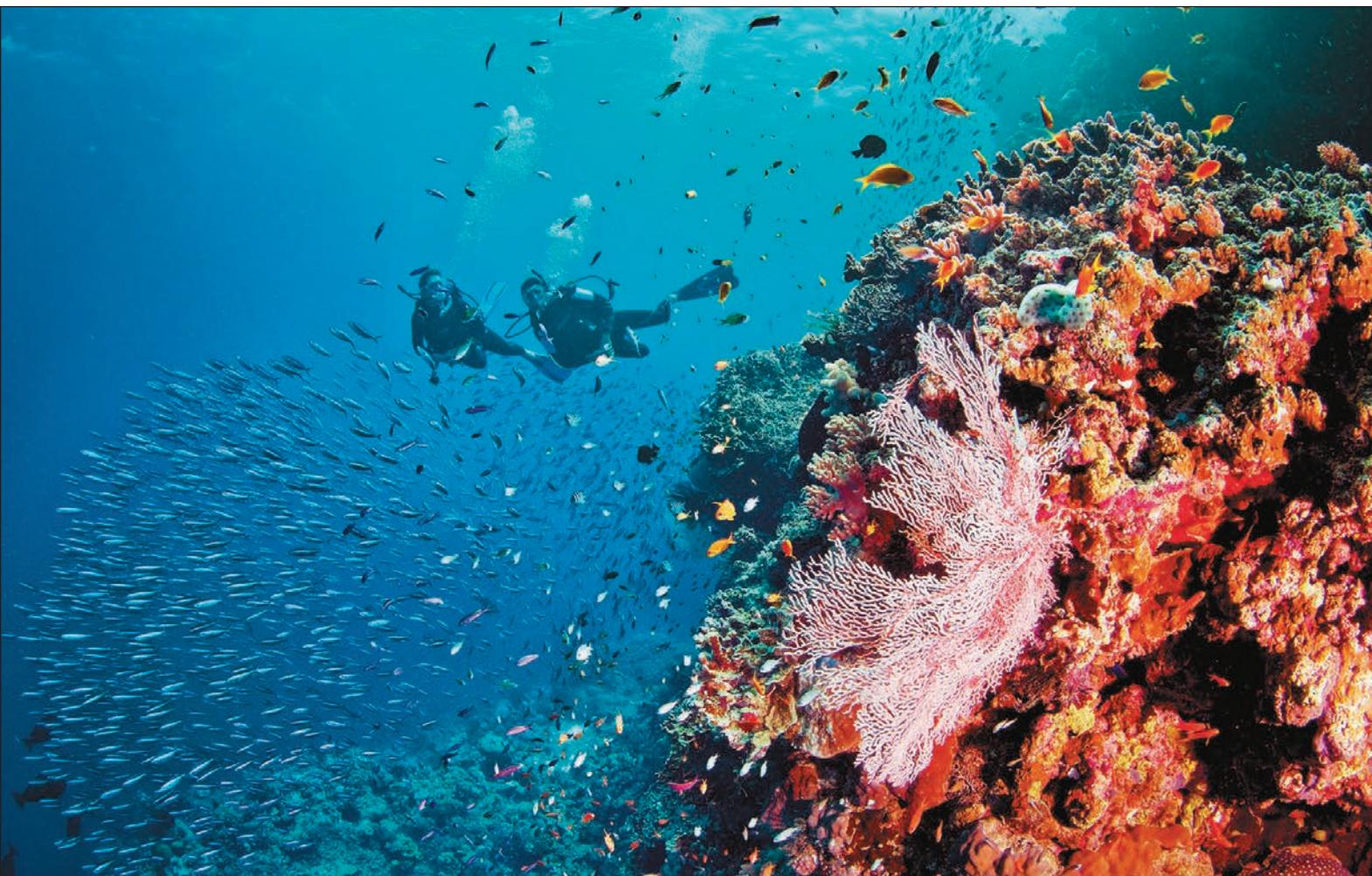


Soil mapping improving the health of the Great Barrier Reef



Cutting-edge soil mapping techniques are helping to improve the health of the Great Barrier Reef.

AERIAL photography is being employed to identify areas of high erosion-risk in Queensland's Great Barrier Reef catchments to improve the health of this natural wonder-of-the-world through informed and targeted land management.

The mapping is being conducted to improve the management of soil run-off and limit fine sediment entering into the reef catchment areas.

The Reef 2050 Long-Term Sustainability Plan (Reef Plan 2050), adopted by the Australian and Queensland Governments in March 2015, is making significant progress towards long-term improvements in activities that are recognised to be a major threat to the health of the reef, including contaminants from agricultural activities.

Targets aim to reduce total sediment run-off by up to 50 per cent in key areas.

There is considerable research showing that the bulk of the fine sediment affecting the water quality in the reef is predominantly derived from the erosion of gullies and riverbanks, and not from the majority of agricultural land.

As part of reaching this target, the Australian Government Reef Programme is investing in a collaborative research project which uses aerial photography techniques, called digital aerial photogrammetry, to produce cost-effective detailed maps of gullies and surface water flows across large areas.

There are many aerial photography tools already available

that vary in cost and effectiveness for farm-scale land management.

Digital aerial photogrammetry offers higher surface resolution than satellite products and is more cost effective than photography and satellite data for generating Digital Surface Models (DSM) maps at 10-50 centimetre resolution over areas greater than 250 square kilometres.

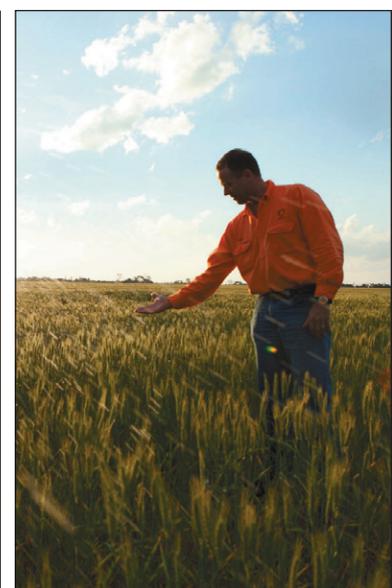
These multilayered aerial maps can be used to identify gullies with high erosion risk that should be managed, measure gully erosion rates and monitor the effects of remediation over time.

DSM maps can help farmers, Landcare groups, local councils and researchers in the Reef catchment area to easily identify locations of high erosion risk requiring monitoring and/or intervention.

By focusing on erosion hotspots, farmers can better tailor their time and land management activities to keep their soil on country.

Less erosion means a more productive bottom line for farmers while contributing to improving the health of one of the world's most iconic natural wonders.

This project, which builds on previous investments in the mapping, monitoring and management of gully erosion processes in reef catchments, is a partnership between the Australian Government Department of Agriculture and Water Resources, CSIRO, Queensland Department of Science, Information Technology and Innovation, the National Environmental Science Programme and NQ Dry Tropics.



Giving irrigators a well-earned COFFIE break

THE PILOT of a new Australian Government programme, which aims to save water and improve farm efficiency and productivity through irrigation upgrades, has been launched in South Australia.

The \$15 million Commonwealth On-Farm Further Irrigation Efficiency (COFFIE) programme aims to improve water use efficiency to deliver economic, social and environmental benefits for Murray-Darling Basin communities.

A range of irrigation enhancement projects will be funded in exchange for water savings for the environment.

Projects need to generate a minimum water saving of at least two megalitres, and beyond this any additional water savings will be retained by the irrigator.

The pilot programme is the first in the next generation of programmes the Department of Agriculture and Water Resources will deliver.

It will be conducted in South Australia's Murray-Darling Basin catchments before the launch of the full programme across the Basin in late 2017 through to 2024.

Landcarers shine at National Awards

SEPTEMBER'S National Landcare Awards had many inspirational nominees in the nine awards categories.

This year there was a double winner, with the Australian Government Innovation in Sustainable Farm Practices Award winner, Western Australia's Southampton Homestead, also taking home the People's Choice

Award after receiving the most votes from the Australian public.

Jeff Pow was overjoyed to accept both awards.

"It's an affirmation that we're on the right track," Mr Pow said.

"Regenerative farming is the next level.

"We're rebooting degraded landscapes and producing food in the same breath.

"It's an amazing way to restore the environment.

"I'm going to be handing this planet on, and I need to be able to say that I wasn't happy with how things were being done.

"I drew a line in the sand and said that this is the way we should do it."

For all winners, see inside.



Dual award winner Jeff Pow of Southampton Homestead.

Managing soil vital to sustainability

By Luke Hartsuyker,
Assistant Minister to the Deputy
Prime Minister

SINCE taking up the responsibility for natural resource management in my role as Assistant Minister to the Deputy Prime Minister just a few short months ago, I have been consistently struck by the breadth and importance of the issues being addressed.

Soil resource management—one of the themes of this edition of Landcare in Focus—is no exception.

Healthy, well managed soil is a vital part of the sustainability and productivity of our agricultural sector and the natural environment.

So it is essential that we make the right investments in the future of our soil.

Effective solutions to the challenges we face are best delivered in partnership with volunteers, farmers, land managers and key stakeholders and based on leading global expertise.

That is why the Australian government's investment in soil health and good soil management includes over \$800 million in projects delivered by locals to improve soil and biodiversity management on Australian farms since 2008.

And it includes approximately \$85 million from the National Landcare Programme to support Landcare projects aimed at building healthy soils for agriculture, increasing farm profitability and increasing farmers' resilience to climate variability.

Of this, \$1.5 million has been provided to CSIRO to investigate the role new technologies and data could have in improving on-farm decision making and increasing productivity for farmers.

Through the Australian Collaborative Land Evaluation

Program, we are now working with CSIRO to improve national soil information through approaches such as SoilMapp for iPad.

Also, \$139 million has also been provided for the Carbon Farming Futures Programme to deliver research, on-farm trials and communication activities that support emissions reduction at the farmgate.

This includes \$14.3 million for soil carbon research.

While current soil management practices are effective, more needs to be done and we join our farmers in recognising the importance of looking at new and better ways to manage and understand our soils.

I was proud to launch the Global Soil Biodiversity Atlas recently, an international collaboration facilitated by the European Commission as part of the 2015 United Nations International Year of Soils.

The Soil Atlas is an initiative that promotes the sharing of knowledge and expertise on a global scale.

It aims to raise awareness of the vital role of soil organisms in sustaining life on our planet.

The Soil Atlas includes a collection of photos, maps, charts, statistics and information that scientists, educators, policy-makers and non-specialists alike can use to understand the diversity and importance of life below ground.

The Atlas is already the talk of the international scientific community, as it is part of the globally coordinated effort to improve and conserve soil, protect biodiversity, and address ongoing global food security.

I congratulate all those who worked so hard to bring the Atlas to life, and I look forward to seeing those benefits passed onto our farmers, their families, our regional communities and Australian agriculture as a whole.



Assistant Minister to the Deputy Prime Minister, Luke Hartsuyker.

National programme under review

THE Australian government review of the National Landcare Programme is focused on the delivery of different elements of the programme.

The review included a number of independent consultancies, internal analysis and a stakeholder survey.

More than 400 responses to the stakeholder survey were received, providing valuable insights and feedback.

The report of the review will be used by the government to look at opportunities for improvement of the remainder of the current programme and consider future investments in natural resource management from July 2018.

The report will be released in 2017.

Better seasonal forecasting

PROGRESS is well under way on a \$3.3 million Bureau of Meteorology supercomputer project to provide better seasonal forecasts.

The new seasonal forecasting service will deliver more localised forecasts, improving the modelling resolution from 250 kilometres down to 60km, and will also provide more frequent forecasts, updated weekly instead of monthly.

Deputy Prime Minister and Minister for Agriculture and Water Resources, Barnaby Joyce, said the project was delivering on the government's Agricultural Competitiveness White Paper commitment to give farmers more accurate, localised and frequent forecasting information.

"Accurate, detailed and frequent climate outlooks are a vital tool for our farmers in managing risk and informing business decisions, supporting better returns at the farmgate," Minister Joyce said.

"It's been estimated that the potential value to the agriculture sector of improved seasonal forecasts is more than \$1 billion each year."

The new service is expected to be fully operational by 2018-19.

National conference emphasises vibrant community

By Tessa Jakszewicz, CEO
Landcare Australia

THE recent national Landcare Conference and Awards were a great celebration of a vibrant and passionate community.

The vibe at the event was electric, with over 600 delegates gathered in Melbourne after traveling from near and far to attend the three-day knowledge sharing sessions.

It was great to see so many young and enthusiastic Landcarers present, particularly those phenomenal young nominees in the Manpower Young Landcare Leader Award category.

For the first time in National Landcare Awards history, there was

a tie for this award, between two inspirational ladies from opposite sides of the country - Naomi Edwards from Queensland's Gold Coast, and Ella Maesepp from Katanning in Western Australia.

This was such an exhilarating result because it shows just how vibrant the Landcare movement is for the younger generation across the country.

These two women have been doing fantastic work, motivating people in their respective communities, and it was great to see their work being recognised.

The Yates Junior Landcare Team award also proved inspirational, with seven innovative groups nominated.

Representatives from the winning group, Wirraminna Environmental Education Centre from New South Wales, were confident speakers and proved that we can allay fears about the future of Landcare.

It is alive and well!

I would like to thank the Victorian government Australian government's National Landcare Programme, NRM Regions Australia, the National Landcare Network, the working groups, awards judges, and our sponsors for working with us to put on this conference and awards.

It is a massive amount of work to put on an event of this size and we would not have had such great success without the collaborative time and effort of many.



Landcare Australia chief executive, Tessa Jakszewicz.

Steve Burgess wins Bob Hawke Award

THE hotly anticipated winner of the Bob Hawke Landcare Award was announced on September 22 at the National Landcare Awards in Melbourne, with the prestigious honour going to Queensland conservationist and farmer Stephen Burgess.

The award comes with a \$50,000 prize for Stephen to further develop his knowledge and skills in Landcare and sustainable land management practices.

Stephen was not there to pick up his award in person as he was recovering from recent open-heart surgery, but told Landcare in Focus it came as "a fair bit of a surprise," and he sees it as a great chance to publicise the spectacular work people are doing in Landcare.

Growing up on a farm in Queensland, Stephen has always been passionate about Australia's beautiful landscape and countryside, and is still an avid bushwalker to this day.

He spent years working in Western Australia as an agriculture scientist before returning to Queensland 20 years ago and developing his own property in the Mary Valley, "Wurraglen Farm", that combines sustainable market farming, light grazing and management of a nature refuge.

Stephen plans to use the prize money to look at systems in place for small-scale agricultural production, particularly in horticulture.

"That's the way we are set up in the Mary Valley, with just small patches of good soil due to the way the landscape is," Stephen said.

"The challenge is trying to find a way to manage that landscape in the current economic system."

Stephen is eager about the prospect of doing more for the agriculture sector now he's won.

"I don't think we have an agriculture system that works yet here in Australia," Stephen said.



Winner of the prestigious Bob Hawke Landcare Award, Stephen Burgess.

"The more people we get trying new things, the better chance we have at getting a system that works economically and socially, and looks after the environment and soil."

Working as a high school teacher for 10 years, Stephen finds particular satisfaction in getting

kids and young people interested in looking after the land.

"When that light goes on in a kid's brain, of valuing the natural environment, then that's with them as a spark for life," he said.

"It means that when they're an adult, they might remember values

of the natural environment and make better decisions."

He finds it difficult to give advice to young people interested in farming, because he thinks it's the most difficult occupation that a young person could take on.

But if they are keen?

"Just get out there and do it."



Region benefits from large upgrade

THE AUSTRALIAN Government's recently opened Sunraysia Modernisation Project is providing reliable, year-round access to water combined with considerable water savings.

The replacement of open irrigation channels and inefficient irrigation methods used for cropping and horticulture, with pipelines and automated pumping stations, directly benefits about 2000 irrigators across Victoria's north-western Mildura, Red Cliffs and Merbein districts.

Deputy Prime Minister and Minister for Agriculture and Water Resources, Barnaby Joyce said the \$120 million project was already delivering for local irrigators.

"The completed project will generate water savings of at least seven gigalitres annually in the Mildura region, while providing water access 365 days a year," Mr Joyce said.

"Not only was work completed on time and under budget, but 23.9 kilometres of open channel has been replaced, 15.9km more than originally planned."

One beneficiary, Kim Chalmers from Chalmers Nursery, is pleased with the results.

"We have doubled our nursery production," Kim said.

"Peak demand for water for the nursery and our cuttings is during winter, so the security of water availability has already benefitted our business."

Our **LANDCARE IN FOCUS** Annual Special Publication survey is now underway and we want your feedback!

Please visit: <http://bit.ly/LiFSurvey>



In April 2016, Landcare Australia published a *Landcare in Focus* Annual Special Publication and technical supplement, "Building Drought Resilience".

This publication included commentary from a range of sources including Landcare groups, the Federal Government, CSIRO, Bureau of Meteorology, researchers, and topic experts.

If you read this year's edition, please fill out this survey to aid us in the development of our next technical supplement, coming in March 2017.

Reforestation offers long-term soil carbon benefits

It has been demonstrated that soil carbon levels impacted through land use changes can be reversed through long-term reforestation.

The *Soil Carbon Benefits Through Reforestation* Project, funded through the Filling the Research Gap Programme and conducted by the Queensland Department of Agriculture and Fisheries (QDAF), confirmed that soil carbon levels declined through land use changes from remnant native vegetation to pasture or cultivation.

Younger reforested areas were also shown to have similar soil carbon levels to pastures, but older plantations (at least 15 years) had increased soil carbon beyond the levels achieved with pastures.

"Substantially more carbon is stored in above-ground biomass with tree plantings, compared with pasture or cultivated land uses," Project leader, Dr Tim Smith said.

"Therefore, reforestation is a viable option for maintaining or restoring soil carbon over the longer term.

"It is an excellent management option for Australian agriculture, particularly in degraded land."

The project determined soil and biomass carbon changes across hardwood, softwood, savanna and rainforest ecosystems in subtropical and tropical Australia.

The regions sampled included mixed species rainforest plantings in the wet tropics of North Queensland, spotted gum plantings in the Burnett and Scenic Rim regions of south-east Queensland, Pinus plantations in the south-east Queensland coastal lowlands, and African mahogany in the Douglas Daly region of the Northern Territory and in Kununurra, Western Australia.

"The project has allowed us to fill some large knowledge gaps related to soil carbon in tree-based systems in northern Australia," Dr Smith said.

"It gives some confidence to policymakers, industry groups and farmers that planting trees can rebuild carbon stocks where they have previously been depleted," he said.

An economic analysis of the profitability of small scale, on farm forestry reforestation projects demonstrated that additional income through carbon credits or alternative sources, such as tourism as

found in North Queensland, is required to provide viable returns for hardwood plantations and amenity plantings.

High-value plantation species, such as African mahogany, were most likely to provide economic returns to the grower.

However, based on the current carbon prices and substantial costs, significant land use change to carbon forestry is thought to be unlikely.

"While the economic analysis showed borderline returns for growing hardwood species for the building industry, high-value species such as African mahogany certainly provide the opportunity for economic returns to the grower," Dr Smith explained.

However, he added that the benefits of reforestation extended beyond economic considerations.

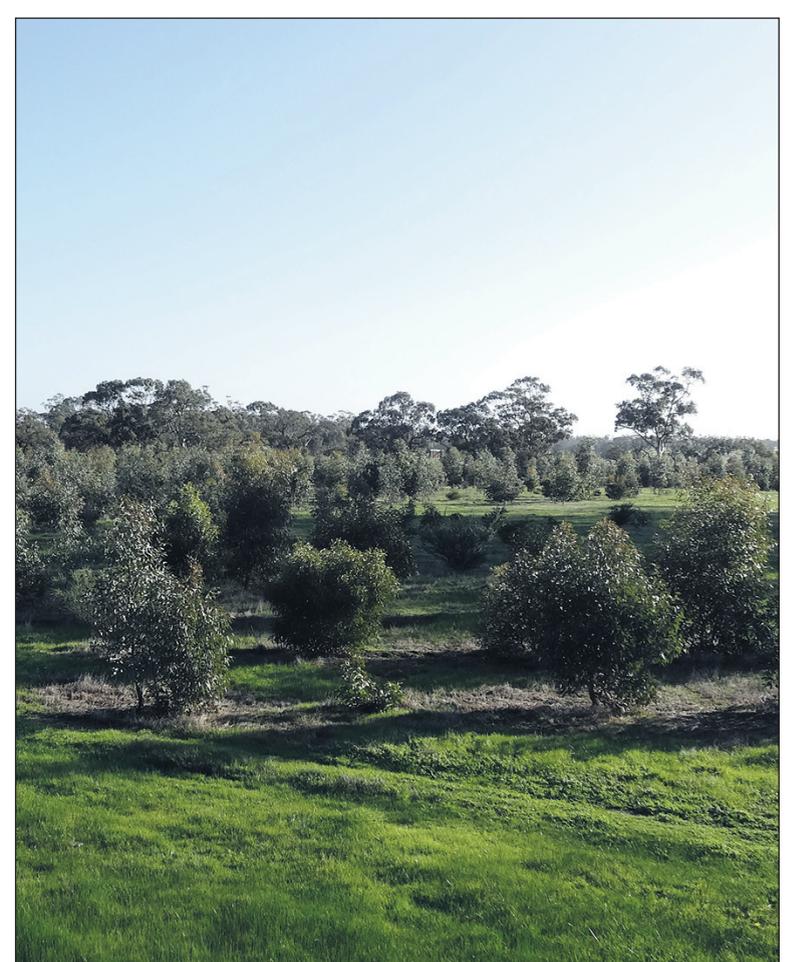
"We need to look at the strategic incorporation of trees in the landscapes to benefit agriculture," he said.

"Rehabilitation of degraded land, windbreaks for crops, livestock shelterbelts, buffer zones for watercourses and wildlife corridors, all of these are measures that, rather than impeding agriculture, contribute to its long-term sustainability."



The Soil Carbon Benefits Through Reforestation Project is helping reduce soil carbon levels.

A conservation class act in Victoria



The impressive results of the world-first conservation project in Victoria are there for all to see.

Since 2009, Landcare Australia and Kowree Farm Tree Group (KFTG) have been working together to manage a world-first conservation project in Victoria, with impressive results.

The Conservation Reserve is an innovative conservation program begun by Bank Australia on a collection of rural properties in the Wimmera region of western Victoria.

What makes this project stand out from other conservation projects is the properties are owned by Bank Australia's customers and were purchased specifically for protecting and improving biodiversity, and capturing carbon in native vegetation.

An important element of Bank Australia's business strategy, the Conservation Reserve offsets biodiversity loss and greenhouse gas emissions related to the financing of home and car loans.

In real terms, when a customer purchases a block of land to build a new home, an equivalent area of land is allocated for protection or revegetation in the Reserve.

For seven years, Landcare Australia has managed the planning, implementation and delivery of works at the Conservation Reserve in partnership with KFTG.

Working on an area equivalent to the size of 464 football fields, the successes of the project are as immense as its scale and have been achieved through a strong emphasis on community engagement and establishing strong partnerships between Bank Australia, KFTG, local business and community groups.

The numbers speak for themselves.

Forty-three kilograms of seed was sown and 70,000 indigenous seedlings planted while 680 volunteers contributed more than 2,000 hours of on-ground activities. Five hundred and sixty-two hectares of remnant vegetation that provides habitat for threatened species has been protected under covenant.

Alongside this, future carbon offsets of greater than 87,000 tonnes of carbon are predicted, within a 100-year timeframe.

As a result of the habitat protection and restoration works undertaken over 927ha throughout the last seven years of the project, a number of native species are likely to benefit.

These include Victoria's most iconic, yet endangered bird, the south-eastern red-tailed black cockatoo, the critically endangered golden sun moth, the growling grass-frog and the striped

legless lizard, both of which are listed as vulnerable.

While the environmental outcomes of the project are certainly impressive, the social outcomes are also something to be proud of.

The Conservation Reserve has played host to an average of 100 visitors a year, through field trips, planting days and bus tours.

The local community is involved through educational activities for local schools and planting days are used as fundraising activities for local groups.

The Conservation Reserve is not just an outstanding example of a business understanding the importance of conservation, but is an important community education resource.

By including and educating the local community along the way, there is a significant level of local and regional support for the initiative.

With such impressive environmental outcomes, positive community benefits, and a legacy to last in perpetuity, the Conservation Reserve is a shining example of what can be achieved through innovation, collaboration and realising the importance of making a lasting difference.

Linking areas of native vegetation on farm lands

By Dr Ted Wolfe and Jacinta Christie, Murrumbidgee Landcare

RIVERINA farmers have progressively lifted the productivity and sustainability of their farmlands.

Now, many landholders have taken the next step by conserving and rehabilitating the isolated patches of native vegetation on their farms to enhance biodiversity.

In three landscapes (Illabo, Bethungra and Junee; Kyeamba Valley; Tarcutta) over the past three years, 43 landholders have worked together to plan, link, plant, and protect patches of native vegetation.

The project, coordinated by Murrumbidgee Landcare Inc. and funded by the Australian government's Biodiversity fund, fosters a community approach to planning and planting, encouraging landholders to develop their own plans within the project framework.

Peter and Sandra Heffernan have a farm near Junee and have taken a practical approach in their landscape, originally cleared to make way for cropping and improved pastures.

On their hillslopes, they have carefully followed a design of establishing tree/shrub zones in belts and triangles alongside

paddocks managed for pasture, grazing, and cropping activities.

Supplementary plantings have occurred along natural watercourses.

John and Nicole Hopkins, whose property is at Illabo, have taken advantage of their landscape where tree regeneration is naturally more active.

They fenced off potential revegetation areas, and now decide strategically how and when to graze shelterbelt areas.

They acknowledge the importance of working with the landscape and point to the positive influences of NRM involvement on family life, and school-age children.

Murrumbidgee Landcare's project has achieved impressive results.

Taking place on properties with a total area of 37,221 hectares, nearly 700ha of biodiverse plantings of trees and shrubs have been made and 400ha have been protected and enhanced for natural regeneration.

Almost 24,000ha have been treated to help protect native animals and vegetation from pests.

Other benefits include shade and shelter for livestock, insect refugia, bird migration, and human satisfaction and capacity.

For further information about the project contact Jacinta Christie jchristie@mli.org.au or Nicole Maher nmaher@mli.org.au.



The Upper Burdekin Green Army project team developing their skills.

Green Army teams work to preserve Aboriginal culture

CLOSE to 5,000 plants of 54 different species have been planted and 10 hectares rehabilitated to date, by Green Army teams hosted by Queensland's Girringun Aboriginal Corporation.

By the end of 2017, the corporation will have hosted seven Green Army projects over two and a half years.

The participants, aged between 17 and 24, are gaining invaluable experience in habitat restoration, revegetation and other natural resource management activities, and benefiting from traditional owner mentoring.

Complementing the Girringun Ranger Programme, the projects involving Green Army teams are taking place in the National and World Heritage-listed Wet Tropics of Queensland and focus on environmentally and culturally significant areas across the region identified for management by traditional owners.

Working with Green Army service provider ManpowerGroup and Landcare Australia, Girringun members, traditional owners, Aboriginal groups, government agencies and the community, the goal is to promote and preserve Aboriginal culture to guarantee its survival.

One of the projects, the Habitat Restoration and Revegetation on Girringun Country project, has already been completed.

Through targeted revegetation and weed control, this project restored 10ha of habitat for the Southern Cassowary, which is only found in the Wet Tropics, and the Mahogany Glider, which is endemic to Ingham and Tully.

Two projects are currently in progress, the Upper Burdekin Catchment Water Quality Monitoring project, where a revegetation plan for the Upper Burdekin catchment is being assessed, along with supporting native habitat for the declining Northern Quoll, Eastern Curlew and Red Goshawk.

The Mahogany Glider and Southern Cassowary Recovery Population and Habitat Monitoring project is working to protect and restore the habitat for the two species.

Upcoming Green Army projects include:

- protecting ecosystems and the habitat of Green Turtle, Spectacled Flying Fox and Eastern Curlew through feral animal management on Hinchinbrook Island; and
- surveying habitat and populations of small mammals, including the Northern Bettong, the Black-footed Tree-rat and Yellow-bellied Glider on Girringun Country.



Considerable progress has been made with native tree and shrub plantings.

THE LATE MR RAYMOND BORLAND. A LEGACY, A LEGEND, THE ULTIMATE DEFENDER.

In 2010, Mr Raymond Borland travelled around NSW and became concerned about the degradation of the landscape and poor water quality that he saw.

Mr Borland wanted to do something significant for the environment, so he decided to leave a gift in his Will to Landcare Australia, with the funds going to large-scale projects he specifically described.

From Mr Borland's legacy, we have been able to fund three significant projects in NSW, with funds left over to fund many more over the coming decade.

When you leave a gift to Landcare Australia in your Will, your legacy will be the ultimate gift in defending our planet for future generations to enjoy.

For more information: call 1800 151 105 or visit landcareaustralia.org.au/bequests

LEAVE A GIFT IN YOUR WILL FOR OUR ENVIRONMENTAL FUTURE



BECOME THE ULTIMATE DEFENDER OF THE EARTH



Measure moisture for better pasture management

MEASURING subsoil moisture levels can take the guesswork out of planning future stocking rates, a new study by the Barossa Improved Grazing Group (BIGG) in South Australia suggests.

The study, funded by the Adelaide and Mount Lofty Ranges Natural Resources Management Board and the Australian government's National Landcare Programme, analysed data from three experimental weather and soil monitoring stations set up in different types of soils on pastures across the Barossa.

It is the first time in Australia that a farming systems group has demonstrated soil moisture monitoring in pastures.

BIGG technical facilitator Brett Nietschke says knowing how much moisture your soil is holding enables producers to help plan their stocking rates well in advance.

The research was presented recently in Adelaide at *Animal Production 2016*, the biennial conference of the Australian Society of Animal Production.

The study found the total amount of water which can be accessed by the pasture, measured up to 85 centimetres below the surface, varied

dramatically among the three Barossa sites at Flaxman Valley (112 millimetres), Keyneton (60mm) and Koonunga (82mm).

"We were quite surprised at the results," Brett said.

"We expected the soil moisture capacity to be less at Flaxman Valley, because the soils are sandy there.

"But it turns out the Flaxman moisture content was nearly double that at Keyneton.

"This might be because the Flaxman Valley soils have very high organic content which helps increase the moisture holding capacity.

"This information, coupled with three-month weather forecasts, can give local producers the ability to critically evaluate their livestock numbers.

"If soil moisture content gets below a certain level, for example, combined with a dry outlook, producers can get in early and reduce stock, or seek agistment and buy feed before prices rise.

"Well before pastures become exhausted, you'll be able to reduce stock, maintain some ground cover, reduce soil erosion and invasion by broadleaf weeds.



Barossa Improved Grazing Group (BIGG) technical facilitator Brett Nietschke, with Graham Keynes, producer host of BIGG's demonstration weather station located at Keyneton.

"The weather stations also monitor temperature, rainfall, humidity and wind speed.

"Primary producers can use this information to help verify the current conditions for spraying or the current conditions for livestock chill."

Brett says the data collected on soil moisture is representative of

the main soil types in the Barossa and would be useful to any pasture producers in the area.

Producers in other states have expressed interest in setting up similar systems.

The project has just received a Sustainable Agriculture Industry Support grant from Natural

Resources Adelaide and Mt Lofty Ranges (AMLR) to enable the weather stations to continue operating until December 2018.

The soil moisture data can be downloaded for free on the BIGG website: <http://biggroup.org.au/project/soil-moisture-monitoring/>

Building resilience in grazing agriculture near Mount Wallace swamp

ONE of the most challenging aspects of maintaining a farm is ensuring its resilience to uncontrollable external factors.

In grazing agriculture, these may include things such as seasonal climatic changes in rainfall and temperature, and fluctuations in market prices.

But farming landscapes must be able to respond in a way that enables the farming entity to be sustained, says Anthony Dufty, coordinator for the Port Phillip and Westernport Catchment Management Authority (PPWCMA).

"Greater resilience may be a function of the maturity and complexity of the social-ecological system and the biological diversity they contain," Anthony said.

One such agro-ecological system where diversity and complexity has been fostered is a property at Mount Wallace, central Victoria.

The farm comprises 1,060 hectares and was set stocked for grazing sheep since the early 1900s.

This resulted in a greatly degraded ecosystem that was converted to conservation agriculture more than 30 years ago when it was purchased by John and Maureen Fish.

At this time, about 230ha was reserved for conservation of golden-headed cisticola, little grass

bird, banded stilts, short-tailed sand pipers and a range of reptiles, amphibians and mammals.

The property was quickly transformed by revegetation and reducing fencing paddock sizes.

Since the 1960s, Australian agriculture has maximised stocking rates on greatly simplified pastures, with increasing inputs of fertilisers and chemical pesticides/herbicides to improve production yields.

Agro-ecological systems that focus on production yields contain limited structural and functional complexity, but can offer high potential for recovery.

Slight improvements in diversity can result in substantially greater productivity.

The Mount Wallace farm originally comprised six paddocks of 150ha to 200ha each.

The couple then further subdivided it to create paddock sizes of 7ha to 9ha.

This has allowed greater control of stocking rates, and enhanced perennial pastures through grazing management to ensure grass tiller conservation.

This has resulted in increased pasture coverage and a minimum biomass of 1,500 kilograms per hectare in all paddocks.

Conservation zones were also established to protect and enhance

biodiversity. A total of 22,000 trees, shrubs and grasses were planted in 2005 alone, creating a four kilometre billabong system, with 10 shallow feeding dams that encourage birdlife and shelter for stock.

The property now produces prime beef where stocking rates have increased from nine dry sheep equivalent (DSE) to 16 DSE per hectare, and the average carcass weight has increased 1.3-fold.

The conservation works did not in any way adversely affect the farm business; the cost of production has been estimated at \$1.01 per kilogram, which for central Victoria is mid-range.

This emphasises the ability of farmers to manage conservation without impacting on the productivity of grazing agro-ecological system.

The farm near Mount Wallace swamp is approaching the maturity and complexity that is needed to maintain the soil fertility, pasture biomass, ground cover, and biodiversity to sustain productivity of the Social Ecological System into the future.

Anyone wishing to contribute to the understanding of how farmers use biodiversity on farms, or to learn more about the PPWCMA's program in sustainable agriculture, can contact Anthony Dufty on 0439 003 765.



Frog Ponds created to enhance wildlife on Maureen and John Fish's property.

Diversity is the key to soil health

DIVERSITY is crucial for the biological health of our soils – that was the conclusion of a series of soil workshops held in October in Victoria.

Soil microbial ecologist Dr Helen Hayden was the guest of honour and has spent the past 10 years researching soil biology.

She discussed with the farmers and researchers how a diversity in food sources is required to feed a wide range of soil bugs.

Run by Agriculture Victoria, Geelong Landcare Network and the Surf Coast Inland Plains Landcare Network, the workshops were part of the Corangamite CMA Land Health Program.

Dr Hayden described how the macrofauna and mesofauna – those bugs big enough to see with the naked eye, such as earthworms, beetles and mites – break down plant material, roots, and stubble into particles small enough for the microfauna and microflora, such as protozoa, nematodes, and fungi, to digest.

These microscopic bugs are the ones responsible for nutrient cycling, soil structural stability and other critical functions in a healthy soil.

The different bugs have specialised mouth parts, specific to a food source.

A diverse range of food sources are needed to maintain a range of soil biology that forms the soil food web.

The more diverse the soil biology, the more resilient the soil is.

If climatic conditions or the use of an agricultural chemical do not suit a particular species, another type will be available to take over the role.

Increasing the organic matter in the soil provides not only a food source for the soil biology, but allows greater water holding capacity and improved soil structure.

This was demonstrated at Evan and Suzanne Lewis's sheep and cropping property at Werneth, Victoria.

In 2014, Evan and Suzanne volunteered the worst paddock on their farm to trial "cover cropping" as part of the Corangamite CMA Land Health Program Cover Cropping project run by Southern Farming Systems.

Since that time, four different summer and winter cover crops have been planted using a zero-till disc seeder, all containing many different plant species.

The aim was to use plants to encourage soil biological activity to improve the structure and fertility of a waterlogged, sodic clay soil.

Today, although the region has experienced the wettest winter in years, Evan and Suzanne's trial paddock hasn't suffered from waterlogging, and is thriving with barley and clover.

Dr Hayden demonstrated the simple methods producers can use to monitor the biology in their soils, identifying a number of bugs with the naked eye, at a workshop held in Maude, Victoria.

Modern lab-based techniques to measure and monitor soil biology were discussed, along with the importance of taking multiple samples from across a paddock, as soil biology is highly variable within a paddock.

The variability of topsoil depth was also demonstrated at Peter Stray's grazing property at Maude, where two soil pits were dug 15 metres apart, with topsoil depth varying from 10 centimetres to more than 30cm.

This project is supported by the Corangamite CMA through funding from the Australian government's National Landcare Programme.

For more information contact murray.scipn@gmail.com, or [Nerissa.Lovric@ecodev.vic.gov.au](mailto: Nerissa.Lovric@ecodev.vic.gov.au)



Evan Lewis, cover cropping advocate, and soil microbial ecologist Dr Helen Hayden, in Werneth, Victoria.

Conservation prescription helps in 'marginal' rural land management

EVERY state and the ACT have extensive areas of run-down farmland.

No longer viable for traditional farming, these tracts have huge potential for conservation and associated economic activities.

Public servants and lovers of the bush, Bernie Fox and Sue Hayman-Fox recognised this long ago.

In 2003, the couple bought 621 hectares of grazing country and sandy mallee woodland on the Big Desert fringe halfway between

Melbourne and Adelaide that they named "Mali Dunes".

They turned the property into a dedicated wildlife sanctuary used for wildlife rehabilitation and education, while also rehabilitating local vegetation.

From the 1950s to the 1970s, the Australian Mutual Providence Society ran a vast land development scheme stretching far into South Australia, with pairs of bulldozers towing heavy chains to bowl over the low scrub.

This included Bernie and Sue's block, which was chained in the 1960s, and again in the 1990s.

Luckily mallee trees regrow, seed stays in partly disturbed soil, and the contractors left substantial bush patches.

This offered a chance to protect the emblematic lowan, or malleefowl.

Some of their 'mounds', which are giant piles of rotting leaves serving as heat sources for incubating eggs, survived the conventional farming.

Sue and Bernie embraced reptile-friendly pest control to protect their two goanna species, which are both rabbit predators.

Weeds were dealt with by hand, and they put up and monitored nest boxes.

Seed collecting became a passion, including porcupine grass – a brilliant habitat for small mammals and birds.

The couple developed a fire plan, baited foxes, and worked on a new corridor linking a nearby 240ha reserve via their property to other public land, thereby creating some 1,700ha of continuous habitat.

Discoveries of curl snakes and the small marsupial ningau, both thought to be eliminated by European settlement, vindicated their tireless efforts.

A new road was built in 2008, and the next year work started on an underground Terradome concrete house within a dune, which promised insulation and minimal landscape impact.

Sue and Bernie moved into the self-sufficient site in 2011, which has on-site water collection, solar power, and a composting toilet.

Sadly, the inspiring Bernie died on April 12, 2016, ending a fine and fruitful partnership.

Sue loves her land and will carry on with their many friends who want to help with this exemplary project.

Sue and Bernie are an example that shows how our communities can restore lost ecosystems and bring back wildlife, even in harsher Australian landscapes.



Bernie Fox (centre) at "Mali Dunes", halfway between Melbourne and Adelaide.

Sustainable grazing systems are vital for productivity

DEVELOPING a profitable and sustainable grazing system has been a cornerstone of the Woody Yaloak Catchment Project near Ballarat in Victoria.

Since 1993, the Woody Yaloak Catchment Group has invested significant effort on activities to improve pastures in the district, including programs on pasture resowing, soil testing, fertiliser and lime trials, manipulation through herbicide application and sub-divisional fencing.

In the first phase from 1993 to 1997, more than 4,000 hectares of deep-rooted perennial pasture were sown, with a further 30,000ha established over the next decade.

Farmers in the catchment have also taken over 1,200 soil tests to refine inputs of fertiliser, lime and gypsum.

A study of the two decades of soil tests showed a massive change in soil condition, especially improvements in phosphorus, potassium and acidity.

The investment by farmers in lime and fertiliser to achieve these changes was calculated at \$28.5 million.

Current chairman of the Woody Yaloak Catchment Group, Werneth farmer Evan Lewis, believes combining productivity and natural resource management is the only way to go.

“We need to find solutions that continue to improve the bottom line while also having benefit to the environment,” Evan said.

“Improving our grazing system is one of those solutions.”

Evan is examining the use of cover crops as part of crop rotation to improve fodder production, but also to provide year-round green material for the soil biology to feed on.

But, the method of grazing is only part of a sustainable system, according to farm consultant Cam Nicholson.

Cam is the project manager for the Woody Yaloak Group and has provided pasture advice to farmers in the catchment since the project started.

“There are three components to a sustainable grazing system,” Cam said.

“The first is getting the soil conditions right, especially the pH of the soil through liming and applying the right balance of nutrients based on soil testing.

“The second is favouring the right species, either through sowing or by managing weeds to give the plants you want a competitive edge.”

The last component is how you graze the pasture.

Danny Laffan and his family have dramatically changed their



Project manager and farm consultant Cam Nicholson.

approach to grazing since taking over their property in the early 1990s.

Mt Mercer beef producer and Woody Yaloak member, Danny has erected many kilometres of fencing on the property to enable them to graze and spell paddocks.

“All plants need a period to recover after grazing, to replenish

the reserves they use to grow back from,” Danny said.

“If you don’t have enough paddocks you can’t provide this period of spelling.

“Fencing gives us control over where the animals graze.”

The Laffans have also undertaken a major pasture resowing program,

applied fertiliser and lime as well as a revegetation program, using the subdivisional fencing as part of the tree plantations.

Information on the soil testing program, fertiliser and lime trials and report on the cover cropping study tour can be found at www.woodyyaloak.com.au

Time for livestock businesses to get a health check



Participants at a grazing BMP workshop.

By Corrie Grimmert

THE Grazing Best Management Practice (BMP) program is improving the economic, social and environmental performance of the grazing industry.

The program is a voluntary, industry-led process that assists producers to identify improved practices that enhance the long-term profitability of their enterprise.

As the program matures, it will also assist producers to identify opportunities and threats, as well as demonstrate sound environmental and ethical practices to the community.

Grazing BMP comprises 157 standards that articulate a ‘below standard’, ‘at standard’, or ‘above standard’ response based on a self-actuated or workshop assessment, as a health check for their business.

The areas covered within this are:

- Soil health
- Animal health and welfare
- Animal production
- People and business
- Grazing land management

The standards within the program are often already

familiar practices to producers and information pertaining to each standard are available to give a more thorough context as to why the standard has been asked.

Grazing BMP has an accreditation system in conjunction with ISO19011 which enables producers to independently audit their businesses through a third party, against a set of core criteria within the program.

The program is complemented by a dynamic reporting tool that responds to community concerns with current, issue specific data, developed and ratified by independent industry professionals.

Through a breakdown of data into catchment regions, extension requirements are able to be identified to upskill graziers in areas of deficiency; this increases producer knowledge and also allows targeted extension by Grazing BMP staff while retaining anonymity within the data.

Through a re-assessment process, conducted every two years, changes in producers’ practices is captured and this identifies which areas certain changes have occurred.

This, in time, will allow for modelling of projected changes and how they affect the landscape, production and other farming practices.

As a general trend, the soil health module within Grazing BMP displays an interesting story, with a focus on the key areas of fertiliser use, soil biology, soil chemical properties, and soil physical properties.

Standards for these key areas can be found on www.bmpgrazing.com.au.

As an industry, there is much room to improve on knowledge and practices for soil health, particularly in the areas of soil biology and soil chemical properties.

Through targeted extension in soil organic matter, nutrient supply, salinity and soil pH, it is expected that producers will become more knowledgeable and upskill in these areas.

The program was developed by Fitzroy Basin Association (FBA), AgForce Queensland and the Queensland Department of Agriculture, Fisheries and Forestry (QDAFF) along with a producer reference group, and is supported by the Department of Environment and Heritage Protection (DEHP).

Farming for a lifestyle

GRAZING management for improved productivity and profitability forms part of the soil management cycle.

Whether using grazing animals for profit, or as a “lifestyle/hobby block” dream, good grazing and pasture management can generate unseen profits in the soil.

Today, there is a widening disconnect between lifestyle/hobby type landowners and those farming for a profit.

Many lifestyle owners are armed with knowledge and practical experience, looking to improve their land through earth-friendly means.

Unfortunately, there are just as many who have very little knowledge.

With fewer landowners coming from farming backgrounds, major soil problems such as erosion are appearing through a lack of basic knowledge of stocking rates, grass growing cycles, and the importance of soil's role.

These landowners generally have a lack of understanding of the seriousness of their erosion issue and often assume that by paying for

a solution, complete restoration can happen in months!

Another common issue involves the overuse of herbicides and pesticides, the most common being glyphosate (Roundup).

Glyphosate is commonly used at much higher rates than recommended, or even applied at 100 per cent strength.

Don M. Huber, emeritus professor of plant pathology at Purdue University USA, was recently in Australia for the World Wide Agricultural Conference.

Don gave presentations on *Managing Nutrition to Control Plant Disease*. Part of his scientific research shows that glyphosate:

- Accumulates in roots and reproductive tissues of plants
- Chelates micronutrients when applied as a foliar spray
- Is capable of accumulating in the soil
- Reduces nutrient uptake by plants
- Compromises plant disease resistance
- Is toxic to beneficial organisms in the soil such as nitrogen-fixing microbes, Mycorrhizae,

biological control organisms, earthworms, and plant growth promoting rhizobacteria.

Also discussed were the effects of glyphosate toxicity and impacts on animal health, including fertility and intestinal inflammation issues.

Herbicides and pesticides impact on the ability of the soil to grow healthy plants. In turn, this reflects on stocking capacity rates.

Good grazing management depends on managing pastures and stocking rates according to weather, as well as managing use of pesticides, herbicides and artificial fertilisers. Increasingly, case studies detail increased crop and pasture quality and quantity, alongside decreased/nil crop and animal disease when returning to nutrition and biological farming practices.

“Undernourishment of the soil is at the root of all weaknesses and defects in health of any plant, animal or human” - Sir Albert Howard (1940).

- Contact Linda Murray at carbiculture@westnet.com.au



Cattle being successfully used to pack old grassy hay.

Restoring and enhancing biodiversity on the land

MAJELLA Stevens and partner Jonah Herbst have restored their land into a thriving property, despite clear evidence of its prior poor land management when they purchased it in 2013 in Broadswater, Queensland.

The biodiversity, and the resulting effectiveness of their land, was poor. Free-range cattle grazing by the previous owner resulted in bare soil, soil capping, overgrazed plants, erosion of creek and dam banks, weed invasion, and mineral depletion - despite two tonnes of fertiliser applied annually.

The couple received funding in 2014 under the Australian Government 25th Anniversary

Landcare Grants to restore and optimise land biodiversity using positive livestock impact and applying the principles of the Savory Institute of Holistic Land Management.

Majella and Jonah aimed to improve the four key land health indicators: water cycle; mineral cycle; energy flow; and community dynamics. They hoped through positive stock management and impact they would:

- Reduce the amount of bare soil, weeds, and overgrazed plants
- Increase desired plants, plant recovery time post-grazing, and stock performance

- Speed up biological decay, and reduce soil erosion.

They set in place a cattle grazing and land monitoring plan, developed to ensure appropriate time was provided for grazing and animal impact while taking account of land and plant restoration.

They divided all the existing paddocks into smaller cells and allowed the cattle to graze for a few days before moving them into the next cell, before any damage could be done to the plants. This allowed them time to positively impact the land with hoofs and excrement.

To track the results of the planned grazing, they implemented six

comprehensive assessments over two years to assess the condition of the soil and plants.

The results show that over the two years, while maintaining the same number of cattle as the previous owner, they achieved:

- Decrease in bare ground and in mature capping of the land
- Increase in plant litter and spacing between plants
- Increase in plant variety and number of mature plants
- Increase in plants growing with normal form
- Decrease in weeds
- Increase in soil moisture retention.

The improvements on the monitoring site are evident throughout the rest of the property.

Fencing the creek banks and controlling cattle water access halted bank erosion, and promoted plant growth. The introduction of dung beetles also resulted in increased breakdown of manure and cycling minerals into the soil.

Due to improved biodiversity, Majella and Jonah say the land can carry more stock, while ensuring healthy paddocks and cattle, thereby increasing the productivity and profitability of their land.



Service your heater during spring and summer.

- Check the condition of the heater and flue, door seals, baffles, etc.
- Check for bird nests in or near the flue system in the roof cavity.
- If loose insulation has been added to the ceiling, check that none has built up in the flue cavity clearance area.
- Get an early bird service call from an experienced service professional to check your wood heater and clean your flue ready for next winter.
- Purchase firewood in the warmer months to get ready for winter.

Visit homeheat.com.au for more information

Landcare Award winners triumph in Melbourne

LANDCARE Australia commend the 10 winners in the National Landcare Awards that were announced on September 22 in Melbourne – Western Australia made history, dominating the awards with five wins!

For more information and full case studies, visit nationallandcareconference.org.au

Australian Government Individual Landcare Award, Rhonda Williams, WA.

Rhonda and her husband Ross have managed a profitable and sustainable farming enterprise in Jerramungup, WA since 1976.

Rhonda's significant and positive influence on the community has led her to represent Landcare at a local and regional level across 12 Landcare based organisations and local government.

"It means a lot to me to have won, and to the region that I come from," Rhonda said.

"To be able to contribute to the community is incredible.

"We have to look after our environment for our children and our grandchildren – while we're on this earth, I believe it's our responsibility."

Australian Government Landcare Facilitator or Coordinator Award, Jill Richardson, WA.

Jill Richardson has spent 25 years dedicated to furthering Landcare in Western Australia.

Joining the Katanning Land Conservation District Committee since its foundation, initially as a volunteer and then employee, Jill has led significant on-ground environmental works and behavioural change in sustainable agriculture and biodiversity conservation.

Jill voluntarily lead a group to form the WA Landcare Network, achieving incorporated status in May 2014.

Jill was thrilled and delighted to have won the National Landcare Award.

"It's huge! It's recognition that community-based Landcare and people have a huge amount of value across Australia," Jill said.

Australian Government Partnerships with Landcare Award, Lake Macquarie Landcare, NSW.

Lake Macquarie Landcare is a community-based organisation, built on the successful working partnership between passionate, dedicated and hardworking local volunteers and the Lake Macquarie City Council.

Formalised in 2012, Lake Macquarie Landcare has become the largest network of Landcare groups in New South Wales.

Carmel Brown, chair of the Lake Macquarie Landcare Network, was delighted to have won.

"Landcare is based on volunteers, so to get recognised for volunteering is awesome. We only have one planet, and we care deeply," she said.

"It means so much to the Landcarers to have that back-up from council, to know there's a team of experts there that can help us with the heavy stuff."

Coastcare Award, Coolum District Coast Care, QLD.

Since 2001, Coolum District Coast Care has consistently worked hard to galvanise public interest in caring for the coastal environment on the Maroochy North Shore of the Sunshine Coast and beyond.

The group has evolved into a highly respected organisation that is still largely comprised of and run by volunteers, with a vast annual calendar of productive and creative activities and citizen science programs that effectively engage all ages.

The group's president, Leigh Warneminde, proudly accepted the award.

"We live in a really beautiful place, and it has slowly been degrading and under pressure from the population," Leigh said.

"We want to retain the natural beauty so that future generations get to experience the same pleasures from nature that we do."



Australian Government Individual Landcare Award winner Rhonda Williams.



Australian Government Landcare Facilitator or Coordinator Award winner Jill Richardson.



Australian Government Partnerships with Landcare Award winner Lake Macquarie Landcare.



Coastcare Award winner Coolum District Coast Care.



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Landcarers recognised at awards ceremony

Fairfax Media Landcare Community Group Award, Blackwood Basin Group, WA.

THE Blackwood Basin Group has been coordinating community-managed Landcare projects across the Blackwood Catchment for over two decades.

The group builds close partnerships with other community groups to undertake vital projects that rehabilitate and protect the area.

This approach has allowed the group to develop long-term partnerships with industry, government bodies and the community.

Chairman Per Christensen thought it was a fantastic win.

"I've been involved in Landcare for over 50 years," he said.

"I think winning will energise everybody in the group, not that they aren't already.

"I also hope it will lead us to get more funding to do more Landcare work, because it's so important."

Indigenous Land Corporation Indigenous Land Management Award, Crocodile Islands Rangers, NT.

THE Crocodile Islands Rangers manage the land and sea country of the Crocodile Islands, off the north east coast of Arnhem Land.

This includes approximately 40,000 hectares of land, 200 kilometres

of coastline and 6,000 square kilometres of sea country within Castlereagh Bay, a site recognised as being of international conservation significance due to the large aggregations of migratory shorebirds, large seabird colonies and important marine turtle nesting beaches.

Ranger Gerard Morgan accepted the award.

"We're a small community, we only have 1,000 people on the island," he said.

"We don't own the land; the land owns us.

"We want kids to learn and look after the land like we did."

Yates Junior Landcare Team Award, Wirraminna Environmental Education Centre - Creative Catchment Kids, NSW.

OVER the past five years, the Creative Catchment Kids program in Burrumbuttock, NSW, has grown to include 60 Murray and Riverina schools.

Its mission is to engage the region's students and schools to develop more resilient landscapes and communities through a change in attitude toward natural resource management.

The program provides activities that encourage students to learn about the importance of farming, biosecurity, cultural education and pest management.

Junior Landcarer Charlie Doig, 12, was proud and happy to have won.

"It's so good, I'm really happy because it will probably promote more people to go to Wirraminna Environmental Centre to learn more about the environment."

Manpower Young Landcare Leader Award, Naomi Edwards, QLD and Ella Maesepp, WA.

TWO impressive women from opposite sides of the country took home the Young Landcare Leader prize.

The Gold Coast's Naomi Edwards is an innovative environmental advocate and co-founder of the national youth Landcare program, Intrepid Landcare.

She has facilitated over 500 Landcare activities and 300 school and community environmental education sessions, bringing her creativity to engage large numbers of people.

Naomi said winning the award will enable her to take her work to another level.

"It's humbling. Landcare gives you the opportunity to be creative and protect the environment," she said.

"As a creative person who loves the environment, Landcare gives me that outlet."

Ella Maesepp has worked to deliver a host of Landcare projects by working with farmers, school children, Indigenous communities, government, and community volunteers.

Ella has worked as a Landcare Officer in the Upper Blackwood area for 12 years, delivering millions of dollars' worth of projects to protect biodiversity, manage salinity, increase agricultural sustainability and reduce individual carbon footprints.

"I'm thrilled at the opportunity," Ella said of being recognised for her work.

"These awards open doors and give opportunities to have new conversations and try different things.

"Landcare has been a vehicle where I can be empowered as an individual to do something for the greater good."



Yates Junior Landcare Team Award winner Wirraminna Environmental Education Centre - Creative Catchment Kids.



Fairfax Media Landcare Community Group Award winner Blackwood Basin Group chairman Per Christensen.



Indigenous Land Corporation Indigenous Land Management Award winner Crocodile Islands Rangers. George Milaypuma and Gerard Morgan accepted the award.



Manpower Young Landcare Leader Award joint winners Naomi Edwards and Ella Maesepp.



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The Tassie trek of a lifetime

NEXT February, 17 lucky Australians will begin the trek of a lifetime on a seven-day adventure along Tasmania's vibrant east coast, visiting local farming enterprises, trying freshly produced delicacies, and learning about Tassie's unique history.

Organised by Landcare Australia's From Farm to Fork initiative, and led by Sustainability Ambassador Charlie Arnott, the trek offers an opportunity to leave your urban life behind.

Open to all walks of life, the trek provides the ideal prospect for farmers to escape their heavy schedules and explore and learn how farmers on the 'Apple Isle' do it.

"A lot of Australian farmers get so caught up with their own businesses and farms that they don't always get out to see other farms," Charlie said.

"This trek would allow them to appreciate what amazing work other farmers are doing.

"Learning from other farmers is, in my mind, the most valuable way that I can improve my farming skills."

One of the stops on the fundraising trek that is being facilitated in conjunction with Inspired Adventures, will be Willie Smiths Organic Cider apple farm in the Huon Valley.

Co-founder Sam Reid believes Tasmania is unique and has a lot to show the world, with its incredibly clean and fresh air and water.

"All of this results in lots of innovative small producers focussing on delivering the best artisan and small batch products that they can," Sam said.

"We have an incredible number of 'tree-changers' in Tasmania who are all committed to living a better lifestyle by focussing on producing quality products."



From Farm to Fork's sustainability ambassador Charlie Arnott.

"Much of this is driven by farmer's markets these days, as more and more people think local," he said.

Willie Smiths is the largest organic orchard in Australia.

"Trekking will be able to see organic farming at commercial scale and understand that organic farming can be a relevant business, and there is lots more demand for organic products than the market can currently deliver," Sam said.

Tasmanians have had to be innovative to overcome their unique challenges, said Charlie, due to its isolation and limited market.

"But the environment is pristine with wonderful resources," he said.

"Tasmanians are very good farmers who love their environment and are doing wonderful things, not just in food production, but in landscape management."

Another important aspect of the trek is the opportunity for people to make the connection with where their food comes from.

"The city/farmer divide has grown," Charlie said.

"I'm determined to turn that around.

"The support that city people can give by buying produce and visiting farms and rural towns will be profound for all involved, as a healthy, grounding experience for everyone."

Participants are tasked with raising \$1,000 or more each prior to the commencement of the trek, which will include hiking 43 kilometres over 293 km of terrain starting in Launceston and finishing in Derwent Valley.

Would-be trekkers can register by calling 1300 905 188 or visiting fromfarmtofork.org.au.

Can Australian farmers continue to meet the growing demand?

TORHUNDLOE, editor of "Australia's Role in Feeding the World: The Future of Australian Agriculture" believes Australians are lucky because an enormous amount of the food we eat is grown in our own backyard.

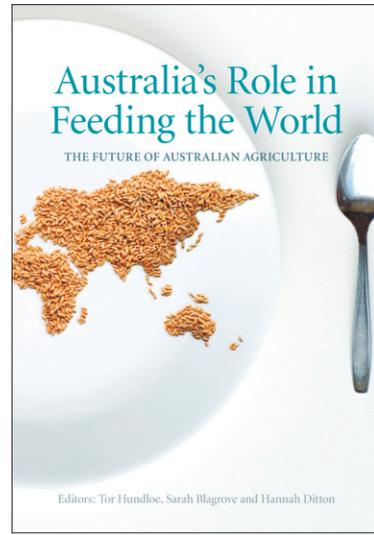
In the book, Hundloe discusses the role Australia plays in feeding the world's population and explores some of the future challenges Australian farmers may face, if they are to continue to meet current local and foreign demand while adopting sustainable farming practices.

As the global populace expands, including Australia's which is predicted to reach 35 million by 2050, it's estimated that rainfall alone will be insufficient to cultivate crops.

Climate and rainfall variability across the country, combined with high evaporation rates and our strained water assets will result in water scarcity, creating the need for drastically improved water management.

Irrigation systems are now considered necessary to help farmers produce enough so that they can continue to feed our population efficiently and sustainably, in addition to producing excess yields to export globally.

Drip irrigation may be one of the best options for farmers as it has the highest distribution efficiency to all plants compared to other irrigation systems, at about 93 percent, contributing author Curtis Attard believes.



Despite much of the country being affected by drought conditions, particularly in recent years, Australia's adoption of drip irrigation is still far behind that of the United States and other countries.

The uncertainty and irreversible nature of irrigation systems, as well as the costs of installation, are likely some of the reasons farmers are delaying implementation.

Armed with the latest intelligence on sustainable production and distribution products from Australian farms, "Australia's Role in Feeding the World: The Future of Australian Agriculture" provides insightful and compelling discussion on the future of agriculture in Australia.

Do you have a Landcare story to share?

LANDCARE Australia are looking for submissions of stories from across the Landcare network discussing successes and learning opportunities that adhere to the following themes:

February: *Biosecurity Management - Invasive Species, Pests, and Disease.*

Deadline - January 6.

March's annual special publication: *Farming Innovation and Best Practice Land Management.*

Deadline - February 3.

All article submissions must adhere to the following guidelines and deadlines, and must include:

- One article of between 150-600 words saved as a Microsoft Word document or a PDF.
 - One to three high resolution (must be at least 1MB in size and more than 300dpi) images that clearly illustrate the article.
 - Full captions for each attached image, explaining who is in the photos and/or what they illustrate. Please also ensure that permission to publish is obtained from people in the photos.
 - Contact info or links for readers seeking more about your story.
- Submit your article to: lif@landcareaustralia.com.au

DATES:
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