

# A GOOD WEED



Newsletter of the Weed Society of New South Wales Inc.

ISSN 2203-0360

## Summer / Autumn 2019



*Geranium molle* (Cranesbill or Dove's-Foot Geranium), a weed of lawns, gardens, pastures and crops in eastern parts of NSW. It has tiny flowers with 5 well notched pink petals. Image: Bec Miller

### Featured stories in this edition

- ◆ **Alternatives to conventional herbicides**
- ◆ **NSW Biosecurity Taskforce promotion**
- ◆ **Weed Hygiene Station—project summary**
- ◆ **NSW Weed Society awards—reminder**

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*The opinions expressed in both publications by contributors are not necessarily those of the Executive Committee of The Weed Society of New South Wales Inc.*



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## Office Bearers for 2019

### *President*

**Kim Hignell (Lake Macquarie)**

### *Vice President*

**Hillary Cherry (Forestville)**

### *Acting Secretary*

**Maria Edmonds (Cessnock)**

### *Treasurer*

**Doug Campbell (Scone)**

### *Newsletter Editor*

**Tony Cook (Tamworth)**

### *Assistant Newsletter Editor*

**Hanwen Wu (Wagga Wagga)**

### *Other Committee Members*

**Birgitte Verbeek (Albury)**

**Troy Brown (Grafton)**

**Paul Marynissen (Central Coast)**

**Andrew McConnachie (Orange)**

**Michael Walsh (Narrabri)**

**Terry Bignell (Maitland)**

## Editor's note

Welcome. This edition combines both Summer and Autumn news. As you can see it has more content due to the backlog of information. If you have anything noteworthy for inclusion into the next edition, please contact me.

## PRESIDENTS REPORT

### KIM HIGNELL

It's the end of June already, and the year is moving very quickly for many of us who are time poor with workloads continuously increasing, mine included.

Planning is well underway for the 20th NSW Biennial Weeds Conference to be held in Newcastle 26 – 29 August with the major theme being “City Country Coast – Putting the WE in Weeds”. There will be the Buerckner, Stephenson and NSW Industry Awards to be presented at the Conference dinner, so nominate someone who you believe deserves to win one of them. The entry forms are available at the conference website at <https://www.nswweedsconf.org.au/awards>. Remember, if you are a member of the Society and have paid your renewal, you would have an opportunity to use the members discount of \$100 when registering for the Conference.

Membership renewals have now been sent out but if you haven't received your invoice please contact our Treasurer at [treasurer@nswweedsoc.org.au](mailto:treasurer@nswweedsoc.org.au).

Thank you to all our members who have paid their membership renewal so quickly. This year we have had more than 50% of our members that have paid within the 21 days of payment due. All members who are overdue for 1 years at the end of December, have lost the right to receive the newsletters and on the 1st July of the second year are removed as members of the Society. All membership renewals are now overdue.

I would also like to welcome all our new members to the Society and are pleased that you have chosen our Society as a source for your professional and personal growth. The Society hopes that you will take advantage of the benefits that come with your membership and are able to use the Society as both a forum for the exchange of innovative ideas and as a resource for current developments in weed research and management.

We now have a new Treasurer to the Executive Committee. Please welcome Doug Campbell to the

position. Doug has been on the Committee for around 4 years and has lots of experience in the financial area within Weeds of the Hunter Region.

Last but not least, the Society has received a donation from the family of the Late Kelvin Green. Kelvin always enjoyed the camaraderie of the Weed Society and his family wishes the Society well in continuing our work into the future. The donation of \$600 comes from the sale of Kelvins residual stamp collection, which was sorted into a sellable package for the Green family by Neil Burn. The committee will be looking closely at the best way to utilise this wonderful donation in Kelvins name. Watch this space.

Happy weeding  
Kim







**GET THOSE NOMINATIONS IN FOR  
OUR GENEROUS AWARDS**

**TIME IS RUNNING OUT -  
nominations for the NSW  
Buerckner & Stephenson  
Local Government and the  
NSW Weed Industry Weed  
Professional Awards closes  
on the 30 June 2019.**

The Weed Society of NSW will soon be calling for nominations for the NSW Buerckner & Stephenson Local Government Weed Professional Awards and the NSW Weed Industry Award. The Awards will be presented at the 20<sup>th</sup> NSW Biennial Weeds Conference, which will be held in Newcastle from 26 to 29<sup>th</sup> August 2019.

The Awards acknowledge the work of NSW Government, NSW Local Government and Community Weeds Professionals for their outstanding contribution towards protecting NSW from the impacts of weeds.

There will be three categories in this year's Award:  
The **Buerckner Award** – for outstanding contribution to the on the ground control of weeds in NSW.

The **Stephenson Award** – for outstanding contribution to planning and managing weed management programs in NSW.

The **NSW Weed Industry Award** - For outstanding contribution to weed management in NSW

Nomination forms for each Award from The Weeds Society of NSW Inc. website at <http://nswweedsoc.org.au>

**KINDLY SUPPORTED BY:**



**PRIZE**

Winners of these awards will each receive a presentation medal and a perpetual trophy to enjoy for the next two years. For the NSW Buerckner & Stephenson Awards, the Weed Society of NSW and The NSW Weeds Officers Association have each generously donated \$500.00 to each winner\* to be used towards travel costs to attend the 21<sup>st</sup> NSW Biennial Weeds Conference in 2021 or the 22<sup>nd</sup> Australasian Weeds Conference in Adelaide in 2020. For the NSW Weed Industry Award, the Weed Society of NSW has donated \$500.00 to the winner\* to be used towards travel costs to attend upcoming conference (state or national based conferences)

*\*To claim the \$500 prize of the donating Society, the winner -*

*Must be a current financial member of the donating Society (The NSW Weeds Officers Association or The Weed Society of New South Wales Inc), and has continuously been a financial member for more than one year.*

*The total prize to each winner is \$1,000 if the winners are a member of both organisations.*

*The winner must gain their employer's approval to attend the conference. If the employer does not grant approval the money may be used towards training costs.*

*To apply for membership to the NSW Weeds Officers Association contact Mel Wilkerson on (02)69412547 or email [ranger@snowyvalleys.nsw.gov.au](mailto:ranger@snowyvalleys.nsw.gov.au)*

*To apply for membership to The Weeds Society of NSW Inc. visit <http://nswweedsoc.org.au> or contact the Secretary by emailing to – [secretary@nswweedsoc.org.au](mailto:secretary@nswweedsoc.org.au)*



# CONFERENCE PHOTO COMPETITION

The Hunter Regional Weeds Committee on behalf of the Weed Society of NSW will be holding a photo competition for the 20th NSW Biennial Weeds Conference being held on the 26-29 August at Newcastle.

**Closing Date is 15th August**

Photo competition subject topics are “Weed Management” and “Weed Identification”. The contest is open to Conference delegates only.

## Weed Management

One or two photos which explains the management of weeds in any landscape. Landscapes do not have to be in a ‘natural area’ to be considered for inclusion in this competition. Photographs, which capture the abilities of weeds that grow in unusual areas, will qualify.

## Weed Identification

A group of three to five photos that clearly show the identification of a weed. Each group should be a minimum of three photos which includes one photo of entire weed, one photo of the leaf and one photo of the flower, or other distinct identifying feature of the plant.

## How to Enter

Please submit your entry by email to [nswweeds@abercrombiemanagement.com.au](mailto:nswweeds@abercrombiemanagement.com.au) before the closing date of 15th August 2019. Each delegate may submit up to three submissions for the contest. Photographs .jpeg, .jpg or PDF format, and no larger than 6 MB, should be submitted along with the following accompanying information:

*Name and Address of Photographer*

*Topic : Weed Management or Weed Identification*

*Year photo was taken*

*Botanical name and common name of species*

*Description of photo/s (including the number of photos per submission)*



**2017 Winner for Weed Management “Alligator Weed Inspections”**  
Image: Lee Amidy

## Winner Selection

At the end of the submission period, the judging panel will review the initial submissions for eligibility. They will judge all eligible submissions on the follow criteria:

*The subject as it relates to the subject topic (20%)*

*Picture composition (30%)*

*Light exposure and contrast with background (30%)*

*Overall appeal (20%)*

## Prize and Certificates

The winners will be announced at the Conference Dinner on Wednesday 28 August 2019. For each category, there will be a 1<sup>st</sup> place, a runner-up and five honourable mentions. Prizes will be given to the 1<sup>st</sup> place, and the runner-up photos in each category. A certificate will be offered to the five honourable mentions in each category.



**2017 Winner for Weed Identification “Frogbit”**

Image:  
Kim Hignell

**FIELD TRIPS**  
**NSW WEEDS CONFERENCE**

**TRIP 1 : MAITLAND**

Discover one of the state’s premier heritage listed sites with a private tour of Maitland Gaol. You’re invited to ‘serve time’ learning about the facility, past prisoners and daring escapes on this unique tour. We then head to Tocal for a tour of the Homestead, the Blackett Barn, Thunderbolt’s Cottage and a range of original outbuildings and yards. The Maitland Team will ensure the tour incorporates their innovative approaches to weed management.



*Tocal homestead*

*Image: [www.nswweedsconf.org.au](http://www.nswweedsconf.org.au)*

**TRIP 2 : NEWCASTLE AND LAKE MACQUARIE**

Explore the key sites of our host city, Newcastle including a RMAX Drone Helicopter demo at one of the city’s most scenic locations, before heading south to the home of the largest permanent salt-water lake in the Southern Hemisphere, Lake Macquarie. We’ll visit the coastal hamlet of Valentine to view a Herbicide trial site before heading to Blackbutt Reserve for a wildlife experience and bush walk. Join the Newcastle and Lake Mac teams for an afternoon exploring their own backyard.



*Lake Macquarie*

*Image: [www.nswweedsconf.org.au](http://www.nswweedsconf.org.au)*

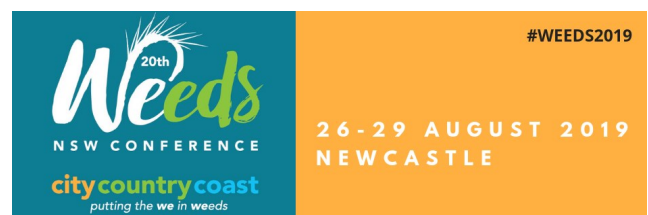
**TRIP 3 : PORT STEPHENS**

Join the team at Port Stephens 4WD Tours on an educational experience through the Stockton Sand Dunes in Port Stephens. Explore the beach on board an air-conditioned 4WD and learn about the history of the dunes, climatic impact and the Stockton Beach ecosystem. At the end of the tour, enjoy Sand-boarding down the largest coastal sand mass in the Southern Hemisphere.



*Stockton sand dunes*

*Image: [www.nswweedsconf.org.au](http://www.nswweedsconf.org.au)*







**TRIP 4 : HUNTER VALLEY**

Explore world-renowned Hunter Valley Wine Country on this field trip for foodies. Learn about the complexities of weed management in a wine-growing environment with a visit to McGuigan’s Wines, taste the fruits of the region while you hear about how weeds can affect the production of milk and cheese then tease your palate further as we conclude the tour at a Hunter chocolate making facility. Numbers are limited so get in quick.



*Time to learn about weeds at a vineyard  
Image: www.nswweedsconf.org.au*

**SOCIAL FUNCTIONS  
NSW WEEDS CONFERENCE**

**WELCOME RECEPTION**

Join us at Newcastle Exhibition and Convention Centre for the first official event of the conference. The Welcome Reception provides a chance to meet up with colleagues, view the conference exhibition and hear from our sponsors. It’s our conference kick-off event and we look forward to seeing you there.



*A Great way to start a conference—welcome reception  
Image: www.nswweedsconf.org.au*

**CONFERENCE DINNER**

The conference dinner will offer some great food, fun and entertainment by renowned Newcastle musician, Jerome. A must attend event so dress up and get ready for a great night.

Please check for all other details not mentioned in this newsletter by visiting the website. There’s a section for frequently asked questions and if you need more assistance please send an email to

[nswweeds@abercrombiemanagement.com.au](mailto:nswweeds@abercrombiemanagement.com.au)



*Entertainment by Jerome—should be a good conference dinner  
Image: youtube*

**BBQ BREAKFAST**

This breakfast will be worth getting up early for! Proudly sponsored by the Hunter Precision Agriculture Team, you’re invited to step back in time and enjoy a bacon & egg roll in the historic setting of Newcastle Station.



*Good way to start the day — BBQ breakfast  
Image: Kim Hignell*



# GET EXCITED BY THE NEXT NSW WEEDS CONFERENCE AT NEWCASTLE

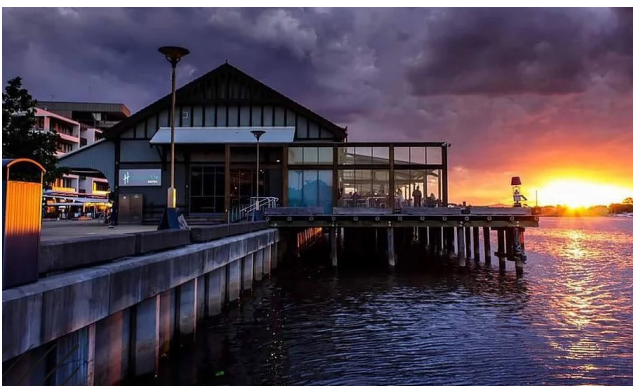
The 20th NSW Weeds Conference is a premier event for NSW weeds officers, researchers, market and industry analysts, government officials and policymakers working towards better weed management across the country. The conference will unite more than 250 weeds management experts in the beautiful beach-side city of Newcastle, Australia.

Weeds are a serious threat to Australia's native flora and fauna and add pressure to our economy. Recent technologies, policies and innovations are helping us manage weeds more effectively - but more work is needed.

This conference provides an opportunity for the NSW weeds management community to showcase new research and ideas for controlling and eradicating weeds. It's a chance to network and build strategic partnerships and invest in a shared vision for our industry's future.

## SOCIAL NETWORK FUNCTION

A NSW Weeds Conference tradition - join us at Newcastle's renowned harbourside watering hole, the Honeysuckle Hotel, for a casual dinner and drink. Catch up with colleagues and make new connections in a fantastic setting.



*This will be a popular venue*  
*Image: www.nswweedsconf.org.au*

## THE VENUE



*The Newcastle Exhibition and Conference Centre*  
*Image: www.nswweedsconf.org.au*

Our conference venue, Newcastle Exhibition and Convention Centre (NEX) is located in the heart of Newcastle within walking distance of local attractions and accommodation.

Address: 309 King Street, Newcastle NSW  
Phone: 02 4926 6211

DATE	WHAT'S ON	TIME
26 AUGUST	REGISTRATION DESK OPEN OPTIONAL WALKING TOUR WELCOME RECEPTION	1300-1700 1500-1630 1800-2000
27 AUGUST	DAY 1 - CONFERENCE SOCIAL NETWORKING FUNCTION	0830-1700 1800-2100
28 AUGUST	DAY 2 - CONFERENCE CONFERENCE DINNER	0900-1630 1900-2300
29 AUGUST	CONFERENCE BREAKFAST DAY 3 CONFERENCE	0800-0930 1000-1600

## CRITICAL DATES

**14 JULY: Speaker registrations close**

**14 JULY: Early bird registrations close**

**25 AUGUST: On line registrations close**

**FOR MORE DETAILS GO TO  
[www.nswweedsconf.org.au](http://www.nswweedsconf.org.au)**





## HOT OFF THE PRESS

### CONFERENCE PROGRAM - DETAILED VERSION (SUBJECT TO CHANGE)

<b>Monday 26<sup>th</sup> August 2019</b>
<b>Conference Registrations Open</b> Upstairs Foyer at Newcastle Exhibition & Convention Centre (NEX) 309 King Street Newcastle West
<b>Intro to Newcastle Walking Tour</b> – Departing from NEX
<b>Iconyx Weedmap Meeting</b> – Vivid Room, NEX
<b>Welcome Reception</b> The Avenue – 1 <sup>st</sup> Floor, NEX

Tuesday 27 <sup>th</sup> August 2019			
Opening Session			
Chair	Brett Miners – LLS & State Weeds Committee		
8:30	Welcome to Country		
8:35	Welcome to the Conference – <b>Lord Mayor Nuatali Nelmes</b>		
8:40	Opening of the Conference – <b>TBC</b>		
9:00	<b>Keynote Speaker – Dr Kristine French</b> – University of Wollongong		
9:30	Plenary Speaker – <b>Dr Andrew McConnachie</b> – DPI Orange		
10:00	Morning Tea and Trade Display		
Mid-Morning Session			
Concurrent Sessions			
	Room - The Extra	Room – The Arena	Room - The Vivid
	Theme - Biocontrol	Theme – We In Weeds	Theme – Risk Management
Chair	Terry Bignell	Ian Turnbull	Wendy Bushell
10:30	<b>Dr Louise Morin</b> Major biological control initiative for environmental weeds in NSW: update and future investments	<b>Richard Carter</b> Innovation In Australian Weed Management	<b>Rod Ensbey</b> Managing Cross Border Priority Weeds
10:50	<b>Troy Brown</b> NSW Weed Biological Control Task-force – collaborating to maintain a functional biocontrol agent delivery pipeline	<b>Stuart Henry</b> Sydney Flower Markets: A Unique Weed In A Sea Of Beauty	<b>Sam Porter</b> Operationalising the NSW WRM
11:10	<b>Jenny Schabel</b> Investigating <i>Opuntia aurantiaca</i> (tiger pear) infestations in Greater Sydney and observations following cochineal biocontrol release	<b>Garry Herbert</b> Illegal Release of Weeds	<b>Dr Matt Sheehan</b> Weed Risk Management – what it can do for you
11:30	<b>Dr Stephen Johnson</b> What is the deal with biological herbicides?	<b>Dr Rajendra Shilpakar</b> Sydney WeedAPP - an example of web GIS to enhance regional scale collaborative weed management	<b>Philip Blackmore</b> Successes and Pitfalls a review of four historical weed incursions with lessons for the future.



11:50	<b>Dr Ben Godden</b> Wandering trad ( <i>Tradescantia fluminensis</i> ): impacts on native vegetation and prospects for fungal bio-control	<b>Dr Matt Sheehan</b> Making the most of mandatory documents	<b>Michael Michelmore</b> Weed risk management for district & property programs and to determine biosecurity duty
12:15	Lunch and Trade Display		
	<b>Mid-Afternoon Session</b>		
Chair	Jordan Skinner		
1:00	Plenary Speaker – <b>Craig Perring</b> - The Nursery & Garden Industry		
1:30	Plenary Speaker – <b>Carmen Castor</b> - University of Newcastle		
1:50	Gold Sponsor – Hunter Local Land Services		
1:55	Hunter Regional Weeds – <b>Lorna Adlem</b> - Stop Weeds at the Gate		
2:10	Afternoon Tea and Trade Display		
	<b>Afternoon Session</b>		
	<b>Concurrent Sessions</b>		
	Room – The Extra	Room – The Arena	
	Theme – Weed Management	Theme – Innovative Weed Control	
Chair	Maria Edmonds	Dean Semit	
2:40	<b>Dr Nicholas Gill</b> Track users' weed hygiene practices and attitudes in Kosciuszko National Park	<b>Gary Leeson</b> Turning Weeds Brown with Green Science	
3:00	<b>Matthew McGrath</b> Weed Hygiene Station	<b>Jeremy Winer</b> Holistic weed control practice for urban storm water catchments. Global trends, methods, limitations and cost benefits	
3:20	<b>Kristen Mallinson</b> Comparison of control techniques for <i>Opuntia aurantiaca</i> (Tiger Pear) in coastal valley grassy woodland	<b>Tony Cook</b> Preventing Woody Weed Spread by Stopping Seed Set	
3:40	<b>Julia Rayment</b> Invasion of Exotic Perennial Grasses into Threatened Ecological Communities in NSW	<b>Amali Welgama</b> How to Control Herbicide Resistant Weeds with Innovative Herbicide Strategies?	
4:00	Sessions End		
4:10	Weed Officers Meeting – The Arena		
6:30	<b>Social Networking Pub Meal</b> Honeysuckle Hotel, Lot 31 Lee Wharf C, Honeysuckle Drive, Newcastle		
	<b>Wednesday 28th August 2019</b>		
	<b>Opening Session</b>		
Chair	Kim Hignell		
8:30	<b>Keynote Speaker – Dr Sarah Richmond</b> - Griffith University		
9:00	Plenary Speaker – <b>Dr Elissa van Oosterhout</b> – DPI Grafton		
9:30	<b>Concurrent Sessions</b>		
	Room – The Extra	Room – The Arena	Room – The Vivid
	Theme – Weed Management	Theme – Alternative Weed Management	Theme – Peri Urban
Chair	Rod Ensby	Lorna Adlem	Eric Pasenow



9:30	<b>Mathew Warren</b> Invasive Pests Control Scheme: a new approach to managing pests at the local government level	<b>Den Barber</b> Yellomundee Firesticks - Aboriginal Cultural Burning of weeds in Shaws Creek Aboriginal Place	<b>Philip Hansen</b> Town vs Country - the Biosecurity Act 2015 in conflict	
9:50	<b>Charles Mifsud</b> Frogbit ( <i>Limnobium laevigatum</i> ) detection and eradication in New South Wales	<b>Dr John Van Der Kallen</b> Novel Technique for Weed Management: Ecopigs	<b>Dave Whiteman</b> Weed Inspections in a Peri-Urban Landscape within the Greater Blue Mountains World Heritage Area	
10:10	<b>Matt Bell</b> A model for effective tenure-blind aquatic weed control	<b>Hillary Cherry</b> Adaptive management and accelerated commitment facilitate NSW Hawkweed Eradication	<b>Lynette McLeod</b> Weed management activities by peri-urban landholders: A state-wide perspective	
10:30	Morning Tea and Trade Display			
From 10:35	Field Trip	Field Trip	Field Trip	Field Trip
	<b>No. 4 Hunter Tour</b> Hunter Valley Boarding 10:35	<b>No.3 Coast Tour</b> Port Stephens Boarding 10:45	<b>No.1 Country Tour</b> Maitland Boarding 10:55	<b>No.2 City Tour</b> Newcastle & Lake Mac Boarding 11:05
4:00	Field Trips Return			
6:00 - 11:00	<b>Conference Dinner</b> The Arena - NEX			
<b>Thursday 29<sup>th</sup> August 2019</b>				
8:00 – 9:30	<b>Breakfast BBQ</b> The Station – Cnr Scott & Watt Sts Newcastle			
10:00	Morning Tea and Trade Display			
<b>Mid-Morning Session</b>				
<b>Concurrent Sessions</b>				
	Room – The Arena		Room – The Extra	
	Theme – We in Weeds - Community Engagement		Theme – Innovations & Technology	
Chair	Terry Inkson		Doug Campbell	
10:20	<b>Jodie Bartlett-Taylor</b> Soft skills doing the hard work		<b>Victor Galea and Peter Riikonen</b> An environmentally sustainable way to control trees and shrubs with encapsulated dry herbicides.	
10:40	<b>Wendy Gibney</b> Increasing community engagement in green cestrum control on rural and urban properties in Maitland LGA		<b>Philip Milling</b> UAVs - Another tool for the urban and rural weed controller	
10:00	<b>Kerrie Guppy</b> Working collaboratively with community groups opposed to herbicides		<b>Dr David Gopurenko</b> Portable DNA diagnostics for onsite identification of Chilean needle grass and serrated tussock	
11:20	<b>Jo-anna Skewes</b> Community Approach to Cactus Control		<b>Lynette Terrett</b> We in Weeds: Using Smart technologies for NSW BIS	
11:40	<b>Mathew Savage</b> Abstract/Hudson Pear ( <i>Cylindropuntia pallida</i> ) management: An integrated approach underpinned by the community		<b>Daniel Firth</b> Advanced Remote Rewind Hose Reel interfaces can reduce chemical waste, improve operator safety and efficiency	
12:00	Lunch and Trade Display			
<b>Mid-Afternoon Session</b>				
<b>Concurrent Sessions</b>				
	Room – The Arena		Room – The Extra	





Chair	<b>Brad Shultz</b>	<b>Leigh Ernst</b>
1:00	<b>Pauline Sykes</b> Martindale Creek Catchment Landcare	<b>Wendy Bushell</b> Control of <i>Gleditsia triacanthos</i> in the Wallamba River
1:20	<b>Bob Doyle</b> Gresford District Landcare – Riparian Weeds	<b>Jyri Kaapro</b> Indaziflam, a new herbicide for industrial vegetation management
1:40	<b>Sita Tiwari</b> Abundance and distribution of weeds in seed banks of vegetable fields of Australia	<b>Warren Braybon</b> Aquatic Surfactant for Addition to Products approved for use in Aquatic Situations
2:00	<b>Carol Harris</b> Management of <i>Nassella neesiana</i> using essential oil products	<b>Tony Cook</b> Blue Heliotrope herbicide research summary
2:20	<b>Dr Gurwinder Singh</b> Conversion of alligator weed into porous activated biocarbons with high surface area for various applications	<b>Alana Trott</b> Investigating the efficacy of Pine oil on natural area weeds
2:40	Afternoon Tea and Trade Display	
	<b>Afternoon Session</b>	
Chair	Birgitte Verbeek	
3:00	<b>The Great Debate</b>	
	<b>Topic: Tenure neutral control successfully puts the We in Weeds</b>	
	The Affirmative	
	The Negative	
4:00	Conference Summary – <b>Sid Lyle</b>	
4:15	Closing of Conference – <b>Dean Semit</b>	
4:20	Conference Closes	



**City of Newcastle**



Contact Us: [nswweeds@abercrombiemanagement.com.au](mailto:nswweeds@abercrombiemanagement.com.au)

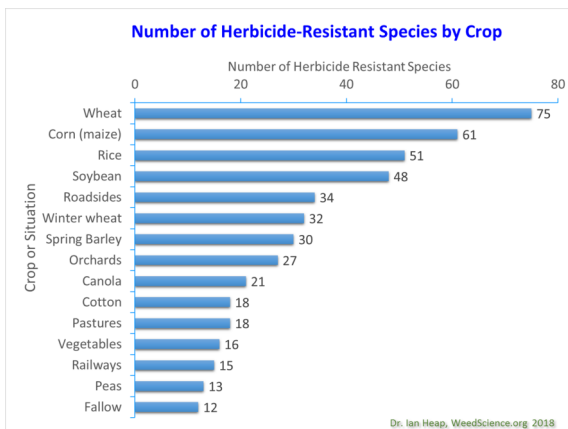
02 4905 0632

**ALTERNATIVES TO SYNTHETIC  
HERBICIDES  
TONY COOK**

**Conventional herbicides - public perceptions take a dive**

Despite the community benefits that herbicides have provided with improved weed control, the perception of conventional herbicides, in the eyes of the public, has taken a few hits. They have heard via all forms of media that compounds like glyphosate may pose a greater threat to health. There have been many cases being won in favour of various plaintiffs for large sums of money, suspecting potential links of glyphosate with cancer.

Herbicide resistant weeds are also reducing the value of some products due to poor control. Herbicide resistance, originally found in cropping paddocks with selective herbicides, is now widespread, affecting many situations (road sides, vineyards, non-crop areas etc). Glyphosate resistance in plants is becoming more common, due to its increased use. There has also been steady increases on resistance to other mode-of-action herbicides over the past 20 years. To rub salt into the wounds, reliance on limited herbicide rotations could also result in species shift and/or selection of tolerant species. For example, there have been steady increases in glyphosate tolerant plants such a Coolatai grass along roadsides, as glyphosate was never 100% effective on this species.



**Worldwide trend for herbicide resistance has affected many situations**

**Image: Weedsience.org**

Adding to these issues is the general trend in the community for organic, ‘purer’ and safer produce. As such, there is likely to be a greater interest in alternative chemical weed control.

**Conventional herbicides - other issues**

Off-target damage, such as desirable plant injury or death is a concern. A common example is the physical drift or movement of herbicides; this can then be deposited onto sensitive crops, animals or environments. Classic examples of this are 2,4-D drift onto cotton crops and the movement via water of diuron into the Great Barrier Reef.



**Spray drift onto cotton: left untreated and right 2,4-D at 0.1% of standard dose rate**  
**Image: Tony Cook**

Some of the older herbicides of the 1960’s to 70’s have left a lingering stigma with the public due to serious health effects. Despite the better regulation and testing standards of our federal regulator, the Australian Pesticides and Veterinary Medicines Authority (APVMA), people often remember Agent Orange and other less user friendly herbicides like arsenic pentoxide. Modern standards have reduced the toxicity of herbicides but really haven’t translated into better perception of modern synthetic herbicides. To make the situation more precarious, a recent World Health Organisation review on glyphosate has not improved the profile of conventional herbicides.

The review of many compounds by our regulators could place more restrictions on their use or could result in loss from the market.

About half the synthetic herbicides have some residual activity. Although this can extend weed control, it could be restrictive to planting other crops and infers environmental persistence.

## Critique of non-conventional herbicides

A move to alternative herbicides does not necessarily mean a complete step away from all these issues. Their introduction as herbicides could have their own list of pros and cons.

But firstly before we investigate this alternative group of herbicides, let's get our definitions set. What constitutes the definition of non-conventional herbicides (chemicals)?

- ◆ Plant based organic herbicides or non-synthetic products.
- ◆ Chemical exudates from plants or other natural organisms that control weed growth eg. allelopathic crop residues or oils.

The definition does not include synthetically made products, derived from natural compounds like diesel or petrol. Generally these are not considered a viable option due to OH&S risks because of flammability issues and wear and tear on seals of spray lines. Diesel mixtures, sump oil creosote type brews were used more frequently in the past to mark playing fields - killing weeds effectively. In modern times, they have been substituted for paint based products that are cheaper and don't leave a furrow (trip risk) like the old style petrochemicals.

For this article – biological control of weeds is not included as some may be applied similar to conventional herbicides and may give the impression they are like a chemical treatment (bio-herbicides).

Alternatives to synthetic herbicides include natural chemicals, such as acids, soaps, oils and salts that can act as contact herbicides. These non-synthetic herbicides are best used as a targeted spray or in non-crop areas because contact can lead to damage of plants in production. It is important to note these products do not kill roots and repeated applications will be necessary for weeds that have the ability to regenerate from their roots.

Acid solutions are believed to cause changes in plant cell pH that result in loss of cell membrane integrity and eventual death, via desiccation.

Similarly, salts of fatty acids (soaps) act by penetrating cells and disrupting cell membranes, ulti-

mately causing desiccation and death. Soaps include pelargonic acid, ammonium nonanoate and potassium salts of fatty acids.

Plant-based oils such as cinnamaldehyde (the primary component of cinnamon) have been used as contact herbicides. Oils are believed to cause disruption of cell membranes. Plant-based oils include clove, eugenol, lemongrass, citrus, thyme and oregano.

Salts such as sodium chloride (table salt) or ammonium chloride can be used to kill plants. They cause dehydration of plant tissue via osmosis. Some combination products mix acetic acid, salt, citrus oil, eugenol, etc.



*Some of the common ingredients that make up the Australian organic herbicide products Image: Tony Cook*

There are a number of registered non-conventional products listed on the Australian Pesticides and Veterinary Medicines Authority (APVMA) website. Using this website <https://portal.apvma.gov.au/pubcris> and typing in active ingredients like sodium chloride, clove oil, d-limonene, acetic acid, pine oil or nonanoic acid will result in finding a wide range of products.

If one would like to check out the advisory and/or sale based websites, there are numerous sites that pop up if you type in search words such as natural herbicides or organic herbicides. They do tend to be rather similar so I found that visiting 5 to 7 sites was enough to give me some variety and differing points of view. Some of these sites are not company based and recommend mixing products that are commonly found around the house. If considering using a natural herbicide, it would be best to use a registered product that has undergone scientific review and shown that the label claims on the label are highly likely to work.

### Label claims

Most of the products have similar label claims, to control small annual weeds and if larger they are





likely to need a repeat spray to control any re-growth (or suppression claims). One product claims to control the viability of seeds. Use patterns are usually for amenity based areas, concrete paths, industrial areas, some horticultural production activities, non-crop areas and pastures. Other unique use patterns are also catered for depending on the product.

Generally the list of annual weeds stated are broad-leaf species and very few grass species. This can be best shown by the majority of before and after images showing effective short term brown-out of broad-leaf species, with reference to Australian based websites. The way these products work, by desiccating the vegetative parts, is by logic not going to kill root systems of perennial plants. For this reason there is barely any label claims for these weeds. Some may claim suppression or effective short term browning of perennials.



**Barnyard grass: decreasing spray rates (salt based herbicide) from left to right. Grasses tend to tolerate desiccant type herbicides better than broad-leaf weeds**  
*Image: Tony Cook*



**Flax-leaf fleabane: increasing weed size at application from left to right. Herbicide used was a salt based product. Sprayed at recommended spray volume. Better control than grasses.** *Image: Tony Cook*

From my brief work with some of these products, I have found them to very fast acting with plants showing symptoms within a few minutes. The best levels of control are seen about 1-3 days after application. They have killed very small glyphosate resistant weeds and appeared to work best on broad-leaf weed species. In summary there could be some niche situations for their use in a broad acre context and could play a role for amenity weed control (edges, non-lawn areas) where public traffic is high. However, if people are accustomed to the ease of use of glyphosate, they need to re-program themselves to treating more regularly with these alternatives and only when weeds are less than 5 cm high or wide (general rule of thumb).



**Flax-leaf fleabane: effect of fast desiccation 1 day after treatment due to salt action. Decreasing spray rates from left to right.** *Image: Tony Cook*

Shifting from conventional herbicides to these alternatives does require some adjustment to expectations with respect to spray application rates. Glyphosate is commonly applied using water boom spray rates between 30 to 150L/ha for broad-acre situations, road sides and other large areas where covering as much ground with limited time is one of the motives. However, these alternative products require very large spray water rates, essentially to drench plants.

This new requirement will make weed control in these areas slower due to spraying time and the need to refill the tank. As such, weed professionals and researchers need to consider novel ways of applying such herbicides to maintain high spray rates whilst covering large areas. There may be some merit to use weed seeking robotic devices to search out light weed infestations and then treat appropriately.



**A robotic weeder was developed for the onion industry and has ability to spray weeds** Image: Onion world

Spot treating weeds in amenity areas, rights-of-way, pastures and around buildings, for example, will not require much transition to using these new alternatives. Although some effort is still required to target smaller weeds, the spraying technique will only need some slight modification to ensure a more thorough spray coverage. Repeat applications are likely if there are grasses or the weeds are larger than label requirements.

## Operator safety

Please do not get complacent with the application of these products. Many products have guidelines for personal safety as most of them have active ingredients that will cause irritation to eyes, throat, nose and skin.

Some examples of safety statements include:

Keep out of reach of children, DO NOT inhale vapour or spray mist, wear cotton overall, hat, PVC gloves and a respirator, wash immediately product on skin or in eyes, etc

Having the words organic and natural on the label could imply that the product is safe. The strong concentrations of salt, acid and oils are logically going to irritate sensitive parts of the body so care must be taken. Please treat these new herbicides like the conventional herbicides and use to safety gear recommended on the label.

## More Research Required

There is an apparent need to get more weed species onto label claims. The list of weeds on the labels seems to be rather limited as “new weeds on the block” like fleabane are not mentioned. To be fair, the companies have little research and development funds compared to the large multi-national companies that can afford a wide array of research.

It would be in their best interests to develop their products to move with the times as there are numerous glyphosate resistant weed species threatening roadsides and in vineyards/orchards. In addition, there are numerous annual weed species that could be added.

For those deciding which alternative products to use, there is little in terms of comparative studies. These comparisons are commonly seen in cropping, pasture and woody weed trials when studying conventional herbicides. It would be good to see these type of comparisons for those wanting to purchase the best product for their situation.

## Allelopathy

By definition, is the production of chemical from a plant that is released into the environment that prevent germination or act as growth inhibitors. Crops such as sorghum rice, wheat and canola are well known for their allelopathic effects. Many native tree species also exhibit this phenomenon, particularly *eucalyptus* species.

The compounds produced by these crops or native species are released into the environment. For crops this can be useful as they need these compounds for some agricultural advantage, suppressing weeds around them. A critical process is to somehow harvest these allelo-chemicals either from crop residues or native species. The reason for this is to use some of these compounds as a commercial treatment. As yet, there are no commercial allelopathic products available. Isolating these compounds, testing them to determine if that have commercial potential is worth investigating.

A story following this describes the work that Hanwen Wu has done trying to isolate some allelopathic compounds from eucalypt species.





## NATIVES NATURAL PEST CONTROL HANWEN WU

NSW Department of Primary Industries (DPI) scientists have taken the cue from a naturally occurring phenomenon to explore the potential of Australian eucalyptus to control major weeds and crop diseases.

DPI principal research scientist, Hanwen Wu, said research has identified eucalyptus essential oils which have the potential to address agrochemical resistance in these pests – one of the biggest challenges farmers face this decade.

“The allelopathic effect of eucalyptus trees, where chemicals they release suppress plant growth in the understorey, is commonly seen in the landscape and we applied a scientific approach to investigate that observation,” Dr Wu said.

“Laboratory tests showed that some eucalyptus oils, from a selection of 40 species, were able to completely suppress fungal growth of three major diseases, wheat yellow leaf spot and crown rot and canola sclerotinia stem rot.

“We screened 300 eucalyptus species on weeds, including annual ryegrass, barley grass, fleabane, silverleaf nightshade and wild radish, to find that even at low concentrations some eucalyptus oils were able to prevent germination and growth of weed seeds.”

Dr Wu said there was huge potential to explore the use of eucalyptus essential oil as a bioherbicide for weed management.

“With rapidly growing herbicide resistance and no new molecules developed in the last 25 years, which could offer new modes of action to control weeds, these naturally occurring oils could be a gift from nature,” he said.

“We now need to find out how these oils work to inhibit weeds and diseases so we can adopt the technology for use in agricultural production and to safeguard the environment.”

Further study of other eucalyptus species, followed by the identification of bioactive compounds, could provide chemical leads for the development of new

herbicides with new modes of action.

An estimated 800 plus eucalyptus species in Australia offer a unique opportunity to manage weeds and crop diseases.

The research was funded by the NSW Government Weeds Action Program 2014-2015, with support from Meat & Livestock Australia and the Graham Centre for Agricultural Innovation – an alliance between DPI and Charles Sturt University.

Source: <https://www.theland.com.au/story/4435766/natives-natural-pest-control/>



*This naturally occurring phenomenon of bare soil and suppressed plant growth in the understorey has inspired NSW Department of Primary Industries (DPI) scientist, Dr Hanwen Wu, to investigate the potential of eucalyptus essential oil to control major weeds and crop diseases. Image: Hanwen Wu*



**CHRIS CURTIS—THE RECIPIENT OF THE NSW WEEDS SOCIETY AWARD**

I own a small 10ha farm near Bungendore NSW, about 30km north of Canberra. My wife and I run a sheep stud breeding Babydoll Southdowns and have a small market garden and sell produce at the weekly Bungendore farmers market.

We bought the property 21 years ago as a subdivision of a larger farm. We spent 10 years planting trees (there were five on the property when we bought it), planning, and owner building a house. We moved into the house in 2008. The house is a passive solar design and needs only occasional heating from a small wood stove. We are off-grid and self sufficient in solar electricity and rainwater supply.

Our approach to farming is principally organic, but we are not adverse to limited, targeted use of herbicides when necessary. We have divided the farm into 15 paddocks, which is quite a few for a small farm. However, this allows us to rotationally grade our small sheep flock and our three alpacas and give paddocks substantial rest periods between grazing. We also use portable electric fencing for more targeted grazing when necessary.

When we bought the farm, a substantial part of it was heavily infested with serrated tussock and there were thick areas of gorse along the creek that is our eastern boundary. We spot sprayed the serrated tussock to knock the bulk of it out, but it is a continuing process. We occasionally spot spray with a backpack but control now is mostly hoeing or hand pulling when we notice new plants appearing. The gorse was treated by a combination of burning, cutting and painting with glyphosate, and bulldozing. The gorse is pretty much gone now. We have the occasional blackberry which we dig out or poison and some emerging patches of Chilean Needle Grass that we are still trying to work out how to deal with. We live in fear of an invasion of African Lovegrass which has taken over Canberra and much of the Monaro but have so far only seen a couple of plants that were quickly pulled out. Weed control in the market garden is all done by cultivation and hand weeding.

I spent many years working as an IT consultant before I joined my wife in her landscape architecture practice. After moving to the farm and starting to grow vegetables on a larger scale I decided in 2014 to start a Bachelor of Horticulture at CSU. I have had a fabulous time learning (including about weed management!) and I completed the degree in January this year. I have now embarked on a BSc (Hons) and am undertaking a research project into growing vegetables in wicking beds. I have retired from paid employment and am enjoying having more time for studying and farming. The progressive results from my research can be found at <https://www.roogulli.com/wicking-beds>.



**Chris Curtis—deserving recipient of the NSW Weeds Society Award**

*Image: Kim Hignell*

**A SINCERE THANK YOU FROM ONE OF OUR MEMBERS  
PETER MCMAUGH**

I am both surprised and deeply grateful for the award of Member of the Order of Australia, granted to me by the Governor General in the Australia Day Honours List 2019.

I see this award as recognition of the Turfgrass Industry and its special role in providing a safe, healthy environment for our survival into the future and of which I have been privileged to be a part.

The citation for this award ‘For significant service to horticulture through the development of Australian Turf Varieties’ acknowledges a small, but very important, part of my career achievement. I have been fortunate to be the right person in the right place at the right time as scientific pioneer in Australia. This has enabled me to have a major



*Peter McMaugh receiving one of many awards  
Image: Sports Turf Association*

influence on the direction and development of the industry over 54 years. During these years as scientific researcher, consultant, Turfgrass breeder, commercial turf producer, educator, and specialist machinery developer, I am the scientist who got his hands dirty at the coal face and learned a great deal in the process.

I would like to say thank you to the many collaborators with whom I have worked over the years. Among them are the greens keepers, farmers, scientists, secretaries and especially my wife, Rae on whom I have relied for help and inspirations. Without them the body of work that has behind this award could not have been achieved.

This honour culminates and complements many others that I have received both in Australia and Internationally. It stimulates me to continue all aspects of my work, which gets more productive and better with time.

My passion for my industry is just as great now at 83 as it was when I started aged 29 in 1964. I hope to deliver yet more goodies for many years to come.

**Below is a list of awards or life memberships that Peter has deserved over his working life**

Year	Award
2000	Australian Sport Medal
2000	Distinguished service award (AGCSA)
2003	Life member TGA of NSW
2004	Honorary member of TPI
2005	Life member NSW GCSA
2005	Greening China award
2009	Graham Gregory award (Horticulture)
2013	Medal of excellence (weed society)
2017	Turf Australia hall of fame
2018	Order of Australia (AM)

(AGCSA) Australian Golf Course Superintendents Association; (TGA) Turf Growers Association; (TPI) Turf Producers International, (GCSA) Golf Course Superintendents Association

## NSW WEED BIOCONTROL TASKFORCE PARTNERSHIP: THE WAY FORWARD KERINNE HARVEY AND TROY BROWN

Weeds cause significant impacts to the Australian economy, environment and community. The agricultural economic impact of weeds in Australia is estimated at \$4.5 billion per year. Costs to the environment are thought to be of a similar magnitude. Several widespread weeds are known to affect human and animal health, while others are detrimental to communities — environmentally, socially and economically. Mitigating these impacts for agriculture, the environment and communities is vitally important.

There is an increasing need to apply self-sustaining weed management technologies. For example, an increasing incidence and geographical spread of herbicide resistance for many weed species in agricultural systems is driving the need for sustainable non-chemical weed control options.

History has shown that biocontrol is one of the most cost effective, self-sustaining management technologies for the control of weeds. Biocontrol is continually under scientific refinement for not only maximising returns on investment, but also maximising safety and impact.



The NSW Biological Control Taskforce (the taskforce) funds and promotes biocontrol research alongside rearing, release, and monitoring programs (implementation activities) through a shared investment commitment. Target weeds are reviewed and selected annually by the Taskforce Steering Committee following a prioritisation framework developed in conjunction with Commonwealth Scientific and Industrial Research Organisation (CSIRO), NSW Department of Primary Industries (NSW DPI), NSW Office of Environment and Heritage (NSW OEH) and the NSW Wales Environmental Trust (The Trust).

The Taskforce comprise of a voluntary collaboration of members from a number of like-minded

agencies responsible for managing weeds. The role of the Taskforce includes: obtaining and facilitating commitment and investment, mass-rearing and establishment of agents, monitoring, training, prioritising agents for action in NSW, and communication of research progress. Bi-annual meetings involve updates, training, field visits and demonstrations.

A key deliverable under the NSW Invasive Species Plan is to “Maintain and expand the NSW weed biocontrol taskforce”. To achieve this, a shared investment model is being implemented in NSW.

The Taskforce originally provided a coordinated approach to promote biocontrol, secure resources to mass rear agents, and provide establishment and monitoring in the field, but was limited geographically and financially. To build capacity across the state the Taskforce is now funding and promoting biocontrol research alongside rearing, release and monitoring programs (implementation activities) through a shared investment commitment.

Biocontrol agents included in the implementation activities have received approval for release from the Australian Federal Government and are reared, released and monitored strategically to achieve the desired result. Current weed species targeted for implementation include salvinia (*Salvinia molesta*), cat’s claw creeper (*Dolichandra unguiscati*), madeira vine (*Anredera cordifolia*), crofton weed (*Ageratina adenophora*), water hyacinth (*Eichhornia crassipes*), smooth tree pear (*Opuntia monacantha*), water lettuce (*Pistia stratiotes*), boxing glove cactus (*Cylindropuntia fulgida* var. *mamillata*) and Hudson pear (*Cylindropuntia rosea*).



**Madiera beetles at different stages of development, agents used by the taskforce** Image: Kerinne Harvey






























**External advisors and corresponding members to the Taskforce include:**

- CSIRO Australia
- Queensland Department of Agriculture Fisheries and Forestry (DAF)
- Department of Primary Industries and Regions, South Australia (PIRSA)
- Meat & Livestock Australia (MLA)
- Agriculture Victoria (DEDJTR).

**Taskforce member resources include:**

- NSW DPI’s insect biocontrol quarantine facility — Orange Agricultural Institute (OAI)
- NSW DPI rearing facilities — OAI and Grafton Primary Industries Institute (GPII)
- Access to Australia’s leading weed biocontrol practitioners.

Benefits	Bronze	Silver	Gold	Platinum
	\$500–\$1000	\$1000–\$5000	\$5000–\$50,000	>\$50,000
Biocontrol agent access				
Regular reports including information on biocontrol status in NSW				
Access to training, information exchange and networking opportunities				
Empowered with knowledge to help communicate and take action against widespread weeds				
Certificate of contribution				
Access to expertise for direct discussions twice per year				
Potential to collaborate with research trials and/or a workshops within regions of interest				
Strategic contribution to programs				
Public recognition of contribution to biocontrol				

Note: Fee-for-service will be negotiable and allocated to an applicable investor category.

New members are encouraged to engage as soon as possible with the NSW Biocontrol Taskforce. Collaboratively, the Taskforce aims to develop cost effective biocontrol solutions to combat weeds.



Department of  
Primary Industries

# NSW Weed Biocontrol Taskforce

A shared investment model to fund weed biological control research and on-ground operations

## Biocontrol of weeds — an overview

- **Herbicide resistance is a major impediment to agricultural productivity and sustainability.**
- **Biocontrol uses natural enemies (e.g. pests and diseases) to manage weeds.**
- **Biocontrol forms an integral part of a successful integrated weed management (IWM) strategy.**
- **Biocontrol is a cost-effective, self-sustaining management technology.**

## Benefits of Taskforce membership

- ✿ Cost-effective access to biocontrol agents and training.
- ✿ Collaboration with renowned weed biological control experts.
- ✿ Access to information and networking opportunities.
- ✿ Formal recognition – certificate of participation.
- ✿ Improved standing and profile within the community.
- ✿ Greater weed management impact.
- ✿ Maximise investment leveraging potential.



Salvinia weevil  
(*Cyrtobagous salviniae*)



Madeira beetle  
(*Plectonycha correntina*)



Jewel beetle  
(*Hylaeogena jureceki*)



Crofton weed rust  
(*Baeodromus eupatorii*)

### FURTHER INFORMATION:

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NSW Department of Primary Industries  
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**E:** troy.brown@dpi.nsw.gov.au

**nswweedbiocontrol**  
TASKFORCE 

**WEED SOCIETY OF NSW FINANCIAL REPORT JUNE 2019****DOUG CAMPBELL****BENDIGO BANK (Statement Account)**

<b>Opening Balance</b>		5/04/2019	\$	<b>13,624.16</b>
<b>Income:</b>				
various	Membership	7 new members	\$	350.00
		6 sponsors	\$	1,800.00
		Memberships Renewals	\$	1,280.00
			\$	<u>3,430.00</u>
			\$	<b>17,054.16</b>
<b>Expenses:</b>				
2/05/2019	Merchant Fees		-\$	20.60
2/06/2019	Merchant Fees		-\$	15.00
9/05/2019	Teleconference	April Meeting	-\$	99.92
30/04/2019	Australia Post		-\$	6.93
11/06/2019	GFAP Pty Ltd	Domain & Webhosting	-\$	462.00
24/05/2019	P MCMaugh	Overpayment of membership	-\$	5.00
			-\$	<u>609.45</u>
<b>Closing Balance</b>		11/06/2019	\$	<b>16,444.71</b>

**COMMONWEALTH BANK**

<b>Opening Balance</b>	\$	-
<b>Closing Balance</b>	\$	-

**SOCIETY ASSETS**

<b>Bendigo Bank Statement Account</b>	\$	<b>16,444.71</b>
<b>Bendigo Term Deposit 2506 (matures 5/07/2019)</b>	\$	<b>21,277.12</b>
<b>Bendigo Term Deposit 2507 (matures 05/11/2019)</b>	\$	<b>21,395.11</b>
<b>Commonwealth Bank Account 1021 2468</b>	\$	-
<b>21AWC Acct. c/- Abercrombie Management</b>	\$	<b>25,000.00</b>

**SOCIETY NET LIABILITIES**

<b>CAWS 21AWC Seed Funding</b>	\$	<b>15,000.00</b>
<b>CFF 21AWC Seed Funding</b>	\$	<b>10,000.00</b>

**Society Net Position** \$ **59,116.94**

Operating Profit/Loss for the period \$ **2,820.55**





## WEEDS CLASH

### NEWSFLASH

### SUE LANNIN

**Roundup found to be ‘Substantial factor’ in causing US man’s cancer (March 20—source [www.abc.net.au](http://www.abc.net.au))**

**Key points:**

A jury has found Roundup caused 70-year-old Edwin Hardeman's non-Hodgkin's lymphoma. Bayer, which owns the company that makes Roundup, says it is confident the evidence in phase two of the case will show it should not be liable. Nufarm, which sells glyphosate herbicides in Australia, has reported a half-year loss.

The unanimous decision in the US District Court in California found Roundup caused 70-year-old Edwin Hardeman to develop non-Hodgkin's lymphoma after he used it for nearly 30 years to control weeds on his property. However, the case now moves to a second stage, which will determine liability and damages.

Bayer, the owner of Monsanto, which makes Roundup, said in a statement that it was disappointed with the jury's initial decision. "We continue to believe firmly that the science confirms glyphosate based herbicides do not cause cancer," the company said. "We are confident the evidence in phase two will show that Monsanto's conduct has been appropriate and the company should not be liable for Mr Hardeman's cancer."

Mr Hardeman's lawyers said they would show evidence of Monsanto's "bad conduct" in the next stage of the trial. Monsanto has strongly defended Roundup with a decades-long public relations campaign. Last year, another jury found that Roundup had caused the cancer of a school janitor in California. He was awarded \$US289 million, but that was later reduced to \$US78 million. Bayer is appealing the case.

The current case is seen as a "bellwether" for hundreds of other pending lawsuits in the US. In total, Bayer is facing more than 11,000 similar cases in the US. Nufarm defends glyphosate as it announces a loss and Australian farm chemical firm Nufarm is

also maintaining the safety of glyphosate as it released its half-year results.

It said regulators in Canada and Brazil had confirmed regulatory approval of the herbicide after re-evaluating the product.

Concerned about Roundup? Here are some alternatives. Dozens of local councils across Australia have moved to reduce their reliance on the weedkiller Roundup, or have trialled alternatives. "Both authorities reaffirmed that glyphosate is safe to use and presents no risk to users when used in accordance with label instructions," Nufarm said in its financial results report.



*Using alternative weed control methods*

*Image: [www.nswweedsconf.org.au](http://www.nswweedsconf.org.au)*

## ANOTHER GLYPHOSATE STORY

### PETER TEFFER

**US verdict gives ammunition to EU activists (March 20—source [euobserver.com/health/144449](http://euobserver.com/health/144449))**

A US jury's decision that the use of glyphosate-based weedkiller Roundup was a "substantial factor" in causing a man's cancer does not have direct legal consequences in Europe - but it will have significant political value for the determined group of anti-glyphosate activists and politicians.

It comes just two months after the European Parliament adopted the final conclusions of a special investigation into the EU's herbicide-approval methods, and, more importantly, as the debate about renewing the EU authorisation of glyphosate will start by the end of this year.

A California jury of six took its decision on Tues-



day (19 March), concluding the first of two phases of a case filed against Roundup's producer, Monsanto - which since last year is owned by German pharmaceutical giant Bayer.

The lawyers of the 70-year-old man who filed the case said it was "clear from Monsanto's actions that it does not particularly care whether its product is in fact giving people cancer, focusing instead on manipulating public opinion and undermining anyone who raises genuine and legitimate concerns about the issue".

Monsanto and now Bayer have always denied a relation between Roundup and cancer, pointing to scientific evidence.

Opponents of the weedkiller and glyphosate in general, however, do not trust that industry-funded evidence, pointing instead to a 2015 designation by the International Agency for Research on Cancer (IARC) of glyphosate as "probably carcinogenic". IARC is part of the World Health Organization. The classification "probably carcinogenic" also applies to eating red meat and exposure to petroleum refining.

Despite the IARC decision in 2015, the EU renewed the authorisation for the use of glyphosate in the bloc two years later.

The reauthorisation happened only after long debates and delays, and for a much shorter period than usual: five years instead of 15.

While the debate was therefore settled at the end of 2017, this was only temporary. To renew the licence to continue using glyphosate beyond 2022, the reauthorisation procedure will have to begin some three years in advance. That means somewhere by the end of 2019.

A key question will be whether Germany will again be designated as the EU member state in charge of the risk assessment, amidst suspicion that Berlin's risk assessment contained industry views presented as if they were the German institute's views.

In January, a report financed by three centre-left and left-wing political groups, concluded that half of the chapters assessing studies on glyphosate health risks were copy-pasted from contributions from industry.

"Plagiarism was discovered exclusively in the chapters dealing with the assessment of published stud-

ies on health risks related to glyphosate," the report said.

According to the authors of the report, Germany's federal institute for risk assessment had "copied Monsanto's explanation of Monsanto's approach [to assessing studies] in evaluating the published literature, yet had presented it as the approach of the authority".

The German institute defended its work, saying it "did not in any way adopt the applicant's conclusions without first assessing their validity". Instead, copy-pasting corporate contributions without proper source attribution was normal practice, it said.

"In Europe, it was customary and recognised in evaluation procedures for plant protection products that, following critical evaluation, assessment authorities would also integrate relevant passages of documents submitted by applicants into their assessment reports as long as these were up to standard," it noted.

Germany's involvement in the reauthorisation will be under even more scrutiny now that Monsanto is owned by a German multinational. In 2016, the EU commission began an assessment of whether the legislation for authorising pesticides is still fit for purpose.

A report, part of that assessment, published last October, said that there was room to improve the laws in place. It also noted that a lack of resources in the European Food Safety Authority and member state authorities was a "challenge".



**Protestors in Germany after glyphosate judgement from World Health Organisation Image: campact**

## RESPONSE TO CONCERNS OVER GLYPHOSATE — APVMA

Recent court cases has initiated questions regarding safety of glyphosate products registered for use in Australia following a decision in the Californian Superior Court to award damages to a man who alleged that glyphosate-based weed-killers caused his cancer.

The Australian Pesticides and Veterinary Medicines Authority (APVMA) considered the evidence presented in the Californian case and found no grounds to take regulatory action in Australia.

The APVMA understands that the public may have concern regarding glyphosate. There is a lot of information out there, and discussion in the media does not always get the facts or the science right.

Australia's risk-based, scientific approach to regulation ensures that each agricultural chemical product is thoroughly and independently assessed by the APVMA prior to registration and supply.

The registration system is supported by a range of post market surveillance, compliance, audit verification and review activities that ensure products available in Australia continue to be used safely and effectively.



Australian Government  
Australian Pesticides and  
Veterinary Medicines Authority

The APVMA's regulatory decisions take account of extensive scientific information and the World Health Organization's International Agency for Research on Cancer (IARC) report 2015 provided a valuable input to our ongoing assessment of the risks associated with glyphosate.

The APVMA considered the IARC report in 2016, along with an examination of many other scientific trials and studies, and like other regulators, the APVMA determined that glyphosate is safe to use according to label directions.

The manner in which the APVMA is funded bears no influence on our independent regulatory activities that continue to protect the health of Australia's people, our agricultural industry, farmers, the environment and animals.

Our regulatory history demonstrates that we hold industry to account and take action when a risk is identified.

In the past 12 months, the APVMA has acted to change label directions for 2,4-D, fined manufacturers when products did not meet specification and suspended registrations where products no longer met safety requirements.

Australian's can have confidence in the decisions of the APVMA and that our regulation will continue to protect the health and safety of people, animals and the environment.

Information relating to the APVMA's examination of glyphosate is available online.

Please refer to : [www.apvma.gov.au/node/13891](http://www.apvma.gov.au/node/13891)

In summary, this additional reading stated that:

- There is no unacceptable risk to operator if they follow label directions for personal safety.
- The IARC report that the APVMA studied mentioned that drinking alcohol, eating processed meats and exposure to sunlight posed more threat.
- An Agricultural Health Study in the United States that surveyed 89,000 farmers found no clear association between glyphosate and cancer.
- APVMA assess the risk for the complete product, not just glyphosate. Other components, namely polyethoxylated tallow amines (the adjuvant) maybe more of an issue than the glyphosate. There was insufficient data to show that this adjuvant was harmful and there needs to be more international studies on this compound.





## WEED HYGIENE STATION MATTHEW MCGRATH

Wagga Wagga City Council's weed hygiene station is different from other boot scrubbers as it has a duster to clean down footwear, clothing, pet fur, bike parts and a walkway metal grate that the boot scrubber is attached to. The most important part is the sump that sits underneath the grate for catching vegetation and soil thus minimising the spread or movement of debris once cleaned from the user and enabling propagation of collected seeds, contributing to weed monitoring.

### Background

A major priority for Wagga Wagga City Council is the prevention and reduction in the spread of weeds on reserves managed by Council, as both a landowner and local control authority under the NSW Biosecurity Act 2015.

Council has a number of major reserves containing highly invasive weed species including Coolatai grass (*Hypparrhenia hirta*) and Cane needle grass (*Nassella hyaline*). These reserves are heavily used as recreational areas and the major causes contributing to the spread of weeds, hygiene protocols, was identified as a key driver.

The main objective of the project was to design a simple, effective and familiar Weed Hygiene Station that could be installed at the entrance of all nature reserves. Some important design considerations were:

- No moving gears or mechanisms that would need maintenance
- A structure able to take the outdoor weather, and a colour/appearance that draws people in to use the station.
- Low cost so that it was cost effective to install in multiple places and maintenance and repair was easy.
- Ability to collect weed seeds for monitoring.

The idea of catching the seed in the sump was the most important part of the design. This feature sets it apart from other boot scrubbers available. The idea is to prevent contaminated weed debris left at the station from being picked up by the next person, moved by natural elements or growing in the scrubber itself. The Weed Hygiene Station has a grate and sump to keep seeds from being trans-

ferred and the collected soil media can be grown to monitor weeds in the reserve.



**The Weed Hygiene station is a great assistance for mountain bike riders** Image: Matthew McGrath

### Implementation

Wagga Wagga Council went through the following steps to develop the Station:

- Research and design – to identify an existing weed station by contacting other regional, state and national environmental departments to determine what hygiene stations were already installed, or to design one if no suitable one existed.
- Engineering - approach suitable engineers to build the prototype, with a defined budget.
- Build - Track down material that was suited to the environment and could withstand the elements and potential vandalism, finalise the quote and get it built.
- Paint - paint the Weed Hygiene Station with appropriate colours that were recognisable and that it could be seen at day or night for collision safety.
- Installation - Assess the site (to avoid underground services) and ensure it is easily accessible for users without restricting other vehicles for maintenance or emergency services. Weed Hygiene Station December 2018 2 LGNSW.ORG.AU
- Interpretational posters were installed on notice boards, keeping content to a minimum.

Mountain bike users of the reserves were consulted during the research and design stage to ensure the Weed Hygiene Station was as user friendly and effective as possible. The use of the Weed Hygiene



Station was promoted on site (through users showing other reserve users), in the Council media and through other environmental management channels.

The budget was kept to under \$2000, with the overall timeframe for the project from research to installation being just over 6 weeks. As the Weed Hygiene Station will be used for monitoring of invasive species, the station will be maintained under Councils' current weed management budget as an educational and weed management tool.

### **Outcomes**

The Weed Hygiene Station is a very simple introduction to biosecurity hygiene that can be easily incorporated into an outdoor experience on Council nature reserves. Engaging the public with a practical active educational tool delivered a more effective result than written material alone. Site managers where the station was installed also saw it as a positive for weed control.

Council has already begun designing an improved second hygiene station to accommodate higher volumes of traffic including bicycles. The Weed Hygiene Station materials will remain the same because of its cost and durability, as will the look / colours so that the target audience recognise the station at different locations. The sump under the grate may be reduced in depth for ease of access to soil media.



**Tony Phelps inspects the new hygiene station**  
*Image: Matthew McGrath*

### **Key Learnings**

The main challenge for the Weed Hygiene Station project was making weed hygiene a priority for the users of the nature reserves and other land owners. The Station is the start of a much larger program carrying the theme of "Biosecurity Starts at the Gate. Check your Tread to Reduce the Spread".

The Weed Hygiene Station project can be used by other departments in council e.g. Parks and Gardens, etc. but also the private sector and other regions and states. The costs for setting up and maintaining the Station are low.

The next step is to build more Weed Hygiene Stations, reviewing the design to ensure it suits the needs/volume of the target audience and keeps users engaged and actively making hygiene a part of their outdoor experience. Consultation with other groups and clubs (horses, four-wheel drives, motorbikes) will be undertaken to develop weed hygiene control strategies to be incorporated into their user experience.



**Matthew McGrath is proud of his work**  
*Image: Matthew McGrath*

#### **For more information:**

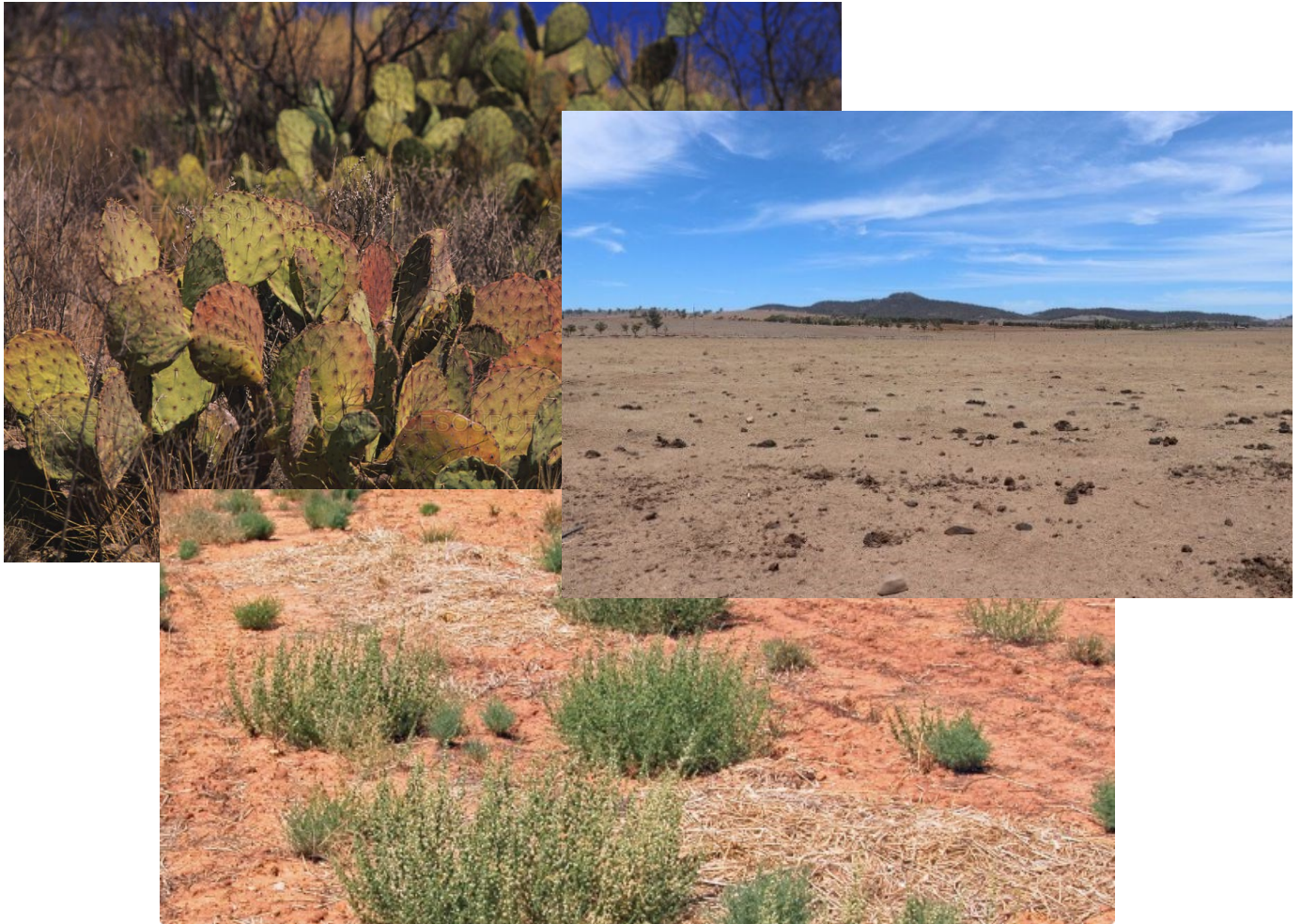
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Note: This project was the 2018 winner of the invasive species management award. Congratulations.



# In the next edition of **A Good Weed** we investigate **Weeds in drought** **How do they get an advantage?**



*The Weed Society of New South Wales Inc. acknowledges the generous support of the following organisation for their sponsorship of the Society and this Newsletter*



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