

Farming communities working closely together

THE National Landcare Program (NLP) is the key element in the Australian Government's commitment to natural resource management.

One billion dollars has been invested over the last four years through Australia's 56 regional natural resource management bodies, and through programs of national significance, such as World Heritage Grants, 20 million Trees, Reef Plan 2050, and the Indigenous Protected Areas program.

The NLP also delivers on many other government priorities, such as advancing the interests of Indigenous Australians, especially in land management on country and supporting farming communities and regional Australia.

In June this year the government published its report on the review of the current and historical NLP.

The report has been used to inform the next phase (from July 2018) of Australian Government support for this exemplary, community driven, land management movement.

The review examined whether the NLP has been efficient and effective in delivering agricultural and environmental outcomes across different regions and agricultural sectors.

It was important for government policy makers to develop a

comprehensive understanding of the approaches, successes and failures in community engagement and natural resource management across the Landcare movement.

The regional delivery model for NLP funding was also scrutinised as part of the review process to investigate whether it was an effective approach to achieving our national natural resources management and agricultural productivity outcomes.

The methods used to review the NLP included an on-line stakeholder survey during 2016 (more than 900 responses received), an independent financial analysis of the government funding packages from 1996-97 to 2017-18, advice from the National Landcare Advisory Committee, consideration of analysis and advice from natural resource management experts, as well as submissions from government and non-government organisations.

Most respondents felt the NLP had resulted in improved land management; increased adoption of sustainable farm practices; and enhanced social and institutional capacity for integrated natural resource management. Importantly, NRM regional organisations confirmed NLP funded projects aligned well



One billion dollars has been invested over the last four years through Australia's 56 regional natural resource management bodies.

with their Regional NRM Plans and also progressed Commonwealth objectives.

The review noted funding under the regional model of the NLP is most likely based on historical priorities and criteria, and could be better aligned with current and future priorities and conditions. Regional scale delivery may also be improved by opening opportunities for involvement to a wider range of organisations.

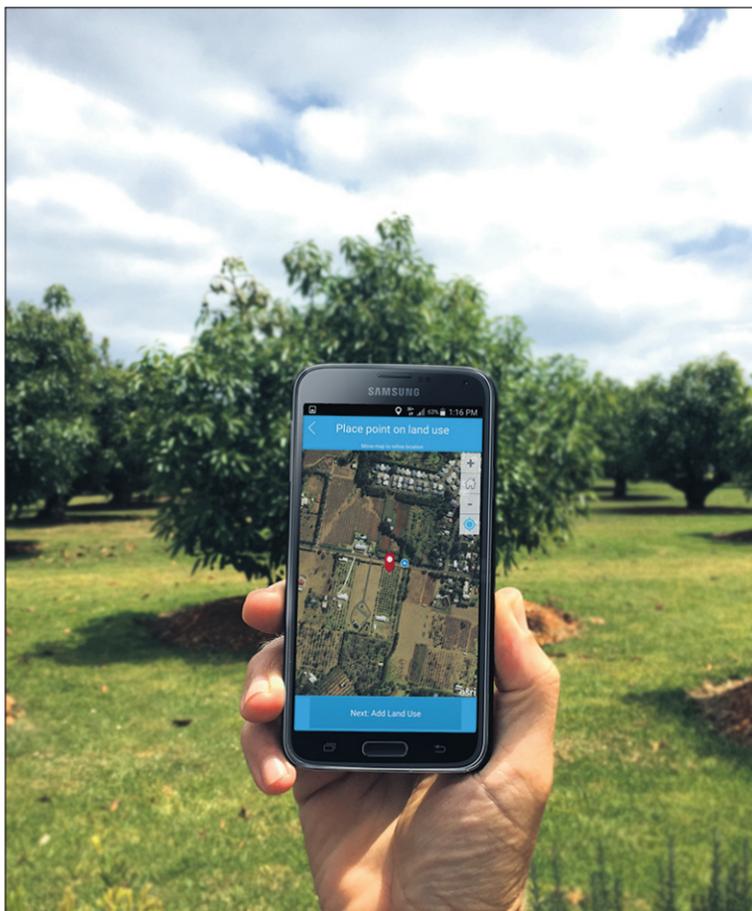
Greater efficiencies and improved outcomes may be achieved through regional bodies working together in consortiums, such as the successful Rangelands Alliance, Reef alliance and Tri State Alliance, along with continuing to meet individual regional plans and Commonwealth objectives.

The review was an important opportunity to reflect back on past programs, as well as to look to the future and ensure that NLP

maintains the key elements of its success, while also evolving to be more effective in addressing the natural resource management challenges at a regional level, and connecting local outcomes with national priorities in agricultural productivity, developing regional Australia and importantly, protecting our natural resource base for the future.

• Visit: www.nrm.gov.au/regional/regional-nrm-organisations.

Growers urged to improve the map



The Land Use Survey app in action.

By Horticulture Innovation Australia

AUSTRALIA'S avocado, mango and macadamia growers are being called on to contribute to a map that aims to enhance the nation's biosecurity response and planning capability, and help with recovery efforts after severe weather events.

The draft online map, available at <http://ow.ly/z9oJ30diXkV>, shows commercial avocado, mango and macadamia crops around the country, and has been formulated with satellite imagery generated by scientists, land-use information from industry and government, as well as 'citizen science' collected via a purpose-built app.

Horticulture Innovation chief executive John Lloyd said that while contributors have made more than 1000 entries via the Land Use Survey app so far, there is still plenty more work to be done.

John said during plant biosecurity outbreaks such as citrus canker, banana panama disease and, more recently, the tomato-potato psyllid, one of the biggest

impediments to rapid response is identifying where exactly the host crops are.

"This new map allows growers to help safeguard the future of their industries by pinpointing where farms are, along with helping their industry bodies and relevant agencies plan and enact biosecurity measures during serious pest and disease incursions," John said.

"In the case of severe weather events, such as fires or floods, this map will also allow peak bodies and authorities to quickly and easily identify farms impacted, speeding up any aid provision process.

"We are encouraging growers to grab their smartphones, tablets or laptops, review the map and add their comments to help support their industries through this ambitious land-use mapping project," he said.

The Land Use Survey app is available for Android and iOS devices, and can be downloaded via the Google Play Store and Apple App Store respectively.

The map has helped respective industry representative bodies determine the extent of the impact of Tropical Cyclone Debbie, which

crossed the north Queensland coast on March 28.

It also has the potential to assist growers with insurance claims.

John said this research may also inform future mapping projects for other horticultural industries.

This mapping project is supported by Horticulture Innovation through funding from the Australian government Department of Agriculture and Water Resources, as part of its Rural R&D for Profit Program.

Led by the University of New England, the work involves a host of industry collaborators including Avocados Australia, the Australian Macadamia Society, and the Australian Mango Industry Association, and Simpson Farms.

The University of Queensland, University of Sydney, Central Queensland University, Agtrix Pty Ltd, the Queensland Department of Agriculture and Fisheries, Queensland Department of Science, Information Technology and Innovation are also project collaborators.

• See more on the broader National Tree Project at <http://ow.ly/CNp630diXiS>.



The future of the National Landcare Program secure

Assistant Minister for Agriculture and Water Resources, the Hon. Luke Hartsuyker

THE Australian Government is investing more than \$1 billion into the future of the National Landcare Program (NLP).

In September, the government launched the next phase of the NLP, and mapped out the nationally-agreed priorities for delivering on-ground natural resource management and sustainable agriculture outcomes that will benefit rural communities and deliver environmental and agricultural outcomes.

Protecting and improving the condition of our natural resources, soils, water and biodiversity is a never-ending goal, which requires long-term, on-the-ground planning, investment and delivery.

The NLP has been structured to achieve this through building knowledge and engaging the community and industry in projects to improve those land management practices needed to benefit the condition of these natural resources and farm production.

The government is significantly contributing to this effort through the NLP and is a national leader in the cause to protect soils, water and biodiversity in our farms, communities and environments.

Key programs in the \$1 billion dollar NLP investment include the \$450 million Regional Land Partnerships Program and the \$134 million Smart Farms Program.

These programs were developed in consultation with Landcare

groups and the Australian community.

The Smart Farms program will protect and improve the condition of natural resources on farms, which in turn drives improved productivity and profitability.

'Farming smarter' is the mantra for the next round of Landcare projects, helping organisations and individuals to put their heads together to develop innovative sustainable agriculture practices.

The \$134 million Smart Farms program will encourage farmers, fishers and foresters to adopt sustainable agricultural best practices.

Giving farmers, fishers, foresters and regional communities the tools, technologies and funding will allow them to invest in their soils, water and biodiversity.

Farmers have a natural instinct to care for their land and we want to support these ideas that have been put to the test on a local farm by helping our smart farmers to share that idea with the local community and the nation.

The Smart Farms program is made up of three components:

- \$60 million Smart Farming Partnerships;
- \$50 million Smart Farm Small Grants; and
- \$24 million Building Landcare Community and Capacity Program.

Calls for the first round of grant applications under the Smart Farms Small Grants and Smart Farming Partnerships were announced in October 2017.

More information on the programs and how to apply is available at www.nrm.gov.au.

I encourage you all to continue your involvement in Landcare through the Smart Farms program which will put Australian farming at the forefront of land resource management into the future.

From July 2018, the government will invest \$450 million over five years to deliver the national priorities of protecting soils, water, vegetation and biodiversity and supporting agriculture productivity at the regional and local level.

The Regional Land Partnerships Program builds on the strengths of the existing program, with national coverage that will connect and involve communities, including Indigenous communities.

We want to fund the most innovative projects that tackle today's challenges and harness the next generation of ideas.

There is great awareness about the Landcare movement and the benefits it brings to communities across Australia.

Through our consultations and reviews one thing that has come to the fore is the strong support for continuing to deliver the NLP through a regional model.

Local Landcare groups have local know-how and we want to continue to tap into that local environmental and land management knowledge.

There will of course be refinements to make sure we meet the needs of landholders, volunteers and communities across Australia's diverse farming communities.

Landcare across the country continues to play a critical role in helping to improve farming practices and land management.

The NLP has seen an increase in uptake of sustainable practices,



The Hon. Luke Hartsuyker MP.

with an estimated area of more than 9.5 million hectares of land being sustainably managed to improve natural resources with corresponding environmental, agricultural productivity and social outcomes.

The next six years of Landcare will be exciting as we look to take advantage of technological advances in land management and seek to continue to do what comes

naturally to all of us - taking care of the land.

I look forward to continuing to work with Landcare communities across Australia, research organisations and farmers to deliver these new government investments that will ensure Landcare delivers real, tangible benefits for all of Australia, ensuring we have healthy and productive farms into the future.

Communities working together is the heart of Landcare

By Tessa Matykiewicz, Landcare Australia CEO

THE theme of this month's *Landcare in Focus*, Farming Communities Working Together for Collective Outcomes, defines what is truly the heart of Landcare - the people who are collaborating and dedicating their time and energy to get things done for the good of our land.

I'm excited to let you all know that Landcare Australia and the National Landcare Network (organisations that offer services and represent the Landcare community at a national level) are in discussions to create unity and stronger alignment between the two entities.

This is a great opportunity to create one national voice for

Landcare, and to better serve the Landcare community.

I'm also pleased to acknowledge the winners so far of the State and Territory Landcare Awards - check the website landcareaustralia.org.au to see who won awards so far.

All the winners will go on to the National Landcare Awards next year.

It's truly inspiring to see the amazing work that's been done across the country over the past couple of years.

There are so many amazing examples of projects and the Landcare community coming together in this edition.

On page five you can read about 22 landholders in New South Wales who got together to erect a pest exclusion fence of 210 km, enclosing approximately 177,000 hectares and creating a solid barrier

against pests such as wild dogs and pigs.

On page eight, learn about a group in Queensland who created the Greater Whitsunday Food Network, achieving a thriving farmers market with farm-to-plate dinners, supplying local produce in restaurants around the region, and ultimately employing local people in profitable farming enterprises.

Recently, a total of \$100,000 in funding was made possible through Landcare Australia's Workplace Giving Program to support 10 group's habitat restoration projects across the country.

Sign up for our eNewsletter, Landlink, on our website to hear about future funding opportunities.



Landcare Australia CEO, Tessa Matykiewicz.

Partnership transforms sweet potato industry

By the Australian Centre for International Agricultural Research

SWEET potato growers in the remote highlands of Papua New Guinea (PNG) and in the fertile farmlands of Australia might seem to be worlds apart.

However, they share an intense interest in a common enemy - plant viruses.

Now, a long-standing partnership between researchers in Australia, PNG and Peru, supported by the Australian Centre for International Agricultural Research (ACIAR), is providing them with a shared solution, in the form of disease-free planting material.

Sweet potato is the main staple food of PNG, supplying some two-thirds of the country's basic calorie needs.

However, as the country's population has grown, especially in the densely populated highlands, the productivity of this vital food-crop has faltered.

The decline in yields was variously attributed to falling soil fertility or increasing pest pressure, but work that began in 1984 increasingly showed that plant viruses were a key factor.

Plant viruses cannot reliably be identified by symptoms alone, so in 2004 researchers from Queensland's Department of Agriculture and Fisheries (Q-DAF) teamed up with their counterparts at PNG's National Agricultural Research Institute (NARI) and the

International Potato Centre (CIP) in Peru to develop diagnostic tests.

The partnership continues to this day, with CIP providing early warning of new viruses at the global level (and tests to detect them) while researchers in Australia and PNG monitor continuously for new virus threats closer to home and develop the tests to identify them.

The nerve-centre of this surveillance effort, supported jointly by Q-DAF and ACIAR, is Gatton Research Station, outside Brisbane, where Sandra Dennien monitors disease samples collected from farmers' fields across the region.

Viruses of sweet potato, like those of various other crops, can be eliminated from the plant by heat treatment, 'thermotherapy', which differentially affects the rate at which plant cells and virus particles replicate.

If it is done judiciously, virus-free plant cells can be retrieved from the growing point and multiplied through tissue culture to generate disease-free plants.

These can then be multiplied vegetatively, mainly by cuttings maintained in screen houses, where fine mesh excludes the insects (mainly aphids and whiteflies) carrying the viruses that would otherwise re-infect the plants.

Thermotherapy, though simple in principle, can be tricky in practice.

The varieties of sweet potato most popular in PNG proved quite sensitive and initially died under the heat treatment.

Persistence paid off, however, and 10 years ago NARI researcher Dorcas Homare managed to get



In PNG, the NARI team maintains disease-free sweet potato stocks in an insect-proof screen-house at Aiyura Research Station.

the treatment 'just right' and, with the help of tissue culture specialist Winnie Maso, recovered disease-free sweet potato plants.

Since then, NARI's Aiyura Research Station has provided a steady stream of 'PT' (pathogen-treated) or klin cuttings ('clean' in local pidgin).

Specially trained farmers then further multiply the material, as a small business, to provide enough klin cuttings for the thousands of other smallholder sweet potato farmers.

The most recent ACIAR project, on this occasion funded by Australia's Department of Foreign Affairs and Trade, seeks to scale up the technology to provide a 'clean seed system' to support the transformation of sweet potato in PNG from subsistence crop to a full-scale commercial enterprise.

Meanwhile in Australia, PT technology has been enthusiastically adopted by the sweet potato industry.

A pioneer in this effort has been Eric Coleman, a researcher-farmer

who turned this experimental procedure into a commercially viable enterprise.

Most Australian sweet potato farmers now plant their crop with PT material.

"This essentially simple technology has transformed the sweet potato industry in Australia and is now set to play an equally important role for this vital crop in PNG," Q-DAF researcher and veteran of the ACIAR projects in PNG and Queensland, Mike Hughes said.

Tackling salinity in the basin

By Neil Andrew, chair of Murray-Darling Basin Authority

IF there is one issue that brings people across the Basin together, it is the importance of managing salinity.

Anyone working in natural resources knows the damage salinity can do to the environment and to agriculture.

I am particularly passionate about this issue, both from my experience as a citrus farmer in the early 1980s, and in my current role as MDBA Chair.

Tackling salinity is a big success story of our time — all governments and agencies, including the MDBA and its predecessors, have worked with Basin communities over the last 30 years to tackle it.

I was pleased to attend the Mildura Field Days in May 2017 to release our *Salt of the Earth* video,

which tells the story of salinity in Australia and how it is being managed today.

The way our continent was formed means we have saline groundwater and soils.

Land clearing for dry land farming and irrigated agriculture production over the last century has mobilised those salt deposits.

In the early 1980s, salinity levels in the Murray River were extremely high due to low flows.

Irrigating with such salty water damaged crops, reduced harvest yield, and corroded pumps and pipelines.

Governments, landholders and communities decided to work together and we have since successfully reduced salinity in the Basin.

The video recognises the achievements of communities and governments who stepped up to find solutions, including the

Salt Interception Schemes that take more than 500,000 tonnes of salt out of the system every year.

Salinity is not going away, which is why in 2015, Basin Ministers agreed to a 15-year strategy to manage this problem up to 2030, which was only possible because of the shared commitment by all sides of politics.

We are well on track to do the same with the Basin Plan to ensure it's long-term health and productivity.

It will take time but if we work together we will get there.

One key component of the plan is flows to the ocean.

This essential flow has a dual purpose — it is used to maximise environmental benefits, and it helps carry over one million tonnes of salt out to sea, enhancing the health and productivity of the Basin as a whole.

• Visit: mdba.gov.au.



Chair of Murray-Darling Basin Authority, Neil Andrew.

It's better when we're together

By Heidi Kleinert

FOR over a century, communities across Australia have been battling the impact of introduced weeds and pests.

There have been research trials, incentive schemes, biological control programs, new agencies and community groups.

And yet, here we are in 2017 still facing a formidable challenge in managing established invasive species such as blackberry, gorse, serrated tussock and rabbits.

In dealing with this challenge, there is growing acknowledgment of the complexity of weed and rabbit management.

It occurs on a vast spatial scale, and is influenced by countless ecological and economic factors.

Perhaps one of the biggest parts of this complexity, though, is the people issue.

It is people at the coalface that undertake the control activities, It is people in community groups coordinating projects, and It is people within industry and government developing the necessary policies and support programs.

If our approach to weed and rabbit management is to become more effective and sustainable, we need to build the capacity of those people and help them to work across their differences.

The Victorian government has recognised that managing weeds and rabbits requires thinking outside the box.

Funding received from the Australian government's Agriculture Competitiveness White Paper has enabled Agriculture Victoria to introduce a 'systems approach' to understand and respond to the problem as a community.

The systems approach involves working in collaboration with four Community Pest Management Groups (CPMGs) to map the management systems - the Victorian Blackberry Taskforce, Victorian Gorse Taskforce, Victorian Serrated Tussock Working Party and Victorian Rabbit Action Network.

But, this is not about mapping the geographical locations of pests or weeds.

Rather, it is about understanding the relationships between all the groups and institutions that interact in managing blackberry, gorse, serrated tussock and rabbits, in order to define the gaps, problems and opportunities.

It is a novel way of looking at the issue, but it builds on the work and networks already established by CPMGs.

In early 2017, the project completed a series of social systems maps by undertaking more than 110 interviews and several focus group sessions.

The Victorian community were also invited to have their say through the blog - weedsandrabbits.com.

The research identified the key stakeholders, and who else needs to be around the table in co-developing projects.

It pinpointed the trigger-points of influence, what has and has not worked in historical programs, where and how funding and information flow, and how we can improve those flows.

The end goal of the project is to enhance participation in weed and rabbit management, and improve community opportunities to tackle these invasive species.

To share all the information from the study and bring the whole system together, Agriculture Victoria



Participating at the invasive species workshop are Terry Hubbard (Victorian Landcare Council) and Alice Knight (Corangamite CMA).

and the CPMGs hosted an invasive species workshop.

More than 130 people who work in weed and rabbit management across the state attended the event.

The intent of the workshop was to enable participants to understand and share the different perspectives and experiences of their counterparts, and to identify where in each system action could be undertaken to support better outcomes for invasive species management.

Workshop participants were also invited to submit project ideas to Agriculture Victoria and the CPMGs for investment, with the aim of

further empowering communities to lead and deliver effective weed and rabbit management.

Agriculture Victoria Program Manager Michael Reid can see that this new approach is starting to build momentum.

Its strength, he said, is in its recognition that those working at the coalface bring invaluable experience to the table.

"If we are to make further headway in managing these problems, we need to work in partnership," Michael said.

"Partnerships are more than the provision of funds, they are about

acknowledging local knowledge and experience as co-creators of projects."

Projects that were submitted at the workshop and by the CPMGs will see an investment close to \$900,000 over 2017-2019.

These projects will be community-led and delivered by the four CPMGs.

• Heidi Kleinert is a Community Engagement Officer in established invasive species at Agriculture Victoria. Lauren Hull, Michael Reid, Paul Dennis and Andrew Woolnough from Agriculture Victoria contributed to this article.




Congratulations to the 245 Powerful Youth Projects underway in Victoria!



landcareaustralia.org.au/powerful-youth-projects

Technology to transform agriculture, but only with sufficient investment

By John Harvey

TECHNOLOGY'S transformative potential for the agriculture industry all comes down to innovation and investment.

John Harvey, managing director of Rural Industries Research and Development Corporation (RIRDC), said innovation will continue to create new applications for technology and make its adoption on-farm possible.

But, investment is required to commercialise this innovation and support its implementation so it can deliver on its promise of production and efficiency gains.

At an almond farm in Mildura, robots developed by Sydney University work day and night, moving through the orchard, gathering data to create a comprehensive view of the entire operation.

This trial was one of a series of projects led by Professor of Robotics and Intelligent Systems Salah Sukkarieh, supported by Horticulture Innovation Australia.

His team are pioneering autonomous robots for the horticulture industry that can monitor the soil and check the health of the plants, meaning farmers don't have to physically check each orchard.

They can even sense when the fruit is ripe.

At Mingenew in Western Australia, Darrin Lee has taken an Internet of Things approach to managing his family's properties and created a wirelessly connected network of devices, sensors and vehicles that provide him with quality data in real-time.



Kay Hull and John Harvey of RIRDC discuss the Internet of Things.

The Internet of Things is a new form of communication between humans and objects, and between objects themselves.

Combining with external and regional datasets, the Internet of Things approach means Darrin's decision making can be preemptive and is always driven by accurate data.

It's easy to see from the above that while agriculture might be one of Australia's most traditional industries, it is about to be upended by technology.

What is just around the corner is a collection of digital technologies that have the capacity to make the entire Australian agricultural supply chain more precise, more profitable and more sustainable.

Collectively, they are referred to as 'agtech', and they are set to transform the industry.

It is the sensors that will generate real-time, continuous data about the health of individual plants and animals.

It is the artificial intelligence that will convert data into decisions and

guide robots to operate in a range of scenarios.

It is the nanomaterials that in pesticides can deliver site-specific, slow-release applications targeting specific pests and diseases.

It is the synthetic biology that will result in more nutritious crops that thrive with less water and require fewer chemical inputs.

It is the gene editing that will facilitate faster and more precise plant and animal breeding.

And, it is the ability to provide consumers with more information

about their food and fibre than ever before.

So the questions have to be asked - can the industry keep up with the available opportunities and who will make these transformative technologies commercially available?

Which of course, comes back to investment supporting the innovation.

Global investment by venture capitalists in agtech has jumped from US\$400 million in 2010 to US\$3 billion in 2015, and while the Australian agtech innovation ecosystem is relatively immature, its potential is huge.

We have innovation incubators like SproutX (Australia's first agtech accelerator), disruptors seeking solutions like Agrihack, and companies like The Yield and Observant come in.

Pockets of innovation are springing up in regional Australia, bringing together agtech ideas, startups and entrepreneurs with investors, IT skills, marketing and finance.

These are the people whose entrepreneurialism will 'solve the farm' and transform the industry.

By looking at old problems in new ways and embracing technology and innovation, they will provide the industry with the technology and the solutions it needs to boost productivity and profits.

With clear knowledge now of the endless possibilities technology can provide to the industry.

It is time to focus on making its promises - of efficiency and production gains - a reality.

All of which requires not only innovation, but more critically, investment.

Landholders work together to control grazing pressure

PEST animals in the Gilgunnia, NSW area have been left on the outer by landholders involved in the Gilgunnia Cluster Fencing Project.

This project, which resulted in a total pest exclusion fence of 210km being erected around the perimeter of 22 properties enclosing approximately 177,000 hectares, has created a solid barrier to pest animal species in the Gilgunnia area in the western region of NSW.

This has allowed landholders the opportunity to gain control over grazing pressure and will result in better outcomes for on-going pest animal and weed control activities.

Improved management of total grazing pressure (TGP), which is the combined grazing pressure exerted by all grazing animals (domestic, native and feral) on the vegetation, soil and water resources, is key to ensuring grazing does not exceed stocking capacity.

Along with TGP, pest animals such as wild dogs, pigs and kangaroos, are a constant issue for landholders in the western region.

Managing pest animals consumes a large amount of resources, time and finances from landholders, not to mention the stress and frustration it imparts on them.

By working collaboratively through this project, 22 landholders in the western region have given themselves the best opportunity to manage these issues.

While this project has only been recently completed, landholders have already reported significant reductions of pest animals along their section, with one remarking it has stopped several hundred pigs from entering their property every evening.

This project was funded under the Australian government's 2016 Pest and Weed Drought Funding program.

- For more information about cluster fencing, contact Western Local Land Services Senior Land Services Office - Native Vegetation, Brian Dohnt on (02) 6836 1575.



Landholder Dean Hague inspects his section of the fence. Photo: Western Local Land Services.



Building water catchment and community resilience at Mulloon

By The Mulloon Institute

INDEPENDENT landscape thinker Peter Andrews recently walked a section of the Mulloon Creek in New South Wales to help with planning for the Mulloon Community Landscape Rehydration Project (MCLRP).

Peter is a master in reading the landscape, with a lifetime of experience in healing and rejuvenating degraded agricultural landscapes across Australia.

He approaches landscape repair by harnessing a landscape's natural patterns and processes to restore its function and resilience, allowing the land to flourish even in times of drought.

The Mulloon Community Landscape Rehydration Project aims to rebuild the Mulloon Catchment's natural landscape function and boost its resilience against climatic extremes, leading to more reliable stream flows, improved ecosystem functioning and enhanced agricultural productivity.

Located 40 minutes east of Canberra, the project spans 23,000 hectares with 40 kilometres of creeks and tributaries, and represents a major up-scaling of the successful Natural Sequence Farming pilot at nearby Mulloon Creek Natural Farms.

The Mulloon Catchment forms part of Sydney's drinking water supply system, and the project provides a critical biodiversity corridor connecting Tallaganda National Park with the Mid-

Shoalhaven Water Catchment's protected lands.

MCLRP is being implemented by The Mulloon Institute - a research, education and advocacy organisation that actively demonstrates, monitors and shares regenerative methods of land management.

A major focus of the project is creek repair and erosion control using small interventions to slow and filter water flow, preventing further erosion and beginning to rebuild the soil.

Importantly, it also aims to recharge shallow aquifers in the adjoining floodplain which have dried out from nearly 200 years of erosion.

This provides critical moisture for flora and fauna to thrive and builds catchment resilience during drought conditions.

Interventions in the creek are made using natural materials found onsite and are complemented by holistic agricultural and landscape management practices along the creek, including sustainable grazing, fencing, tree planting, slope stabilisation and contouring.

Much has changed over the 11 years since initial construction of the Natural Sequence Farming pilot at Mulloon Creek Natural Farms.

The floodplain pocket is now 60 per cent more productive, and the creek has been transformed into a healthy, vibrant ecosystem, filtering water through its extensive reed beds, capturing flood sediments, recycling nutrients and providing complex habitat for birds,

mammals, reptiles, frogs, fish and invertebrates.

The wider Mulloon Catchment has also benefited with improvements in water quality, water yield, and enhanced biodiversity resulting from tackling soil erosion, habitat fragmentation and weed proliferation.

Community participation has expanded to 20 landholders across the catchment, bringing neighbours closer together to share ideas and knowledge, and creating a greater sense of community cohesion and wellbeing.

Landholders can also better appreciate their property's place in the broader landscape, and how it influences and is influenced by the entire catchment.

Involving landholders in the scientific benchmarking and monitoring that accompanies the project benefits the science and gives landholders a deeper insight into the natural phenomena occurring on their properties and in the catchment.

Amongst the project's many supporters are the Australian government's National Landcare Programme, 20 Million Trees, numerous Green Army teams, Landcare Australia and Manpower.

The project has even caught the eye of the United Nations, being chosen by the UN's Sustainable Development Solutions Network as one of five projects globally to help it develop guidelines for sustainable, profitable and productive farming.

• Contact Peter Hazell on 0427 075 397.



Peter Andrews talking with landholders.



Mulloon Creek has been transformed into a vibrant ecosystem.

Working together creates 'BIGG' outcomes

By the Barossa Improved Grazing Group

THE Barossa Valley in South Australia is renowned for its food, wine and heritage, which stems from generations of vibrant farming communities learning and working together.

The Barossa Improved Grazing Group (BIGG) has applied the same approach to improving on-farm productivity and achieving natural resource management outcomes.

With a common focus on sustainable grazing practices, BIGG links five different farming groups including sheep, beef, dairy and two local agricultural bureaus with a common focus on sustainable grazing enterprises.

This approach has generated many opportunities for local producers by directly being involved in on-farm projects to improve their production, seeing firsthand the benefits of watercourse rehabilitation,

managing native pastures or a Meat and Livestock Australia-supported Producer Demonstration Site, and determining which pasture species respond to the variable seasonal conditions.

One of BIGG's key projects, supported by the Adelaide Mount Lofty Ranges NRM Board, is measuring soil moisture in pastures; the first time in Australia that a farming systems group has done this.

This information will now be developed into a pasture production model for local producers to help manage their grazing businesses.

The BIGG network also exposes producers to innovative ideas and industry experts, through local conferences, workshops and communication outputs, which highlight relevant local, state and national information.

It also provides the opportunity for partnerships between the industry organisations and NRM bodies who support the many projects BIGG manages.



BIGG brings together farmers from all grazing industries to learn, share knowledge, network and achieve practical production solutions.

In addition to improving skills and knowledge, most importantly, BIGG offers benefits to the local community by giving farmers the opportunity to network, discuss

local issues, work together, and learn from other industries.

This approach has helped local farmers combat two bushfires that affected the region, droughts and

more variable climates and also it provides the opportunity to join together and celebrate the good seasons.

• Visit: www.bigggroup.org.au.

Years of getting things done

LANDCARE legend Monica Durcan has spent more than 30 years rolling up her sleeves and rallying friends, family, and complete strangers to 'get things done'.

From creating cattle crossings, to a tree top walk and building an underground tunnel, Monica has dedicated three decades to making a difference in the Western Australia wheatbelt.

With her eyes wide open after watching the 'life changing' 1987 Barrie Oldfield documentary 'Wheat Today, What Tomorrow?' Monica decided it was time to do something for the environment.

And with that she signed up to volunteer with Men of the Trees, and soon after became their full-time nursery manager.

She didn't know anything about running a nursery, but was good with people and organising.

Monica got the nursery going seven days a week and developed a program of activities for the increasing number of nursery volunteers.

She looks back fondly at that time in the environmental movement.

"It was like this huge dance everyone wanted to be involved in," Monica said.

"There was a huge surge of people wanting to do something positive for the environment.

It was great to be part of it."

After seven years (she says her life works in seven year cycles), she had a quick stint at the Australian Trust for Conservation Volunteers, coordinating agroforestry tours in the wheatbelt, developing Landcare resources, running engagement events, and managing the State Landcare Awards.

In 2000, Monica set up her own business, Landcare Promotions, and was appointed Executive Officer at Avongro.

During this time Monica was busier than ever, helping to develop a Private Forestry Development Committee for the wheatbelt, directing the documentary 'Greener Horizons' and writing the book 'Branching Out Big Time'.

She also secured Australia's second biggest Caring For Our Country grant to develop a farm forestry modelling tool for the low rainfall wheatbelt.

South West Agroforestry Network executive and good friend, Richard Moore, knows Monica's secret to getting things done.

"Let's find a way of doing this sums up Monica's approach for me," Richard said.

"It's collaborative, determined, enthusiastic, efficient, passionate and innovative."

Like so many industries where people are driven by their desire to make the world a better place, Landcare employees and volunteers are not immune to burn-out, scepticism or becoming downright jaded.

But, according to friends and colleagues, Monica puts everything into her work and has remained as spirited and enthusiastic as ever.

She also sees a bright future for the industry she leaves behind.

"I see a resurgence in Landcare and I'm grateful that I've seen this before retiring," Monica said.

"Good Landcare should equal better and healthier production systems with better bottom line for the farmer.

"Done well at a landscape-scale, Landcare can deliver these and result



Monica Duncan engaged with the farming community for over 30 years, and retired as SWCC Regional Landcare Facilitator earlier this year.

in healthier waterways and protection of flora and fauna - the whole system.

"That was always the original intention."

Well-known for her spirit, passion, creativity and enthusiasm, Monica retired from the South West Catchments Council (SWCC) earlier this year, leaving behind an epic and enduring Landcare legacy.

As SWCC's regional Landcare facilitator, Monica worked

with grassroots Landcare and catchment groups in efforts to promote Landcare practices to farmers across the south west.

Nerilee Boshammer, SWCC's community engagement program manager, worked with Monica for three years in supporting these local Landcare networks.

"It's not often you meet someone like Monica," Nerilee said.

"She is one of those rare people who still have such a passion and drive for what they do after so many years.

"Her perpetual lust for life is infectious."

The South West Catchments Council's Regional Landcare Facilitator Programme is funded through the Australian Government's National Landcare Programme.

Fighting weeds leads to rare plants find

By Greg Siepen

A rare plant has been discovered by the Tyamolum Scout Centre in Queensland.

On a planting and weed removal project on a property in Mount Crosby, volunteers recorded the location of more than 100 rare Lloyd's native olive plants.

This plant only grows in the Karalee-Karana Downs-Mount Crosby area, and was named after the late Lloyd Bird.

The project is funded under an Everyone's Environment Grant provided by the Queensland government.

"To protect this rare plant, we needed to remove as many competing weeds as possible, like weed of national significance cat's claw creeper, mothers of millions, lantana, ochona, and corky passion vine," project chairman, Ian Heath said.

"Fortunately, we have had the help and expertise of weeders

from the Oxley Creek Catchment Association."

With the help of scouts and cubs from various groups, including Richlands, Riverview, Moggill, Taringa-Milton-Toowong and Kenmore, plus their leaders, more than 1,000 native seedlings have been planted.

These seedlings have started well with the good rains of spring and summer, and will eventually help shade out the nasty weeds and prevent new ones from invading.

"They treated the patch of cat's claw occurring in a patch of dry rainforest, and also led the removal of the weeds throughout the eucalypt forests on the property," Ian said. "This was supported by scouting volunteers who have done follow-up weeding."

The planting took place on three Community Environment Days which also saw the participation of members of other Landcare groups such as Moggill Creek Catchment Group, The Hut Environment and Community Association, and OCCA who helped educate the scouting

youth members on caring for the environment.

In addition, since 2015, 20 garbage bags worth of mothers of millions plants have been collected, and there's been a significant reduction in the cat's claw invasion. Plastic water pipes have been laid throughout the property, providing safe drinking water for the scouts and cubs camping on the property, water for newly planted seedlings, as well as a source of water for fighting fires.

"The scouting fraternity connected to Tyamolum is very grateful for the sponsorship of this project by the Queensland state government," Ian said.

"It has complemented the activities that have been going on under the auspices of the Land for Wildlife program and demonstrates the importance of Landcare and environment to the various levels of achievement in cubs, scouts and venturer sections."

Contact: Ian Heath on ian_heath@aapt.net.au or (07) 3371 3712.



Some of the bags of Mothers of Millions that were removed.

Look over the virtual fence

By Chris Gillies

YOUR neighbour need not be over the fence, according to rangeland grazier Gus Whyte.

With social media, the web, and email, Gus has created a network of graziers that share information in order to improve the way they manage the land.

This different approach was sparked by the difficulty in finding information that addressed the particular needs of rangeland environments.

Gus explained the rangeland properties he, along with his family, manage are complex environments and vastly different from the higher rainfall improved pastures that most people identify as Australian grazing land.

With this lack of information, he turned to other graziers through Twitter and online research.

Gus said he found other graziers with similar rangelands in Mongolia, Africa and North America (to name a few) who were open to sharing information on how they managed

the land, and different ways of approaching livestock enterprises.

An example of this was the shift to smaller sized livestock he runs on his 19,000-hectare operation in New South Wales.

Going against conventional wisdom, Gus said he read that by swapping out larger stock with smaller stock, feed requirements would be reduced, while increasing the profitability of his property.

"Stock will first fulfil their own requirements before they put on weight, reproduce, or grow wool," Gus said.

"A smaller animal needs less food to meet their requirements than a larger animal.

"Smaller stock aren't sought after and were less expensive to buy, which ties up less capital while our margin remains the same or better.

"If I buy stock worth \$150 per head and sell at \$200 per head, compared to stock at \$75 per head and sold at \$125 per head - there's still a margin of \$50."

While he misses out on bragging rights at the pub that comes with

higher prices, Gus said the overall impact on the land and his finances far outweighs any dent in ego.

"It's about being comfortable in what you're doing," Gus said.

"Someone might say that's wrong, but really it might be wrong for them, and we are doing what's right for us."

Being able to connect with other graziers via social media has encouraged him to study and read more.

Gus also said the outlook that has come from his continual learning has taken him on a journey as he constantly learns new things or finds an alternative perspective.

"If people are sharing their interpretations and how they do things, it challenges your way of thinking and gives you a new perspective to look at the same problem," Gus said.

It is this diversity in thinking and problem solving that made Gus realise good management requires adaptability and to be open to change to meet the challenge of the season.



Rangeland grazier Gus Whyte and his wife Kelly and son Mitchell.

"Some land management might not work well in one season, but will work in the next, or some land management might not be good for a particular type of land," he said.

"The trick is not to put one bad practice on top of another.

"This sharing of ideas and working together to look after the land is a priority for most farmers, because no one wants to see their property degraded and risking erosion by dust storms or heavy rain events."

For Gus, his farm benefits from good land management which shows in its improved productivity and long-term sustainability.

Plus, enjoyment of spending time on the land, and with his family who help manage it, makes the work and time spent worthwhile.

"If we're looking after the land and respecting our livestock, we get more enjoyment out of what we do," Gus said.

Banding together for regional branding

By Reef Catchments

WITH self-reliance and ability to problem solve with limited resources, what can a group of Mackay Whitsunday Isaac farmers in Queensland achieve together?

When it comes to the Greater Whitsunday Food Network, the answer is a thriving farmers market, annual, sold out farm to plate dinners, local produce in restaurants around the region and best of all, profitable farming enterprises which employ local people.

The network is a collaboration of local farmers with a vision to strengthen agriculture using recognisable regional branding.

Over three years since initial conception of a working group, they have gathered support from

individuals, consumers and all levels of government, to bring fresh, seasonal, local produce onto tables.

This year, the addition of a farm to plate bus tour will provide an opportunity to strengthen relationships between food lovers and producers.

Regional Landcare facilitator, Juliane Kasiske, is supporting the tour by bringing sustainable land management practice to the forefront as well as identifying successful marketing strategies.

Together, the network hopes to demonstrate the value of produce by discussing the pressures of farming and seeing first hand the realities of farm life.

It is also about helping farmers build direct relationships with customers and have confidence to produce food to meet that market.

Regional food ambassador Matt Golinski and ABC Landline's Pip Courtney will also be presenting their perspectives on the local food movement.

In May, regional Landcare facilitator, Juliane Kasiske, collaborated with network members Kell and Mandy Tennent of Cloudbreak Lowline Eungella Beef in an Innovative Grazing Networking Farm Tour.

These collaborations demonstrate the importance of shared knowledge and peer support when taking greater ownership over the supply chain, through direct sales.

A sense of community and cooperation over competition is proving successful for the network in the Greater Whitsunday Region.

• Visit www.greaterwhitsundayfood.org.au.



Greater Whitsunday Food Network members Kell and Mandy Tennent, president Deb McLucas and Regional Landcare Facilitator Julia Kasiske at the Innovative Grazing Networking Farm Tour.



The Australian Home Heating Association (AHHA) has been a proud partner of Landcare for 21 years.

AHHA has proudly contributed \$10,000 to the Farm Forestry Landcare Network which is working to establish sustainable timber forests on unproductive land across regional South Australia.

We look forward to sharing the progress of the project, and recommend that all consumers use firewood sourced from sustainably managed forests and plantations.

f AHHA.woodheat
@aushomeheating
homeheat.com.au



Sugar partnership helps to accelerate practice change

By Wet Tropics Sugar Industry Partnership

THE cane industry, natural resource management, and government agencies in the wet tropics in Queensland have formed a unique partnership to work together on improving land management practices.

The Wet Tropics Sugar Industry Partnership (WTSIP, pronounced 'witsip') is the first of its kind in Australia and a significant change for the industry.

Previously, external pressure to shift farming practices led to many water quality projects being delivered by a variety of organisations with different goals and perspectives.

Now, the industry is evolving and many of these organisations are collaborating to improve grower yields and profits as well as water quality.

WTSIP chair Joe Marano says the partnership is determined to make sure that growers benefit from investment coming into the region to improve water quality and is focused on delivering industry-led training and extension.

"It became obvious that after several years of funding through Reef Rescue incentive grants to growers, there was an opportunity for us to collaborate on providing industry-led extension support," Joe said.

"Many cane growers have been able to upgrade their equipment,

but we knew that they would get even greater value out of this equipment if we enhanced their knowledge with extension support.

"The best way to deliver this is by collaborating.

"We've recruited a network of 10 extension officers that are hosted within our partner organisations so they're embedded within industry networks.

"This approach enables us to benefit from integrating our activities as well as sharing ideas and innovations.

"It's a win-win for growers as well as water quality."

Carole Sweatman, CEO of Terrain NRM, said there were already tangible benefits of the industry working together towards the same purpose.

"Industry bodies, productivity services, sugar research, millers and natural resource management now sit around the same table taking responsibility for making collective decisions for the good of the industry," Carole said.

"This is producing better results on the ground for growers and as a consequence more funding is being channelled through this partnership arrangement."

While growers are continually making improvements to their practices, Peter Sheedy, Manager of Canegrowers - Herbert River, said WTSIP is sparking quicker and broader adoption of practice change.

"The cane industry has made huge shifts in practice change over



Shifts in practice for the Wet Tropics sugarcane industry has seen water quality the big winner.

the last few years and the big winner has been water quality," Peter said.

"The Wet Tropics Pilot Report Card, released in December 2016, scored all of our catchments as 'moderate', a reasonably good result that surprised many, but reflects how much effort has been

channelled into reducing runoff from farms.

"Because WTSIP is industry-led, it creates more trust with growers and will hopefully lead to longer term sustained engagement.

"It has already allowed us to engage with the vast majority of

growers in our region and they're more involved.

"Because of that we're in a stronger position to act as a catalyst for practice change," he said.

• Visit: www.wtsip.org.au or contact Elaine Seager at elaine.seager@wtsip.org.au or 0418 710701.

Organic growers discussion group a resounding success

By the Western Port Catchment Landcare Network

THE latest 'Australian Organic Market Report' reveals the nation's organic industry is worth \$1.72 billion, and growing by more than 15 percent each year.

This has created challenges for organic farmers who are trying to meet the increasing demand.

Pete Ronalds is the sustainable agriculture manager with the Western Port Catchment Landcare Network and supports farmers in the Port Philip and Western Port regions in Victoria through National Landcare Programme funding.

Several organic farmers suggested to Pete there was a lack of opportunities for them to share ideas and learn from other organic farmers.

An initial meeting was held on an organic vegetable farm in February 2015, and attracted more than 20 growers.

As a result of the meeting, the Organic Vegie/Fruit Growers

Discussion Group was set up to cater specifically for the needs of organic vegetable and fruit growers.

The group of farmers decided to meet every two months on different organic farms.

The group goes on a walk around the farm, and discuss topics including soil fertility, nutrient cycling, rotation design, composting, and on-going organic trials.

Twenty to 30 growers now regularly attend the group discussions and describe them as 'stimulating, inspirational, and informative' and are a great way to build relationships and network.

The National Landcare Programme has funded a couple of trials on participant's farms.

The trials have included comparing the effects of a range of green manure crops on soil fertility and nutrient cycling.

This has been illuminating, particularly the monthly soil tests indicating the rise and fall of nitrogen levels in relation to

seasonal conditions and the mix of green manures utilised.

The use of lucerne as a green manure at this stage is a clear winner in terms of its nitrogen input to the system.

A second trial is looking at the benefit of the addition of compost and green manure as both a source of organic matter and stimulation to nutrient cycling.

Again, the rise in nitrogen from the lucerne green manure crop has exceeded expectation and clearly demonstrates the benefit of this approach.

The addition of compost, as expected, also provided increased nitrogen and improved soil physical conditions.

Historically, field days and workshops involving the organic industry create great interest, but have left attendees thirsting for more information and practical support.

This group is unique in Australia, and possibly a leader in its mode of operation.



Farm walk at Peninsula Organics by the Organic Vegie and Fruit Growers Discussion Group.

Coordinated by Pete and facilitated by Chris Alenson, the discussion group is a model worthy of take-up by the burgeoning organic industry where discussion group information is

reinforced and built-on by the field days and on-going organic research trials.

• Contact: Pete Ronalds at peter@wpcln.org.au or 0402 650 382, or Chris Alenson on (03) 5968 3040.

Farmers and communities benefit from collaborative modernisation

By Meg Strang

THE Quigley family at Nevertire in western New South Wales has made some big changes in recent years to the way they run their farming operations – and they're not alone.

Throughout the local irrigation community, funding provided through Commonwealth and State Government assisted schemes has seen extensive modernisation of infrastructure and equipment, and farmers are working together to make the most of the new irrigation systems that have evolved through this process.

"Three years on from the changes we implemented with the help of the Sustaining the Basin: Irrigated Farm Modernisation (STBIFM) program and other similar funding programs, the new infrastructure is starting to deliver real benefits in our industry," Tom Quigley said.

Tom farms in partnership with his parents Tony and Sally, and brothers George and Richie, in the family business Quigley Farms.

"It's not just our operation, everyone on the Trangie-Nevertire irrigation scheme has got on board, as well as many river irrigators and farmers on other schemes," Tom said.

"There's been a huge amount of innovation and progress with people embracing new ideas and sharing knowledge to solve the challenges as we adapt to a new way of farming."

The NSW DPI's \$111 million (STBIFM) program has helped farmers like the Quigleys upgrade equipment and farm infrastructure creating more sustainable farming systems and significant water savings.

"The STBIFM funding allowed us to redesign and redevelop our water supply and drainage systems,

and reshape our fields to improve the effectiveness of our over head irrigators," Tom said.

"Through STBIFM we were also able to decommission fields where the soil types really weren't suitable for irrigation.

"When we relied purely on furrow irrigation, our operations were effectively a stranded asset during dry years.

"Now it's no longer an all or nothing proposition.

"When we have low allocations, the infrastructure improvements and overhead irrigation give us the flexibility to focus on winter crops like chickpeas, canola and wheat.

They only need a small amount of supplementary water to significantly lift yields and profitability.

"In recent years farms have been able to sustain production even when there hasn't been enough water for large areas of cotton, investing in our farming operations and retaining staff which keeps people in the community.

"That's helped smooth out the boom and bust cycles agriculture is subject to, creating a more stable local economy.

"Farmers throughout this region have invested in new infrastructure in partnership with government support, and we've had to change the way we operate to make this equipment work effectively, but now it's really paying off.

"Farmers have been really happy to share knowledge and bounce ideas off each other and we're getting the technology bedded down now.

"We're getting the hang of how these new systems work and maximising production."

"We're all working together towards the same goal of making more out of a limited water resource," he said.



Funding from the STBIFM program helped Tony and Tom Quigley laser level fields to improve the efficiency of their over head irrigators.

The STBIFM program is funded by the Australian Government through the Sustainable Rural Water Use and Infrastructure Program.

Since June 2012 nearly \$70 million has been invested in 108 on-farm modernisation projects.

Funding has resulted in 32GL of identified water savings, with 10GL remaining on farm for irrigation increasing on-farm productivity.

• Contact: (02) 6337 2186, 0429 340 600, email: meg.strang@lls.nsw.gov.au or visit: www.dpi.nsw.gov.au/info/sustainingthebasin.



Winter crop grown with supplementary water supplied through overhead irrigation on a reshaped field Photo: S Quigley.

New book shows how rabbits have shaped Australia



Rabbits have had a major impact on Australia.

RABBITS have been around for so long that some city folk think of them as native animals. But prior to the release of myxomatosis in 1951, they were Australia's most serious pest animal.

South Australian grazier, Landcare, and author Bruce Munday tells the fascinating story of rabbits in a timely book published by Wakefield Press.

Timely, because his research includes interviews with old-timers who can recall the rabbit plagues and whose stories should never be lost lest history repeats itself.

Caged rabbits came with the First Fleet, but not until 1859 when Thomas Austin released wild rabbits at Barwon Park near Winchelsea, Victoria did they become a problem.

By the early 1870s, rabbits had made much of VIC, South

Australia and Tasmania home, and from there New South Wales west of the divide was just a matter of time, as were Queensland and Western Australia.

The author captures the mood of the times as landholders first speculated that 'they'll never reach here' then soon switched to 'how are we going to keep them out?' and then 'how do we get rid of them?'

Having tried in vain shooting, trapping, poisoning, gassing, exotic predators, and warren destruction, the penultimate weapon was netting fences.

Literally thousands of miles of supposedly rabbit-proof fence were erected along state borders and property boundaries, underlining the futility of this 'war on rabbits' unless everyone was participating.

Finally a transmissible disease, myxomatosis, and 45 years later calici, ended the rabbit plagues.

Whilst the battle was over, the war was far from won, and the author shows how vital the Landcare model is where landholders collaborate with each other and with government agencies to control and monitor the pest.

As the author says, 'the tale of Australia and the rabbit is really a tale of its people and their relationship with it. The people who brought it here, had fun shooting it, wept over its devastation of everything they valued, lived off trapping, dreamt of controlling, searched for cures, and rejoiced when they finally got sick. Rabbits exhausted our emotions, our wits, our natural garden and our bank accounts.'

This is a compelling story, thoroughly researched, highlighting the fundamental importance of collaboration between neighbours (including government) if pest plants and animals are to be controlled.

Thus the spirit of Landcare remains fundamental to our present and future progress in the battle against the rabbit scourge.

Peter Alexander is chair of the Foundation for Rabbit Free Australia, a publicly subscribed fund to support research, raise awareness and encourage on-ground action to eradicate feral rabbits from Australia.

Bruce Munday established the Tungillo Landcare Group in 1990, still active today, and the Landcare Association of SA in 1998.

From wildland to bushland: A landscape transformed

By Landcare Australia

FROM an impenetrable forest of weeds containing 22 noxious species to a native bushland with 64,000 native seedlings – the M2 Macquarie Park Motorscapes site has gone through a dramatic transformation.

This major bush regeneration project in Sydney took place over a period of twelve months on a five-hectare site, with the 64,000th seedling planted in June.

It was part of Transurban's roadside regeneration program, an initiative taking a fresh, new approach to how unused land beside Transurban's roads can be transformed to benefit communities and the surrounding environment.

The M2 Macquarie Park Motorscapes project is the second in a series undertaken by Landcare Australia through its partnership with Transurban, following the regeneration of Melbourne's Power Street Loop.

The Sydney site sits between the Hills M2 Motorway and Lane Cove National Park, with Shrimptons and Industrial Creeks at either end, draining into the Lane Cove River.

Initial vegetation surveys found 170 flora species on the site or in

adjoining areas, of which 22 were noxious weeds and seven were Weeds of National Significance, dominating the flora in much of the site.

The site also proved a major source of weed infestation for the neighbouring National Park.

The riparian zones of both creeks were severely degraded by woody weeds and an understorey of exotic ground covers.

Their banks were undercut and badly eroded, and the creeks were carrying gross pollutants and contaminants from upstream of the site.

The task at hand was a mammoth one. Rehabilitation commenced in spring 2016 with weeds controlled and removed using a combination of methods.

Workers utilised excavator and positrak mounted forestry mulching heads and manual lopping, with teams of bush regenerators involved in follow-up work, controlling weeds in the understorey.

The riparian and aquatic habitat of Shrimptons Creek and Industrial Creek has been improved by stabilising the creek banks with sandstone revetment to reduce erosion and sediment transport downstream.

Installation of gross pollutant traps on each creek put a stop to contaminants being carried downstream to the Lane Cove River.

The facts and figures from the regeneration process are impressive:

- 10,350 man hours have gone into the transformation;
- 4,000 cubic metres of topsoil and 2,500m³ of mulch was used on the site;
- 33,000 tree guards were installed; and
- 64,000 native tubestock were planted.

A flora and fauna monitoring assessment conducted in June 2017 to compare with the original baseline assessment already shows a significant increase in the ecological value of the site as a direct result of the project works.

One example of this can be seen at Industrial Creek where the area has been eradicated of introduced flora species, and a total of 5,000 native tubestock were planted to reinstate the natural ecosystem.

Ongoing, intensive maintenance by a committed bush regeneration team is essential to secure the continued rehabilitation of the



site and prevent a reversal of weed dominance.

While motorists enjoy the vibrant artwork, Kinetica, that rises out of the site, ongoing work in the background will

be undertaken by Landcare Australia to help the native bushland thrive, creating a valuable ecological buffer between the motorway and Lane Cove National Park.

Farewell from the National Soil Advocate

Major General Michael Jeffery,
National Soil Advocate

AUSTRALIAN agriculture faces the global imperative to do more with less—less arable land, less water, lower inputs—while building resilience to an often harsh climate.

Australian farmers can only achieve real productivity gains over the long-term protecting the soil, water, plant and animal assets that underpin Australia's food production.

Our ability to remain food independent, a net exporter of food and fibre, and an exporter of good agricultural land practice knowledge also enhance our national security.

Many areas of the world, including Australia, are facing substantial soil, water, food and nutrition problems.

Globally, the rapid scale of soil loss far outpaces the natural cycle of soil formation.

At this rate, one prediction is that much of the world's agricultural soils will be gone within the next 200 years.

In December 2012, the Australian Government, in recognising the significance of soil in our daily lives and the impending international security implications of soil loss being connected to food and water shortages around the globe,

appointed a National Advocate for Soil Health.

This was a world first in terms of elevating soil health to a level of national significance.

The role of the Soil Advocate was developed to provide strong leadership and advocacy on the importance of healthy soil, water and vegetation, and the underlying benefits for all Australians.

I was honoured to be appointed as Australia's first Soil Advocate and have appreciated every moment in the role.

I am also grateful for the support which I have received from the Landcare Community throughout Australia and wish to thank you all for making the role effective and successful.

In my time as Soil Advocate, I have met with several thousand farmers, scientists, Indigenous interest groups, policy makers, politicians, consultants, students and community groups.

All are actively working to meet land management challenges across the country.

I have seen first-hand the merging of new and old skills and technology, the collaboration of disciplines and the willingness to work together towards shared challenges.

I am in no doubt that if we harness and develop our considerable expertise we will build

healthy, well managed soils, which are resilient to climate change and support productive ecological and agricultural systems over the long-term.

By so doing we can show the rest of the world how ancient and inherently infertile soils in a difficult climate can be managed to meet the world's Sustainable Development Goals for land and soils.

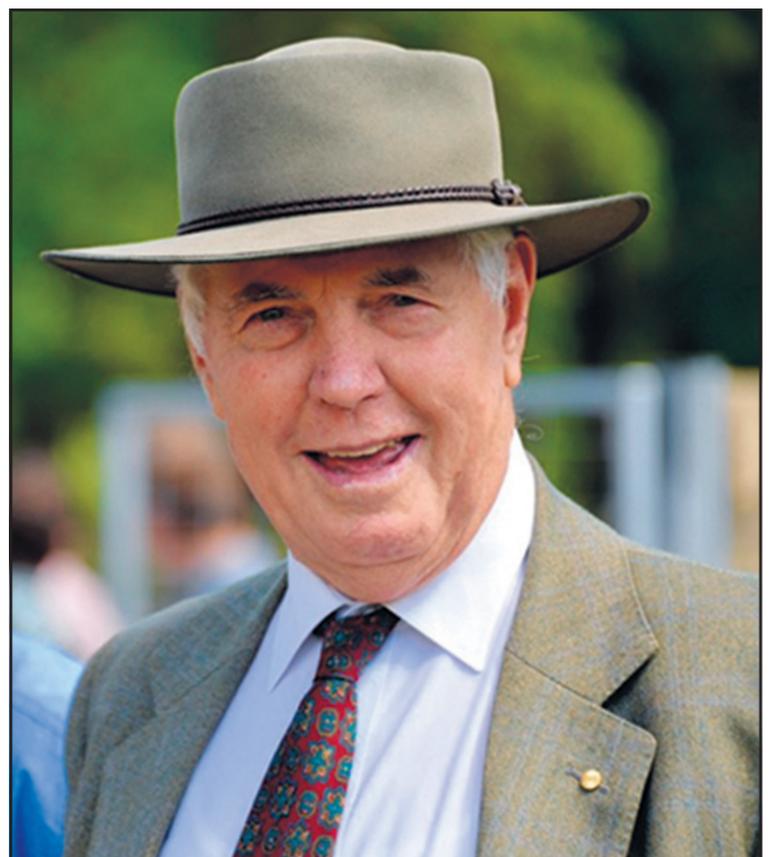
However, the role of the Soil Advocate provides much more than another public speaking platform. It is above all a unique avenue for farmers to express their views and concerns, and share their knowledge with a person who is vitally interested in protecting their soils.

The role established a direct avenue of multi-lateral engagement and discussion between farmers, the scientific research community and governments.

Also of note is the strong international interest in the role by the United Nations Food and Agriculture Organisation (FAO), the USA, China, New Zealand, Rwanda and Fiji.

I believe there are substantial benefits for all Australians from a more focused and integrated approach to the health of our soil.

A regenerated agricultural landscape will ensure the whole community will be healthier in terms of the food we eat, the



Outgoing National Soil Advocate Michael Jeffery.

air we breathe and the water we drink.

In December this year I will submit my Soil Advocate report to the Prime Minister. It summarises my key findings and recommendations and if approved

will help shape the future policy direction necessary to achieve good soil health in Australia.

I look forward to being able to share its contents with communities as across the Landcare movement.

Farming communities working together for reef outcomes

By Terrain NRM

FARMERS and graziers in Queensland's north are playing a leading role in designing two groundbreaking projects to improve productivity and reef water quality.

The Queensland government has committed a total of \$33 million to fund two Major Integrated Projects (MIPs) in the Wet Tropics and Burdekin regions, led by local natural resource management (NRM) groups Terrain NRM and NQ Dry Tropics.

WET TROPICS MIP

The Wet Tropics MIP is working with cane and banana farmers in the far north to reduce nutrient and pesticide losses from farms, while the Burdekin MIP is supporting local landowners to minimise sediment and particulate nutrient runoff into local waterways.

Both NRM groups are working alongside a consortia of partner organisations to achieve enduring and sustainable land management improvements within local communities.

Hundreds of people in the Wet Tropics are helping to steer the course of the reef with a project designed by the community, for the community.

The Wet Tropics MIP project concentrates efforts into the Tully and the South Johnstone catchments, which are identified as hotspots due to their intensive horticulture industries.

The project provides an opportunity to achieve a greater impact on water quality using a more localised approach.

While farming practice change is proven as the most cost-effective way of improving water quality, the project proposes a range of other actions in order to meet reef water quality targets.

Terrain NRM CEO Carole Sweatman said the project is an exciting opportunity to make a real difference.



An aerial view of the Tully catchment, far north Queensland.

"By working together to pool shared knowledge of the landscapes and circumstances of the basins, people living and working in these areas have created a unique program tailor-made to their environment," Carole said.

Over the next three years, an implementation phase will operate across a range of scales, covering five key themes including catchment repair and treatment systems, farm services, local scale monitoring, 'Our catchment - our community', and influencing.

"The success of projects that require practice change must involve the landholders first and foremost," cane grower Alan Colgrave said.

"To bring about change we must get our farmers involved so they can have confidence and belief in going forward.

"I've never been involved in a project that is so collaborative."

- Visit www.terrain.org.au/MIP.

BURDEKIN MIP

The Burdekin MIP, known locally as Landholders Driving Change, aims to tackle erosion and improve

land management and productivity in the Burdekin region - with graziers getting on board to help design solutions.

Erosion causes valuable topsoil primarily from grazing lands to wash downstream, carrying fine sediment particles that reduce the amount of light needed by coral reefs and seagrass to grow and survive.

The project is targeting the Bowen, Broken, Bogie catchment near Bowen and Collinsville in QLD, which produces almost a quarter of the total fine sediment load delivered to the reef.

Local landholders attended a series of workshops earlier this year to propose ideas and solutions.

Then a group of local graziers, scientists, government officers and technical specialists developed and prioritised these ideas into an action plan.

"They're actually asking the landholders what can be done to reduce erosion, rather than having somebody in Brisbane or Canberra tell you how to manage your land," Strathalbyn Station, Collinsville, grazier Bristow Hughes said.



Grazier Bristow Hughes sees the effect of water on dispersive eroded soil.

Over the next three years the project will trial a mix of new, tried and tested activities that include gully remediation, improving pasture cover, education and training, incentives to support better practices, involving other non-grazing local landholders; and forging closer links between landholders and policy makers.

The aim is to develop solutions that could be transferred to other catchments.

Landholders Driving Change is combining graziers' knowledge with the latest scientific research to improve how the community manages its land for the long term.

- Visit: www.nqdrytropics.com.au/landholdersdrivingchange.



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