitated by a lack of water, caused by continuous drought and exhaustion of ground water leading to overcrowding in the cities suffering the worst atrocities.

Wadhams raises the point of the growing population in this regard, and the precarious state of the world's nuclear attitudes. If conflict escalated to the use of such weapons, just a fraction of the major powers' stockpiles (which are all being upgraded) or the stockpiles being increased by smaller players would cause a nuclear winter with staggering consequences—an equally scary opposite to the warming scenario. We face multiple, entwined civilisation-threatening possibilities that are not getting rational attention from the political leaders of the world.

New Scientist reported in its 26 November 2016 issue that polar ice has hit a record low; temperatures in the Arctic have been 20 degrees higher than the norm for this time of year, with ice

melting rather than forming. Wadhams, with his data-driven conclusions, is on the money: we are up for a wild ride.

Wadhams ends the book with some salient comments on the Paris Agreement:

there is no possibility of getting near 1.5 degrees except with massive use of geoengineering and carbon removal ... There are no plans for immediate actions, and no date set for achieving carbon balance, there is no mention either of aviation, which is a major factor in global warming ... The Paris agreement is a step that should have been taken ten or twenty years ago, and we should by now have moved on to the serious business of really tackling climate change.



Rumen research shows promising reduction in methane emissions and big weight gains in cattle

ABC Rural By [David Claughton](#) 7 Dec 2016



Research into the rumen of cattle has led to some encouraging results using additives to reduce methane emissions and increase weight gain.

The CSIRO trialled a synthetic and a natural compound in the feed of 10 animals in a Queensland research feedlot.

Team leader Ed Charmley said it reduced methane emissions by 30 per cent and increased weight gain in the cattle by 400–500 grams a day.

Lead researcher Gonzalo Martinez said the compounds promoted some bacteria and inhibited others.

"In this short experiment ... one reduced the methane [by] targeting or eliminating the microbe that produced the methane, and another compound promoted another bacteria that used energy that wasn't available in the rumen, so the animal got a daily weight gain," he said.

He said the additives did not affect fermentation in the rumen or the health of the animals.

While Dr Martinez was not prepared to name the synthetic compound used, citing commercial confidentiality, Mr Charmley said the other natural compound was tannin which is a natural extract from tea and other plants.

"A lot of plants have tannins naturally, leucaena for example, and we know it reduces methane."



Photo: [Dr Gonzalo Martinez pitched his research into rumen additives to the audience at the AgCatalyst conference in Sydney.](#)

Essential oils may also provide some natural compounds that could be turned into additives.

"We've always had a bit of a sledgehammer approach to the rumen in the past, we find something that works and we just use it," Mr Charmley said.

"Now we understand how it's working so we can fine-tune things a lot more."

"The challenge, particularly in northern Australia, is how you get these products into the animal because they're out there grazing in large paddocks."

He said they were looking at getting it into the diet through lick blocks or water medication.

Meanwhile, Dr Martinez said the next step was to find compounds that were cheap enough to make them commercially viable.

"Our goal was to prove it and now our next step is finding other compounds to apply on farm situations," he said.

Health Matters

Emergency Response Health Services Meetings

I have been attending meetings in Orbost since the fires of 2014 regarding Emergency Response Health Services with Birgit, Lorelee, Lindsay (shire) and other health service representatives. There have been some great conversations about how best to support our areas in East Gippsland before & after an emergency. The Health Services, Shire and ORH are still working together to initiate a Service response in case of an incident. Information on service availability in specific areas is to be added to local LIMP plans.

Lisa

Wellness Clinic – Delegate MPS

This is a clinic where people come in for procedures or assessments by nursing staff. This includes:

- Wound care
- Blood pressure readings
- Blood sugar readings
- Non-urgent ECG update hours!
- Suture or clip removal
- Other procedures that do not require a doctor.

Wellness Clinic is held on the following days and times Monday-Tuesday-Thursday & Friday 1.00pm—2.00pm

No appointment necessary. Closed Public Holidays. The Delegate MPS will still be open as per usual, so if you have a health concern please come over and be assessed by the nursing staff.

From VicHealth

Very urban-centric but see if there is anything you can use

VicHealth CEO Jerril Rechter said while people sometimes find it challenging to keep New Year's resolutions, there are some easier ways to make changes and get healthy for 2017.

"It's so true that being healthy is easier said than done. People often put a lot of pressure on themselves to stick to New Year's resolutions which can at times seem overwhelming," Ms Rechter said.

"Ensuring a safe, happy, and healthy 2017 for you and your loved ones doesn't have to be a chore.

"Start by making small changes. Setting modest goals with a view to increasing those goals over time, like eating one extra piece of fruit, or walking an extra block each day, can make major differences to our health and wellbeing in the long term. "Setting small, realistic goals helps to make them more achievable and less daunting, which means you're more likely to stick to them."

Kick off 2017 with these easy tips:

1. Start by taking a healthy selfie

Victorians can visit VicHealth's Health Snapshot website (www.healthsnapshot.com.au) to see how their health and wellbeing measures up against the average ratings for the rest of the state and their local community.

The data from the latest VicHealth Indicators Survey, published in November, shines a light on a number of health indicators that can be improved. Victorians can compare their health to the rest of their community and, where possible, make changes to improve their health and wellbeing and prevent chronic disease. For a copy of the VicHealth Indicators Survey visit <https://www.vichealth.vic.gov.au/indicators>.

2. Get app-happy!

Physical activity apps that reward you for exercising and mindfulness apps that support users struggling with anxiety and depression are among the top rated apps in the latest VicHealth Healthy Living Apps Guide. For the second year running, VicHealth worked with Deakin University to review more than 300 health and wellbeing smartphone apps and provide star ratings based on user-friendliness and potential for behaviour

change.

If you need some extra support, check out VicHealth's Healthy Living Apps Guide to see the top rated apps. Visit www.vichealth.vic.gov.au/apps for more information.

3. Look out for your neighbours

Make a promise to keep an eye out for your friends, family and neighbours, especially during the festive season which can be an emotional and stressful time for many, and offer support where you can. Research shows Victorians and those living with a disability feel less safe walking alone during the day and after dark, compared with all Victorians. Social connection is important for strong mental wellbeing. If you're feeling a little isolated, why not volunteer to help a charity – you'll meet new people, and helping someone else can be one of the best ways to help yourself.

4. Avoid sugar coating the truth...and your cereal

Sugar is hidden in so much of the food and drinks Australians consume every day. Make sure you check the sugar content in processed food like cereals, breads, and pasta sauces, and try swapping sugary drinks for water – that includes fruit juices, flavoured milks, cordials and energy drinks. Sugar sweetened beverages are the largest source of sugars in the Australian diet, and they can lead to weight gain and tooth decay. One 600ml sugary drink can contain up to 16 teaspoons of sugar.

If you need a little inspiration to get you going, try swapping to water for 30 days by signing up to VicHealth's H30 Challenge at www.h30challenge.com.au. It's good for your health and your wallet.

5. Show support for gender equality

Everyone can be part of the solution when it comes to gender equality. The VicHealth Indicators Survey revealed one-third of all Victorians show low support for gender equality in relationships and that 44% of men show low support for gender equality, compared to 27% of women. With plenty of women's sport on offer in 2017, including the Women's Big Bash League and the inaugural AFL Women's season, why not head along to a match near you to cheer on our top athletes. It might end up inspiring you to be more active as well!

6. Get dancing in the streets

Get out into the streets, laneways, and gardens of Melbourne's CBD when White Night rolls into town in February, and then in March for the inaugural White Night Ballarat. This year's program features local, national and international artists, with VicHealth presenting a 12-hour dance marathon, Swing City, featuring sounds of big band music from the 30s, 40s and 50s, courtesy of big-band legend John Morrison.

7. Park and walk

You don't have to join a gym to get active. Start with something small like getting off the tram or bus a stop early, or park the car a few blocks away from your destination and walk part of the way. Stand up for 10 minutes at a time when you would usually sit for a prolonged period, or take the stairs instead of the lift or escalator.

8. Veg out

Try creating some new and delicious meals to increase your veggie intake! Victorians are only eating 2.2 serves of vegetables in a usual day, less than half of the recommended 5 serves. Try eating five serves of vegetables a day, as recommended in the national guidelines, and see how much better you feel overall. Fresh, frozen or canned – have fun with new varieties or incorporate a simple twist into tried and true family favourites like adding kidney beans to spaghetti Bolognese or toss plenty of colourful veg like capsicum, carrot, broccoli and eggplant into a stir fry.

Goongerah Tubbut School Christmas Concert

December 16th at Bonang Hall

Another year down, another concert performed enthusiastically by the children of Goongerah-Tubbut School. Sad to say that numbers will be much depleted next year with the Farran children either moving on to secondary home schooling (Bowen) or attending Delegate School full-time. Sage Zion will start high school in Bombala. Tahlia is moving with her Mum to the Wyndham region.

Teachers will remain the same except that Michelle Farran will take her long service leave next year.



We will miss Sage's big smile



Tahlia doesn't really have 3 arms. But she has a great smile.



Jake the Peg (Ben Camp) really does have 3 legs



The

Goongerah Tubbut School Christmas Concert



Some enthusiastic dancing—L-R: Billy, Ben, Kash, Bowen, Dragen, Imogen, Sage, Tahlia and Josie



School Council of 2016. L to R: Sophie, Grace, Lisa (President), Toni and Sapphire. About to lose Grace and Sapph.



L: Ben Cheasley, sound and light man; Middle: Mr Nicolson worked hard all night; R: Santa consults helpers Sue and Kate—'Whose is it?



Concerts and presentations from the past



Clockwise from top:

A royal performance in the early 1980s L-r: Kelly Wornes, Natalie Fry, Persia Roberts and Bran McIlroy

Fred Kleef, School President, giving Jodie Cameron her School Council gift;

Fred wouldn't release Bran's hand. Everyone is laughing but it was quite distressing for Bran

Natalie receives her award;

Jodie and Santa. Unlike the children he brings presents to every year, he doesn't change much.



Local Government News

Food waste message shared at Sustainability Festival

December 5, 2016 East Gippsland Shire Council staff attended the recent Raymond Island Sustainability Festival to talk to patrons about keeping food scraps out of landfill. Household rubbish bins contain on average 35 per cent food waste, and the average Victorian household throws out approximately \$2,200 worth of food each year. When food is thrown into the rubbish and sent to landfill it releases methane. Methane is a greenhouse gas 20 times more potent than carbon dioxide. So not only are Victorians wasting money, they're also contributing to climate change. Simple solutions to keep food out of landfill is to put scraps in the compost or a worm farm, or learn to use leftover food in creative ways.

Council's stall at the festival also informed attendees about recycling. A key message was the cost of building, operating and rehabilitating landfills is expensive. Therefore, everyone has a responsibility for the waste they generate as it impacts on landfill capacity. In East Gippsland, residents throw away over 21,000 tonnes of waste into landfill each year, which costs ratepayers for the management of landfill.

East Gippsland Shire performs well against peers

December 9, 2016

The latest data from East Gippsland Shire Council has been released on the Know Your Council website.

Developed by the Victorian Government, the website shows the community how a council has performed in a wide range of services.

As well as showing a particular council's result, the website displays the average for the state's 79 councils, and a comparison with other councils similar to East Gippsland.

Know Your Council shows statistics from areas such as pools, animal management, food safety, libraries, governance, waste collection, roads, statutory planning and financial performance.

During 2015-16, council's statutory planning unit made 79 per cent of planning application decisions within 60 days. The average for similar councils was 71.70 per cent. The average for all councils was 69.79 per cent.

East Gippsland residents with kerbside waste collection divert more waste from landfill (54 per cent) than similar councils and the state average (both 43 per cent). The cost of garbage bin (red lid) collection (\$53) is also significantly lower than similar councils (\$94) and all councils (\$100). Council outsources waste collection services to a contractor, paying an annual lump sum with CPI increases.

The average rate applied to residential properties is consistent with all other councils. The average residential rate in East Gippsland was \$1522, in similar councils it was \$1574 and for all councils it was \$1524.

Council's Chief Executive Officer Gary Gaffney said Know Your Council said the website will help residents and ratepayers better understand the services council provides for the community and its performance.

"The website aims to be easier to digest than larger performance reports, such as our Annual Report. All local government areas have their own opportunities and challenges. "It is pleasing to see that following changes to our internal processes we've performed strongly in statutory planning turnaround times. Customer service is a top priority and we will continue to identify improvements across the organisation," Mr Gaffney said.

To view East Gippsland Shire Council's data, visit knowyourcouncil.vic.gov.au.

Regional Arts Fund Round 1 2017

Applications open Monday 9 January and close 5.00pm, Tuesday 14 March 2017

The Australian Government's Regional Arts Fund supports sustainable cultural development in regional and remote Australia. In Victoria, the Regional Arts Fund is administered by Regional Arts Victoria according to the objectives and general eligibility determined by the Australian Government.

Find more information about how to apply on our website.

Bendoc



Four small hamlets on the Snowy River Country Trail, Bendoc, Bonang, Goongerah and Tubbut sit in one of the most beautiful corners of Victoria. Take a couple of days and drive the round trip from Orbost or Buchan through the little towns of Goongerah, Bonang, Tubbut and Gelantipy, taking in the spectacular sites of the Snowy River National Park and historic McKillops Bridge. The 255-metre long heritage-listed bridge on the Bonang to Gelantipy Road was built in the 1930s to allow vehicles – and more importantly livestock – to cross the Snowy River on their passage between Victoria and NSW. Named after pioneering squatter George McKillop, who crossed the river here in 1835, the bridge spans a spectacular, deep gorge of the upper Snowy River, near its junction with Deddick River.

The area features some of the most stunning alpine forest and river gorge scenery in the state. Said to be the longest arc-welded steel truss road bridge in the world, the McKillops Bridge is regarded as one of the standing wonders of Australian road-bridge engineering. The bridge also is one of the few places in the park with access to the Snowy River by conventional vehicle making it a popular launching place for experienced canoeists who wish to explore downstream.

For further information or brochures visit our local Visitor Information Centres online or call in.

www.visiteastgippsland.com.au

Thought you would be interested in the Shire's new web site's entry for our area. So much that we value is left out. I rang Stephen Kleinitz and said that our community would like to expand on the information, providing links to other sites such as national parks. The proviso is that we do not end up with more words, a hard task indeed. Take a look for yourself and any suggestions for inclusion, contact me. Deb

SOME SMALL GARDEN CREATURES

Susan Tocchini

Here is a little of the material that I present at the local primary school in an attempt to have children appreciate that invertebrates are a very interesting group of creatures and that most are not pests but perform functions that contribute to human welfare. I do this by presenting pairs of animals that are visually similar and then discussing their behaviours in order to determine if they are 'Friend' or 'Foe'.

When the life history of these animals is closely observed it usually becomes impossible to give a definitive black and white answer. We usually get to the point that some of the things they do are harmful and some are beneficial and that even the presence of some represent a vital food source for other desirable species. In this way the concept of the food web is introduced. A factor in coming to a conclusion is the population numbers relative to the other organisms and another that influences the final decision is the human aims in the garden at the time e.g a bit of leaf damage on a snowpea plant will not affect the harvest of the edible parts. Another example is that a hole in silverbeet leaf will not be noticed when it is cooked and is acceptable if caused by a grasshopper but not if caused by slugs or snails due to contamination with their mucous trails.

A good example is the pairing exercise is that of the ladybird (*Harmonia conformis*) and the pumpkin beetle (*Aulacophora hilaris*).



The carnivorous lady bird is unequivocally good news because in both the Nymph and adult stage it eats aphids but it cannot survive if there are no aphids in the garden. It lays also its eggs on leaves providing food for a range of other insects.



On the other hand, the pumpkin beetle eats the leaves as it is vegetarian. Added to that it lays its eggs in the soil and its nymphs feed on the roots which can reduce water and nutrient uptake. It will attack any of the cucurbits (melons, cucumber etc.)

If the numbers of this leaf eater are low then a vigorous plant like a pumpkin can tolerate some leaf and root loss. Since our human interest is the pumpkin fruit, which is not directly damaged, we act only if the infestation is severe.



Harlequin bug (*Dindymus versicolor*) is commonly called pumpkin beetle here in Delegate which is odd since it is most likely found on mallows especially hollyhocks. It is omnivorous but most damage is caused by its habit of sucking sap from tender plant parts especially flower buds.



Common names can cause a lot of confusion but what is more troubling is the increasing use of slang terms because so much implied information is lost. It is common now to use the American term 'bug' to encompass anything from viruses, bacteria to flying insects. The term 'Bug' correctly refers to an insect that sucks sap such as the citrus bug or green vegetable bug. I find it particularly sad to hear the young children, for example, drop 'ladybird' and use 'ladybug'. This simultaneously demotes its flying ability and its special attributes as a carnivore.

Some of the other pairings we use are the introduced Grey slug which eats leaves and the Leopard slug that cleans up algae (and occasionally dog food). We look at the honeybee and European wasp. Another is the leaf and root eating Christmas beetle and its tiny cousin the pollinator beetle seen in large numbers on white flowers (think of its positive services to Eucalypts). A favourite in class is the centipede (carnivorous) and the Portuguese millipede (vegetarian).

Annoy Monsanto and save some bees. Use this instead of Roundup and Neonicotinoids.

Weed-Be-Gone

1 gallon vinegar

2 cups Epsom Salt

1/4 cup Dawn dish detergent

Mix and spray on weeds in the morning, after dew has evaporated. Works better, is cheaper, okay for the environment.

Janis Ian

December 2016-January 2017

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
25 Merry Christmas Everyone	26	27	28	29	30	31 Delegate Hotel—Mis Fix, lolly drop, BBQ, street closure
January 1 Happy New Year Weirewa Bush Bash	2	3	4	5	6	7
8	9	10	11	12 Library bus at Bendoc and Delegate River	13	14
15	16	17	18	19	20	21 Working bee at TNH; films; barbecue, bring some food to share 10 am till whenever
22 Bega Lions Market Bega Showgrounds	23	24	25	26 Australia Day	27	28
29	30	31	February 1 TNH reopens School resumes at Goongerah	2	3	4