Landcare a lasting legacy of Joan Kirner

By ROB YOUL, HORRIE POUSSARD and members of the Victorian Landcare community

JOAN KIRNER 1938-2015
Landcare pioneer former premier

JOAN Elizabeth Hood, born 1938, the only child of a Melbourne fitter and turner and his music-teacher wife, attended state and private schools.

She graduated in arts from the University of Melbourne, gained a teaching diploma and taught in state schools. Married to fellow teacher Ron Kirner, with three young children, she became active in school and parents' organisations in the 1960s. As president of the Victorian Federation of State Schools Parents' Clubs from 1971-77, and its executive officer from 1978-82, she was well known in Victoria.

Ms Kirner joined the Australian Labor Party in 1978 and in 1982 she entered Victoria's Legislative Council. In 1985, she was elevated to the Cain Labor government's Cabinet, becoming Minister for Conservation, Forests and Lands (CFL) – six traditional public service entities had been amalgamated the year before.

> Having travelled widely, Kirner knew that salinity, erosion, weeds and degraded waterways posed big problems.

With her schools experience in mind, Ms Kirner told staff in the Land Protection Service (LPS), a division of CFL largely devoted to private land, that a community-based rural program was required to encourage better resource management in Victoria.

Having travelled widely, she knew that salinity, erosion, weeds and degraded waterways posed big problems.

From May 1986, LPS staff drafted a program revitalising the concept of rural community groups. Earlier, the three traditional vermin and weeds, soils and forest extension departments had fostered local single-purpose groups and generally scrutinised them.

Clearly Kirner wanted the groups to be autonomous and multi-purpose; she appreciated that land management should be integrated. CFL would support the groups, but not lead or manage them. The LPS staff most involved in developing the Landcare concept were Horrie Poussard, Bob Edgar and Dennis Cahill.

Moreover, recognising that farmers needed to be fully committed to Landcare, Kirner approached Heather Mitchell, president of the Victorian Farmers Federation.

● To p11 of this feature

Joan Kirner was at Yarraleen Primary School in Bullen with bush singer David Isam to launch a schools touring arts program. They are singing *Kookaburra Sits in the Old Gum Tree.* – Picture: *FAIRFAX MEDIA LTD.*

Livestock manures as low emission fertilisers

CONVENTIONAL fertilisers are an ever growing cost for Australian farmers and it is becoming increasingly important to look at more viable options for the long term.

Four per cent of Australia's greenhouse gas emissions (GHG) are caused by how we manage manures and fertiliser applications. We could reduce emissions even further through better manure management and lower farmers' fertiliser costs.

The Queensland Department of Agriculture and Fisheries conducted a research project that was funded through the Australian government's Filling the Research Gap program in partnership with universities, private companies and industry bodies. The project examined whether manures (beef feedlot, pig and poultry) applied to a range of soil types, could reduce GHG emissions and improve plant yield when enhanced by sorbers (specialised minerals).

Substantial GHG emissions are released when manures are applied to soils. This project found that – by enhancing land applied manures with the sorbers, vermiculite and bentonite – the emissions of nitrous oxide (the major GHG from land-applied manures) and ammonia (which is an indirect GHG) could be decreased by up to 60 per cent.

There was a net reduction in overall emissions even after a life-cycle analysis was conducted that took into account the manufacture, transport and land application of sorbers.

Reducing GHG is a key aspect of retaining soil nutrients during nature's recycling process (known as 'tighter nutrient cycling') in arable landscapes such as Australia, as these emissions are simply lost nutrients. The project trials found that, when sorber-enhanced manures were applied to soils, significant amounts of nitrogen derived from nitrous oxide were retained, with plant growth in field trials improved by up to 20pc, irrespective of the manure type. Findings also demonstrated that the addition of sorbers to manures could boost carbon retention in soils by up to 50 per cent.

Set-up of gas measurement chamber in field plot trials applied with sorber enhanced manures.

Environmental factors such as temperature, soil moisture and carbon to nitrogen ratio were found to have a much greater effect on GHG emission rates from livestock manure applied to soils than the type of manures or amounts applied.

A better understanding of these factors would help develop management-based GHG mitigation strategies at farm scale.

Applying livestock manures during cooler periods when soil moisture levels were well below field capacity could help to significantly reduce GHG emissions.

The project highlighted the ability livestock manures had in reducing farmers' need for expensive conventional fertilisers.

Filling the Research Gap funds nationally co-ordinated research to deliver practical options for land managers to reduce greenhouse gas emissions, build soil carbon and adapt to changes in climate while improving productivity and profit.

● For more information on Filling the Research Gap projects visit agriculture.gov.au/ftrg.

White paper makes clear govt also cares

By BARNABY JOYCE
Agriculture Minister

I THOUGHT it fitting in this edition of Landcare in Focus to talk about the biggest investment in agriculture in a generation, the Agricultural Competitiveness White Paper.

The Landcare movement is pretty incredible. There are over 100,000 volunteers working in more than 6000 Landcare groups across Australia. It's a true symbol of how Australian farmers and community groups come together as Landcarers for our land and our country.

The white paper makes it clear that the government also cares. It's a $4 billion investment in the importance this government places on the land under our feet, and how it underpins a $52 billion contribution to our economy.

It's a passion we share with Landcarers across the country, and this investment will boost our shared efforts to manage Australia's land on and off-farm, to safeguard productive capacity for future generations – and to safeguard our environment. We are investing $100 million for pest and weed management and eradication in the white paper.

We heard through the white paper consultation process that farmers and landowners need help to reduce the impacts pest animals and weeds have on their land, livestock and crops.

The cost of weeds to our farmers alone is massive – it's estimated that managing weeds cost growers more than $3 billion every single year. That's why we will be investing $50 million over four years to better manage established pest animals and weeds. This measure will help develop and promote better technologies and tools – includ-ing chemical and biological controls – to tackle priority species.


Agriculture Minister Barnaby Joyce

> We need to boost the sector that boosts the nation.

It will also provide support to those industries and communities, such as Landcarers, that take the lead in managing established pest animals and weeds of national significance.

An additional $50 million over four years will support eradication programs for exotic pest and disease incursions and enhance emergency response capability. We are providing $8 million of that to establish the Immediate Assistance Fund to support access to, and deploy-ment of, national and international experts and specialised equipment required for pest and disease eradication.

This white paper does not just look at weeds and pests, though. I know many Landcarers hark from regional and rural areas, and this white paper is an investment in rural and regional Australia. Whole communities, not just farmers, will benefit. From drought assistance and risk management measures, to a new ACCC commissioner to tackle supply chain issues, and half-a-billion dollars to construct new water infrastructure across the country – this white paper invests in rural and regional Australia. This investment builds on the $1 billion towards the National Landcare Programme to address sustainable agriculture and environmental issues.

Over $450 million is directed towards community engagement and on-ground activities undertaken by community groups, including Landcare.

Agriculture is a significant wealth-generator for the country. It's the fifth pillar of the economy, and long after our other natural resources are dug and dried up, agricultural production will remain a significant export earner for us.

So we need to maintain and boost the competitiveness and productivity of the industry.

We need to boost the sector that boosts the nation.

And the white paper, along with Landcarers, helps protect this industry and the land it is built on, to keep it productive.

We need to keep working together to this end – and the white paper makes it clear that the government stands alongside Landcarers and farmers in helping to feed and clothe the people of Australia, as well as the people of the world.

Shoring up support for Landcare's future

By TESSA JAKSZEWICZ
Landcare chief executive


CEO Tessa Jakszewicz

IT IS a time of change in the Landcare environment but there are also new opportunities, ways to engage and resources available for looking after our land and water assets.

Firstly I'd just like to thank everyone who has taken the time to nominate someone for a state or territory Landcare Award – all entries are now closed except for in the North-ern Territory, and the first gala dinner takes place during the Queensland Landcare conference on August 31.

Other ceremonies occur from September to November – updates will be uploaded to landcareonline.com.au/landcareawards and shared on social media in real-time through the hashtag #landcareawards.

Providing resources to support inspiring Landcarers, funding is currently available through the 20 Million Trees second competitive grants round for projects from $20,000-$100,000, with applications closing on September 16 at 2pm eastern standard time.

At the same time, the latest Green Army Programme round is open for applications from potential project hosts.

We advise people thinking about applying for combined 20 Million Trees funding and incorporating Green Army teams to inquire with us as a service provider – the Green Army Round 4 also closes on September 16.

Last month's National Tree Day, which numerous Landcare groups supported, was a success with 1.3m trees planted, while next month the annual Landcare Week runs from September 7. There are some great events in store: we are launching the first-ever FromFarmtoFork.org.au initiative to engage communities and celebrate and enjoy Australian produce, and as usual we're sponsoring the national day of voluntary on-ground works – Bushcare's Major Day Out.

Also last month was the inaugural Threatened Species Summit: in addition to hearing about a new strategic approach and specific programs to target feral animals, it was heartening to see Environment Minister Greg Hunt highlight the important role Landcare communities have to play in conserving Australia's biodiversity.

As a member of the non-statutory National Landcare Advisory Committee (NLAC), set up to provide advice into the federal government's National Landcare Programme, I am happy to report that work has been progressing well since the first communique was released. We have been gathering evi-dence on the economic impact of Landcare – and will report on this in coming months.

On a more solemn note, and after celebrating Landcare's silver anniversary last year, I was humbled to attend the memorial service of co-founder Phillip Toyne in Canberra last month. We commemorate him and former premier Joan Kirner in this issue but, more than any words can say, the uniqueness and robustness of Landcare today is testament to their legacy.

We hope to hear from and meet many of you soon – at the awards, during Landcare Week, and via phone or email.

ACROSS THE NATION

Fruit fly research plan

AUSTRALIA'S National Fruit Fly Research, Development and Extension (RD&E) Plan was launched in June 2015. The plan will enhance Australia's capability to manage fruit fly that threatens parts of our $9.3 billion a year horticulture industry. As part of the implementation process, there will be a series of regional workshops conducted by the Plant Biosecurity CRC to facilitate actions under the new RD&E plan. More information about the workshops can be found at pbcrc.com.au and to view the plan visit pbcrc.com.au/research/fruit-fly-plan.

Wild dogs – new tools

A NEW National Wild Dog Action Plan portal on the PestSmart Connect website is making it easier for farmers and others to share information and implement nationally consistent wild dog control practices. In addition, the Australian govern-ment will invest over $1 million in a project, in partnership with industry, to develop and test an early-warning system that would use cutting-edge technology, such as automated image recognition software, to get farmers on the front foot in the fight against wild dogs. Visit pestsmart.org.au/national-wild-dog-action-plan.

Sneaky snakes in mail

BIOSECURITY officers at Melbourne's international mail facility recently opened a package labelled 'mixed powder' that contained 13 live snakes. Australia has strict biosecurity rules and, where intentional non-compliance is found, an investigation is undertaken and the full force of the law may be applied. Anyone thinking of buying an exotic pet should ensure they are provided proof of provenance. People can confidentially report suspected breaches of our biosecurity laws to the Department of Agriculture on 1800 803 006.

LANDCARE IN FOCUS is produced by Landcare Australia through funding from the Australian government's National Landcare Programme.
For more information or to submit an article, email enquiries@landcareaustralia.com.au.
Please note that due to space restrictions we cannot guarantee that all submissions will be included. Submissions must adhere to the following guidelines and the deadlines below and must include:
- One article of no more than 300-600 words saved as a Microsoft Word document or a PDF.
- No more than two or three high-resolution (at least 1MB in size) images that clearly illustrate the accompanying article.
- Full captions for each attached image that explain who is in the photos and/or what they illustrate. Also, please ensure we have permis-sion from any people featured to use these photos in Landcare in Focus.
- Contact information for more information if required.

Last issue for 2015: Publication date November 19, October 15. Pest and weed control. The themes and dates for 2016 will be published in the next issue and via landcareonline.com.au/resources/landcare-in-focus/landcare-in-focus-magazine/

Australian Government
National Landcare Programme

Mates reinvigorate public land

Before Green Army removal of boxthorn weed.

After the Green Army work at the same location along the Gippsland Plains Rail Trail.

WORK being done along the Gippsland Plains Rail Trail in Victoria is not only tackling weeds on public land bordering farms, but is also protecting endangered species in a significant nature corridor.

Now a keen Green Army team is working along the rail trail between Stratford and Traralgon – with the idea of continuing down the line in future projects.

The Green Army Round 4 has recently opened for project host applications, and the Gippsland Plains Rail Trail project is one of a number of recent examples that the program can not only be useful for local groups, but also immensely rewarding for participants and team leaders.

The Gippsland Plains Rail Trail is the only rail trail in regional Australia with a functioning railway station at either end, providing a convenient loop for cyclists and other trail users.

The trail extends for 63km across the Gippsland Plains between Traralgon and Stratford, passing through the timber town of Heyfield and the Macalister Irrigation District, as well as dryland grazing country.

Interestingly, although the building of the train line in the 1880s hastened the clearing of much of the region's native vegetation, the former railway now serves as an important biolink. It contains remnants of the Gippsland red gum grassy woodlands and associated native grasslands, a critically endangered ecological vegetation class.

This section of railway line was closed in the 1980s after rail freight was replaced by road transport.

Remnants of former railway stations, sidings and junctions dot the rail trail, and a voluntary committee of management has been working for the past 20 years to convert the former railway into a rail trail, preserving and protecting its natural and industrial heritage while creating a valuable tourism and leisure asset.

The Green Army team, led by local horticulturist Corrin Mitchell, has worked closely with the Gippsland Plains Rail Trail committee of management during the project. The Green Army project has been supported by Maffra and District Landcare Network, and overseen by national service provider partners for the Green Army Programme – Landcare Australia and Manpower Group.

Team members have enjoyed learning about the history of the trail, its place in the natural environment and making a difference to key features.

One former IT worker even gained the experience needed to find his dream job partway through, getting an apprenticeship in arboriculture.

Other team members have encouraged their 'mates' to sign up and an extra four participants have joined, taking the team to full capacity.

"It's just a really good team that's gelled really well," community Landcare facilitator Carmen Lee said.

"The rail trail committee of management has been thrilled with the progress and the outcomes of this team, so they're keen to go again and apply to host other Green Army teams with local Landcare groups."

Future work could involve installing interpretive signage at historic points along the trail and assisting local Landcare groups and farmers with revegetation projects.

> One former IT worker even gained the experience needed to find his dream job partway through.

ROUND 4 OF GREEN ARMY PROGRAMME OPEN

ROUND 4 of the Green Army Programme is now open, until September 16, 2015, and Landcare Australia would like to invite interested groups to contact them to register your interest in getting a team to help with your local project or idea.

In addition to local councils and Landcare groups, private landholders such as farmers can apply, as well as state government, statutory bodies, indigenous groups and other community groups demonstrating clear environmental or heritage benefits.

There are two streams under this round:

1 Stream 1 is for heritage projects which may commence from January 1, 2016.

2 Stream 2 is for all eligible (non-heritage) projects which may commence from July 1, 2016. All projects approved under round 4 must be completed by June 30, 2017. Applicants who were unsuccessful through previous rounds may reapply under this round.

Information for potential participants or team leaders is via manpower.com.au/job-seekers/greenarmy.aspx.

Groups wanting to read more or register their interest in the Green Army with Landcare Australia can do so via landcareonline.com.au/greenarmy, emailing greenarmy@landcareaustralia.com.au or phoning toll-free on 1800 151 105.

Alternatively, Sara Dupressoir is available to answer questions directly on (02) 8440 8808 or sara.dupressoir@landcareaustralia.com.au

Native shrubs, forages boost farm profits

LIVESTOCK farmers are seeing increased profit from including native shrubs and forages in their farming systems.

Some native shrubs such as salt bush and forages being introduced through the Australian government's Filling the Research Gap program and the University of Western Australia's (UWA) Enrich project have been developed for infertile, sandy, saline and/or waterlogged soils, as well as their methane-reducing properties.

This approach significantly benefits farmers in low to medium rainfall zones that experience feed gaps in summer and autumn.

West Australian farmer at Pingelly, Garry Page, has seen the results over his fence at the program's trial sites.

He is adopting many of the approaches used at UWA, such as planting forage shrubs, on his 1200ha property.

Mr Page said forage shrubs were integral to his whole farm management approach, and credited his farm's present productivity and future sustainability with his implementation of a holistic landscape approach to farm management.

"While I don't think forage shrubs are the only answer to achieving sustainable land management, they are definitely important," he said.

"I'm aiming to plant 80ha on my property."

Mr Page will be supported by South West Catchments Council and the Australian government's National Landcare Programme.

Garry Page at his WA property.

The Enrich project implements a system of Australian perennial shrubs and inter-row pasture, and over the past 10 years has found that when this is applied to 10 to 25 per cent of the farm, many benefits can be achieved.

Some of these benefits include higher sheep grazing days per hectare at a time of year when feed supply and quality is low, a forage resource that lasts at least 15 years, shade and wind shelter for livestock, and reduced methane emissions.

Further research and demonstration projects have been funded through the Australian government's Filling the Research Gap and Action on the Ground programs.

The trials are being conducted on working farms across southern Australia, and include low and medium rainfall zones.

The projects demonstrate the management practices required for shrub and inter-row systems, and identify the most appropriate species for differing regions based on productivity and their methane-reducing properties.

Reducing methane emissions from livestock is likely to improve productivity.

When cattle and sheep digest feed, up to 12pc of feed energy is lost in the form of methane gas, a by-product of micro-organisms that live in their rumen.

Methane is belched out into the atmosphere, along with feed energy that could have been used to make meat, milk or wool. Reducing methane emissions is great for marketing, as consumers often look for a product with a lower carbon footprint.

It is also an important way to help lower Australia's total emissions of greenhouse gases.

Commonly the shrub and pasture inter-row systems are grazed for six to eight weeks over the autumn period, enabling dry annual pasture to be deferred to late autumn and early winter.

Trials at the UWA Pingelly farm over the six to eight-week period on sheep grazing a shrub-pasture mix without supplements achieved growth rates in autumn of 200g/head/day.

The systems also reduced methane emissions intensity by 26pc for the period, or a 4pc reduction over the year.

For more information on the Enrich, Filling the Research Gap and Action on the Ground programs, visit futurefarmonline.com.au and agriculture.gov.au/ftrg.

Curlews coming back again

NEARLY eight years of work by members of the Mid-Loddon Sub-Catchment Management Group has produced an astonishing result: a pair of captive-bred bush stone curlews in predator-free habitat.

If a pair of curlews in a few hectares of fenced wetland sounds like a modest outcome for years of work, consider the status of the bird in the Loddon catchment.

The network's facilitator Judy Crocker said there were thought to be only six to eight birds left in the region, and they appeared to be growing too old to breed.

Most areas covered by the network had lost all their curlews because of the loss of quality habitat, and the bird's redundant survival strategy: when threatened, it lies flat and still and relies on its camouflage. That makes it easy prey for foxes and cats.

While the species is still common in Queensland, it is listed as 'threatened' in Victoria, where habitat loss is more advanced.

When the Upper Spring Creek and West Marong Landcare groups decided to address curlew decline back in 2007, members first went to the Jindera captive breeding project in NSW.

It soon became clear that while breeding curlews in captivity was possible, there was nowhere in the Mid-Loddon region to release bred birds into.

Building that habitat has occupied members of the network and local farmers since 2007, Ms Crocker said.

Effort has chiefly gone into raising funds for predator-proof fencing – an investment that has taken about $250,000 to date.

The result is five protected areas of about four to eight hectares each, all near the Shelbourne Nature Conservation Reserve about 15km west of Bendigo.

Each area was left to regenerate naturally, a process that takes about five to six years, and improved for curlew habitation with the addition of logs and litter.

Around the protected reserves, considerable effort has also been made by farmers to fence out remnant vegetation and plant corridors, to help future curlews flourish outside the protected zones.

"It couldn't have been done without Landcare," said Ms Crocker, who credits the network with enabling a diverse collection of people with achieving something more ambitious than could have been accomplished by a group working in isolation.

> It couldn't have been done without Landcare.

While they established the habitat, Landcarers were importing the techniques learned at Jindara to breed curlews in enclosures.

The first breeding pair donated to the group from Kyabram Fauna Park has been showing signs of mating; the team is hoping young birds will be ready for release soon.

Another breeding pair is on its way. The hope is that the presence of new birds in the district will encourage visitation by the resident wild birds, and new genes and curlews will gradually disseminate out of the protected areas into habitat restored by Landcarers around the catchment.

"Last year, people were a bit down," Ms Crocker said. "It had taken so long, and we seemed not to be achieving anything. But now they are excited and inspired."

Around the curlew project, the Mid-Loddon Sub-Catchment Management Group has been engaged in education and promotional activities, to raise awareness of the effects of habitat destruction and species decline.

The group involves six Landcare groups and a Conservation Management Network (CMN) across a 95,760ha area. It has been working since 1999 to build linkages from the Central Victorian box ironbark forest across the Mid-Loddon sub-catchment to the Loddon River.

Readers appreciate diversity, analysis

LANDCARE in Focus has been fine-tuning its editorial policy to speak more directly to the needs and interests of Landcarers in rural and farming areas, and the results from a recent survey show we are on the right track.

Readers of Landcare in Focus are knowledgeable and often experts in their field, but like to hear what people are doing in other geographical regions, and would also like more information about what is happening in their area.

As well, case studies are welcomed, in particular those that demonstrate practical answers to specific areas of work.

Although Landcare focuses on on-the-ground projects, there is a desire for more analysis, features and articles that place the grassroots work in context of global and Australian sustainability issues.

The survey was hosted online for six weeks in early 2015 and was circulated via electronic direct mail to Landcare Australia's e-news subscribers and promoted in the February 2015 issue of Landcare in Focus.

It attracted 504 respondents who completed 22 multiple-choice questions. In addition, a substantial 133 of those surveyed chose to add supplementary comments in the optional section.

For primary occupation, just over a fifth came from government at 20.8 per cent, then Landcare volunteers and NRM professionals, accounting for 14.6pc and 13.94pc respectively, followed by other professionals (15.93pc). Farmers made up just over one in 10 at 10.18pc.

Students drew just 2.21pc but the highest single category was 'other', with separate descriptions for this category overwhelmingly including teachers and educators, demonstrating the success of the Junior Landcare/Younger Landcare programs in outreach to engage the next generation of Landcarers.

> The largest proportion of respondents read each quarterly issue of Landcare in Focus.

The largest proportion of respondents read each quarterly issue of Landcare in Focus, accounting for almost one in two at 47.35pc.

More than a third read the publication once or twice a year, while only 16.37pc did not read the publication every year.

Asked what topic areas they wanted covered, overwhelmingly the three categories that people were interested in were:

1. Funding opportunities,
2. Stories about community Landcare and
3. Sustainable agriculture, including practice change information.

Although views were mixed on the benefit of regional and network news as well as reports from specific states and territories, a number of respondents wanted to know what was happening in their area.

They felt others would benefit from information about who the leaders are in their region to contact.

The main place respondents said they obtained Landcare in Focus from was via the Landcare Australia website, demonstrating the importance of targeted outreach to key audiences – with a significant 42.7pc finding out about the publication from the dedicated Landcare in Focus webpage or via a story on the homepage or e-newsletter.

Landcare in Focus can now be delivered straight to your inbox.

● To subscribe for free to the digital issue, go to landcareonline.com.au/resources/landcare-in-focus/landcare-in-focus-magazine/

Threatened species strategy launched

AUSTRALIA has its first Threatened Species Strategy, and $6.6 million of inaugural federal funding to support it.


Environment Minister Greg Hunt

"With the launch of the Threatened Species Strategy comes a commitment by the Australian government to act on the principles of science, action and partnership," said federal Environment Minister Greg Hunt after the Threatened Species Summit in Melbourne.

"The Threatened Species Strategy also established an action plan focused on tackling feral cats, creating safe havens, protecting and recovering habitat, and emergency intervention to avoid extinctions.

"Importantly, it has hard and measurable targets for reducing the threat of feral cats, recovering mammals and birds, protecting plants and improving recovery practices." Feral cats, which threatened 124 native species, are targeted by the strategy. Mr Hunt said the government backed "an Australia-wide goal of culling 2 million feral cats by 2020, five new cat-free islands, 10 mainland cat-free enclosures, 10 million ha of feral cat management and an extra 2m ha on Commonwealth land" backed up with $4m in feral cat funding.

Stations reverse degradation

HOW are farmers restoring and conserving their soils? That's the question Soils for Life seeks to answer by collating outstanding land management practices from around Australia.

Soils for Life was developed by the former governor-general Major General Michael Jeffery, out of his concern that Australia's productive soils were not being universally well-managed.

General Jeffery has since been appointed the national advocate for soil health.

The Soils for Life project aims to identify land managers who are working successfully with their soils, and provides a platform through which those practices can be picked up by others.

At the heart of the platform is a series of comprehensive case studies that explore why leading land managers choose to work in the way they do, how they work, and the results.

A joint project between Soils for Life and the Rotary Club of Sydney has produced the Western Division Resilient Landscapes Project.

Its focus, the Western Division of NSW, has some of the nation's most degraded landscapes.

The semi-arid environment, with its low, highly variable rainfall, is also difficult to restore to a functioning state once degraded. But this is exactly what the managers of Wyndham Station and Gilgunnia Station have managed to do.

Angus, Kelly and Mitchell Whyte and Ashley McMurtrie (right) in the paddock in which regenerative practices were originally trialed – now comprising thriving perennial pastures.

Gus and Kelly Whyte reconsidered their program on their 12,500ha Wyndham Station near Wentworth, when they acknowledged that despite working six to seven days a week, they were getting little financial return and the station's ecological function, already impaired, was declining further.

Instead of focusing on the station enterprises – sheep, cattle and opportunity cropping on ephemeral lake beds – they switched to thinking about how to support the landscape for maximum ecological health.

That change of mindset has delivered change in every aspect of the Whytes' operation. By asking how they needed to manage to encourage ecological health, they improved the land's natural productivity.

Over 10 years, that in turn supported a doubling of livestock carrying capacity, from 55 to 100 dry sheep equivalent (DSE) days per hectare per 100mm of rain. Along the way they increased gross margin returns from $8/ha to $12/ha.

Soil was the ultimate focus. By changing grazing management practices so that the station's shrublands got brief pulses of intense grazing, followed by up to 300 days of rest from grazing, the Whytes encouraged a mulch of plant litter to accumulate on the soil, protecting it from the drying effects of the sun, minimising evaporation after rainfall, and supporting the soil's natural nutrient cycling processes.

Stocking decisions are based on the goal for individual paddocks – whether a paddock has been rested enough, the trigger points of desirable plant species, or if the land requires heavier stock density at certain times of year in order to disturb the soil and provide the condition for optimum germination, establishment and growth of perennial grasses.

At Gilgunnia Station near Cobar, Ashley and Carolyn McMurtrie have had a similar focus on supporting the soil.

The couple arrived on the run-down station in 2005. Not a single paddock could hold stock and the property was overrun by goats and kangaroos. After 150 years of virtually continuous grazing, sizeable areas were degraded to the point of being unable to support vegetation.

They trapped goats to fund a fence capable of excluding goats and kangaroos from 1000ha, and then set about developing rotational grazing infrastructure – water, fences – on this block.

This test of rotational grazing principles proved a profound success. As the McMurtries got control of stocking rates, they where able to better manage vegetation growth and development of groundcover.

As land health increased, the vegetation response to rainfall improved, accelerating the recovery cycle.

> Without ... this model we would have remained in a financially static position.

As they increased economic resilience and the capacity of the property as a whole to handle seasonally dry times and multi-year droughts, the McMurtries had the capital and the courage to expand on their initial 1000ha.

They have achieved a four-fold increase in productivity, running 900 DSE on 2000 hectares of their property, in comparison to the initial assessment by Livestock Health and Pest Authority of a 1400 DSE carrying capacity on the then 13,000 hectares (ie, 2.2ha/DSE compared with 9.3DSE/ha).

"The process we have undertaken over the last nine years has taken our business from a struggling opportunistic feral goat harvesting business that was completely exposed to seasonal conditions to a business that is far more resilient," Mr McMurtrie said. "Without the development and success of this model we would have remained in a financially static position, with no domestic stock and still completely exposed to seasonal rainfall variation."

Soil: Former G-G's call to action

Extracts from a speech given by the national advocate for soil health, Major-General Michael Jeffery, the former Governor-General, to the Farm Writers Association of NSW.

THE maintenance and enhancement of global soil resources is essential for the sustainable future of civilisation.

This important message is, I believe, gaining prominence and finally obtaining a foothold outside the spheres of traditional supporters – i.e. those who study soil (a surprising number – there are some 55,000 soil scientists worldwide), and those who manage it directly – farmers.

So while most Australians are likely to be oblivious of the World Soil Charter, most of you here today would be aware that 2015 has been declared the International Year of Soils by the United Nations General Assembly, and I hope that by the end of 2015 we can establish a simple message in the minds of the broader Australian public. That is:

- Soil underpins life as we know it.
- At home and abroad our soils are under threat from degradation, competing land uses and the demands of a booming world population.
- We have the knowledge and means to change the way soils are managed and in so doing to reverse degradation, boost productivity and build a sustainable future; and that
- Now is the time for action.

I cannot overstate the importance of this message.

You might well ask why a former soldier, vice regal office holder and research institute founder with no engineering, architectural, science, or farming experience is addressing you today? Well, it is because I am a very, very worried global citizen, father and grandfather.

Why is this? The globe is now subject to four great and difficult events: the ongoing impact of the financial crisis; unpredictable political, social and economic destabilisation throughout the whole of the Middle East, much of Africa and elsewhere; a pending food and water crisis of huge dimension and behind all of that, the potential tsunami of climate variability.

Fundamentally, the world has to almost double its sustainable food production by 2050 to meet a projected population increase from 7 billion to perhaps 10bn and it has to do this when the globe is losing 1pc of its arable land annually, where critical aquifer water supply for irrigated agriculture in China, India, Africa, and the Middle East is running out, and where most of the great rivers passing through populated areas of the undeveloped countries in particular, are heavily polluted.

We should also note that soils are becoming less fertile through run-down of nutrients and carbon, eroded through

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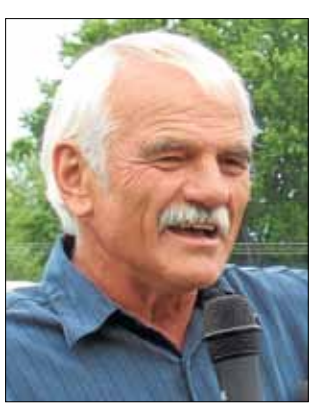
National forum, expo for SCU

Soil culture consultant Bob Shaffer, one of the keynote speakers, specialises in compost development and use and cover crop system management.



Gary Zimmer

IN RECOGNITION and celebration of the International Year of Soils 2015, SoilCare Inc will convene the National Biological Farming Conference and Expo 2015, from November 6-8 at Southern Cross University, Lismore, NSW.

'Regenerating Our Soils' is the conference and expo theme, aiming to provide an affordable forum that will advance biological farming systems and address issues of productivity and sustainability on a national scale.

The conference will be opened by the national advocate for soil health Major-General Michael Jeffery, the former governor-general.

Keynote speakers include international speakers Gary Zimmer and Bob Shaffer, world leaders in the field of biological farming.

The 25 speakers at the conference will be recognised and honoured for their contributions to the regenerative farming movement, including award-winning farmers who have been noted for their leadership and innovative farming practices. Other speakers are consultants and educators who have supported farmers to successfully regenerate their soil and farms.

The expo will provide the opportunity for agribusinesses to showcase the latest technology in regenerative agriculture and farm management.

The conference events will start on November 6 with pre-conference tours, expo opening and welcome reception.

Full day conference sessions follow on November 8 and 9, with a conference dinner on Sunday, November 8.

On Monday, November 9, there will be post-conference workshops.

Early bird rates before September 1: $220; after September 1: $275.

● Details are on the SoilCare website: www.soilcare.org

Professor's motto: Carry on gardening!

CARRY on gardening – that's the motto of Macquarie University's VegeSafe program – but carry on while understanding that urban gardening, in particular, has its hazards.

Many urban gardens have accumulated toxic levels of metals like lead over decades of being exposed to pollutants such as petrol fumes.

Surveys show that the soils at 20 per cent of homes in Sydney's inner suburbs exceed the 300mg/kg of lead considered safe for domestic residences.

Lead and other metals can cause permanent intellectual and neurological problems in children. Young children are particularly susceptible, because of their tendency to have closer contact with the soil, and they have a higher absorption potential compared to adults.

VegeSafe provides a free sampling program for domestic and community garden soils. Participants receive a formal report and links to information and advice about "what to do next" in the event of soils containing elevated concentrations of metals and metalloids.

The program also has a Facebook page where people can ask questions: facebook.com/pages/VegeSafe/571316076267515.

Rather than scaring people off urban gardening, VegeSafe wants to encourage people to garden in full knowledge that their soils are safe.

Having established soil safety, home gardeners can take the next step and use the Home Garden Soil Health Assessment workbook, developed by environmental services professional Col Freeman, to understand how capable their soils are of producing nutritious food.

Macquarie University's Professor Mark Taylor, in his garden, is a key staff member working on the VegeSafe program.

Mr Freeman, who has had an extensive career working with Landcare and catchment management groups, explains in his workbook that human senses can assess many key soil characteristics, and cheap equipment can take care of the rest.

The underlying philosophy of the assessment is Mr Freeman's equation that:

- To get taste you need nutrients
- To get nutrients you need microbes
- To get microbes you need good structure
- Therefore: structure + biota + nutrients = taste.

Although he warns readers that "the purpose of this workbook is not to be a textbook of soil science", Mr Freeman goes to some trouble to outline the principles of soil health, and why they are so.

He steps readers through how various observations can relate to things happening in the soil, how those things might affect plant growth, and what gardeners might do to improve problems.

"Using the Home Garden Soil Health Assessment is like a doctor using a thermometer to measure your temperature during a check-up," he said.

"It doesn't tell exactly what is wrong with you, but it is an indicator of how various parts of your body are working.

"The indicators in the Home Garden Soil Health Assessment are not measurements in a scientific sense.

Although there are numbers in the assessment, these numbers are qualitative assessments rather than objective measurements. They can be used over time within the garden to compare different beds or areas and to track changes (hopefully improvements) over time."

The workbook steps the gardener through tests on soil texture, water infiltration, biological activity, nutrient levels – and the effect of all those soil qualities on the nutrient value of the food grown in it. Changes can be tracked on assessment sheets.

For intractable problems, Mr Freeman also helpfully included a list of "more sophisticated (and costly) tests and assessments".

Mostly, though, it is about gardeners understanding their garden through their own direct experience.

● The Home Garden Soil Health Assessment can be downloaded free from Mr Freeman's website: dirtygreen.com.au/home-garden-soil-health-assessment.html

Former G-G Jeffery's message on soil

● From p5 of feature

through overgrazing and ground cover removal, and where wildfires are burning the equivalent of the continent of India every year and emitting large quantities of CO_2 in the process.

The social implications of a lack of food and water globally will also impact on world social stability and security, as indeed has already been demonstrated in the food riots in Egypt that contributed to the overthrow of President Hosni Mubarak.

Indeed, the president of the World Bank stated last year that in five to 10 years we would be fighting the water wars, and I think he is right.

This is perhaps the most urgent challenge facing humanity in the 21st century. Countries that produce food will now have to produce significantly more of it. And this, in a world that will be experiencing the impacts of climate variability and increasing scarcity of natural resources such as water, soil and fossil fuels – all factors impacting on food production.

Meeting this challenge will demand innovative solutions, including from Australia.

These are indeed very serious and complex challenges. But what I am excited about is that in Australia we have the answers. We can reverse land degradation and equip ourselves to better deal with impending challenges. It is all in how we manage the landscape, but for which as yet we do not have a simple, clearly postulated aim or "light on the hill" to quote Ben Chifley.

I would suggest that such an aim might go something like this: To restore and maintain an Australian landscape that is fit for purpose; that is fit for agriculture, for catchment, for mining, for cities, etc. How do we go about achieving this aim?

Healthy soil, with a focus on soil carbon, is the best place to start. [The major-general listed physical, policy and social strategies for addressing soil and water challenges, including Landcare.]

● Part 1 of the speech can be watched here: youtube.com/watch?v=lxyxkwu9o6k)

RIGHT: The national advocate for soil health Major-General Michael Jeffery, the former governor-general.

The engine of human existence

WHEN Andrea Koch of the US Studies Centre at the University of Sydney addressed a conference at Texas A&M in May, she put soil in its place: as the engine room of human existence.

"Soil is vital for solving the top five big issues for the globe: food security, water security, energy security, climate regulation and biodiversity," said Ms Koch, program leader of the US Study Centre's Soil Carbon Initiative.

"Soil also provides most of what is needed to keep the human body healthy. Humanity relies on the ongoing provision of ecosystem goods and services, and this can only be achieved with a soil resource that is utilised according to its capability, and managed properly to maintain its condition."

Agriculture is key to soil security, Ms Koch told the Texas A&M audience.

"When it comes to soil management, our best farmers absolutely understand that their soil is their fundamental production asset, and they treat it accordingly. Best farming practice today has an integrated approach to soil improvement and productivity improvement.

Andrea Koch, US Studies Centre at the University of Sydney

"That is the aim of soil security – the win-win of improved soil condition for natural resource and productivity outcomes. Many of our farmers are already securing the soil on our behalf, but we are not giving them the credit for it."

Ms Koch translated that message into the US Study Centre's own conference in Canberra in June.

The Soil and Big Data conference looked at the role of always-on, interconnected data in enhancing soil management and farmer productivity.

"In areas like plant breeding, agronomy, fertiliser management, we're at the end of the technology curve, and we're now looking for incremental improvements," she said.

"We haven't focused on soil productivity at all as a big area of focus for productivity growth. And the technology will enable it."

The value is not in the data – of which there are already terabytes lying idle in farm computers – but what meaning is extracted from it.

> Soil is vital for solving the top five big issues for the globe.

Speakers representing the US multinationals Climate Corporation and John Deere illustrated the growing interest that professional service providers have in being a conduit for data collected from farms, which they will analyse and value-add.

For instance, John Deere is looking to collect performance data from all its next-generation combines (with owner approval), which will then provide benchmarks to tell Deere combine operators whether they are running at peak performance.

Climate Corporation collects thousands of points of data from field soils and from weather stations to offer prescriptions to farmers intended to maximise yield.

Alternatively, farmers can use increasingly cheap data to harvest and manage data themselves.

West Australian farmer Brad Jones told the conference he had 450 soil test zones on his 11,000ha Tammin farm. From the data he collects, he minutely analyses how much nutrient he needs to add to get the best crop based on a risk profile of the soil.

If the soil is only capable of producing a 1.5t/ha crop in an average year, and the crop fails fast in a poor year, Mr Jones cuts back on nutrient inputs to lower the risk of losing money on the crop.

The third channel for "big data" is via industry-approved schemes. The livestock sectors – dairy, pork, beef – already have schemes for collecting genetic data and processing it to improve productivity in their sectors.

Questions on soil's big issues

AT the Soil to Save Our Planet research symposium held at the University of Sydney in July, Fairfax journalist Matthew Cawood asked three of the key speakers for their thoughts on soil-related issues.

Question: Are we managing our soils well?

Professor Alex McBratney

Pro-Dean, Head of the Department of Environmental Sciences, Faculty of Agriculture and Environment, the University of Sydney

It's a mixed message. Twenty to 25 years ago we were very concerned about soil degradation in Australia – about soil structure decline, salinisation, loss of soil carbon and so on. I think that while those issues haven't gone away, I don't think we are running our soils down at the moment. Probably through the Landcare movement, and good science, we have come to terms with many of those issues.

So we're not going backwards, and we're probably at the beginning of a new era where we'll probably start to improve our soils.

Major-General Michael Jeffery

National Advocate for Soil Health, former Governor-General

I think we're getting better, but we still have a long way to go. The good management of our soils is happening in patches.

What we're trying to do with our Soils for Life program is to bring together leading soil practice, and then publicise that across the wider farming community. The hope is that farmers will pick up best practice and become more viable economically and environmentally.

Professor Cristine Morgan

Department of Soil and Crop Sciences, Texas, A & M University

There's a regional answer to that. In places we are doing a very good job, in others we are not. In the United States, it's very farmer-centric.

We have our superstar farmers who are up in front with progressive ideas, and there those causing a lot of problems with their management choices.

Question: As a general comment on the role of markets and policy, do you agree or disagree with this statement?

Farmers who look after their soils are the true doctors of the future, but consumers are the sleeping giant. Only if they fill their shopping bags with products that sustain soil health will change take place. – Volkert Engelsman, CEO, Eosta.

Alex McBratney:

Professor Cristine Morgan
Department of Soil and Crop Sciences, Texas, A & M University

Professor Alex McBratney, Department of Environmental Sciences, University of Sydney

> Farmers who look after their soils are the true doctors of the future, but consumers are the sleeping giant.

One of the issues we have is a disconnect between soil, and what happens in the paddock, and the community.

So the challenge is, how do you get that connection? Five hundred years ago, everyone was connected to their soils, because they were producing their own food, or the food wasn't travelling very far. Now we have more than 50 per cent of the world's population living in urban centres.

Is there a technological response? Through the supply chain, can our food be connected to the soil that produced it?

I think there's ways we can get information from the grower to the consumer about soil and management practices.

That's not saying that we shouldn't have policy, but food should have as much information on it as possible.

Michael Jeffery:

The community has to recognise that the health of our soils is paramount. It is by far the most important strategic asset that we have. Farmers look after about 60 per cent of that asset. Is it fair that 135,000 farmers take responsibility for looking after that asset on behalf of 25 million Australians if they are not getting a fair price for their food, or they are not being rewarded for looking after the landscape?

That's the key – paying a fair price for food, and rewarding farmers for looking after the asset. Part of the reward of looking after the soil is healthier food. The health budgets of the nation are rising so fast that they will soon be unaffordable.

Cristine Morgan:

I resoundingly agree. I think it's about labelling. It's about adding knowledge to consumer items so that consumers can make the choice. I know that's very difficult, but there's a general sense that if something is 5 cents more, I'll pay it if I know there was good management or sustainable practices behind that product.

The big example is organic. There's no information about soil management in organic production, but the concept is that it's a more sustainable system.

Question: If you had unlimited resources to throw at a particular soil issue, what would that issue be?

Michael Jeffery:

I'd be developing a permanent research base with 300 to 400 case studies of proven excellence in land management, backed by scientific assessment capability to measure outcomes like carbon or water retention and crop productivity, and so on. I'd want it done on a permanent basis, so over 20, 50, 500 years, we develop real knowledge what works in terms of looking after our soils.

To go with that, I'd develop a National Institute of Soil Health, and bring together smart people in modules that dealt with particular aspects of soil health. The object would be to have a one-stop shop in which the modules pull together data and reinforce best practice for farmers, help funds make good investments in agriculture, get the education system involved in developing courses on soil health, and so on.

Cristine Morgan:

Policy, and getting policy right. In the US, if a farmer is farming to the Farm Bill, I want them to be farming to improve soil condition. We have a lot of very good policy that encourages land managers to choose practices that lead to better land condition.

The problem, as I perceive it, is to do with insurance. You have to make decisions on timelines.

You may not want to plant, because there may be no moisture in the soil and you'll cause dust storms, but you have to plant if you want to get insurance.

Farm back on track

TROPICAL Cyclone Oswald might have been rated an ex-cyclone by the time it made landfall in Queensland in 2013, but the torrential rain it delivered produced some major floods.

At Scott and Melissa Dowlings' 300ha farm on the Three Moon floodplain near Monto, the floods stripped away topsoil and much besides, leaving paddocks trenched with waist-deep gullies.

Instead of soil for growing lucerne, sorghum, mungbeans and barley, the Dowlings had "holes full of fish" and little capacity to farm their most productive country.

They were brought back into operation, with 29 other central Queensland land-holders, thanks to a flood recovery grant through the Queensland and federal governments' On-farm Productivity and Riparian Recovery Program to help primary producers recover from flooding caused in Cyclone Oswald's wake.

"I might have been too scared to do it otherwise. Money was so tight after the floods," Mr Dowling said. "The funding really took the bite off when I came to repair the paddocks."

Recovery in the Dowlings' case meant lots of earthmoving to remove a diversion bank, fill the flood-scoured holes, and then use laser-levelling to redistribute the remaining topsoil across the damage zone before they could farm again.

The project was managed by the Burnett Mary Regional Group and co-ordinated locally by the Burnett Catchment Care Association.

ACT field day tackles gully erosion

Attendees at the ACT field day inspect riparian erosion in southern Canberra.

SUSTAINED and heavy rainfall in 2010 and then 2012 after the breaking of the Millennium Drought was responsible for extensive erosion of streams across south eastern Australia.

The rainfall and subsequent erosion affected previously well-vegetated and stable waterways, including the Tidbinbilla River in southern ACT. Over eight days, the southern ACT region received 203mm of rainfall (the highest rainfall since 1962), washing many tonnes of soil, mature ribbon gums and other trees and shrubs, and arable land downstream, changing the course of the river and threatening farm infrastructure.

In response to community concern and interest regarding how to address this scale of erosion, the ACT Erosion Control Field Day was organised late last year in partnership with the Ginninderra Catchment Group, funded under the regional delivery component of National Landcare Programme and hosted on southern ACT rural property, Tidbinbilla Station.

Tidbinbilla station manager James Kerr points out the impact of 2012 rains on local rivers.

The 33 participants included landholders from across the region and volunteer park and landcarers who do environmental work on public land in the ACT.

Speakers at the field day included Tidbinbilla Station farm manager James Kerr, who showed participants the extent of the erosion; Dr Fiona Dyer, senior research fellow at the University of Canberra and chairwoman of the Upper Murrumbidgee Catchment Co-ordinating Committee; Sari Glover, senior land services officer with South-East Local Land Services and co-author of Gully Erosion Assessment and Control Guide; and Will Higginson, a University of Canberra student whose honours thesis focused on assessing the Bidgee Banks riparian erosion control work of 2002/2003.

Dr Dyer stressed the importance of prioritising on-farm spending to get the best return, including investments in erosion control.

She spoke about the natural processes that contribute to erosion and asked those present to consider 'bang for buck' when looking to remediate areas of erosion.

She said smaller works in higher catchment areas were perhaps more cost-effective over the longer-term compared with larger erosion control infrastructure lower in catchments, which represented a much more significant loss and greater impact if washed away during heavy rainfall.

> 12 years on much of the work was still in place, despite drought and heavy rainfall.

Ms Glover showed participants an actively eroding gully and a stable gully and then asked them to recognise the difference between the two, with a view to applying this knowledge on their own properties to better target control efforts and investment.

She also talked participants through the gully erosion class rating system as presented in the Gully Erosion Assessment and Control Guide.

The guide assists landholders to identify where and how to remediate gully erosion and presents some low-cost interventions rural landholders can construct themselves to address gully and riparian erosion.

Mr Higginson talked participants through the results of his analysis of the Bidgee Banks riparian erosion control work of 2002/03, which showed – 12 years on – that much of the work (tree planting, fencing for exclusion of stock from riparian areas) was still in place, despite drought and heavy rainfall.

He noted that even just fencing to exclude stock from a riparian area or an area of erosion – without extensive replanting – had benefits for managing erosion.

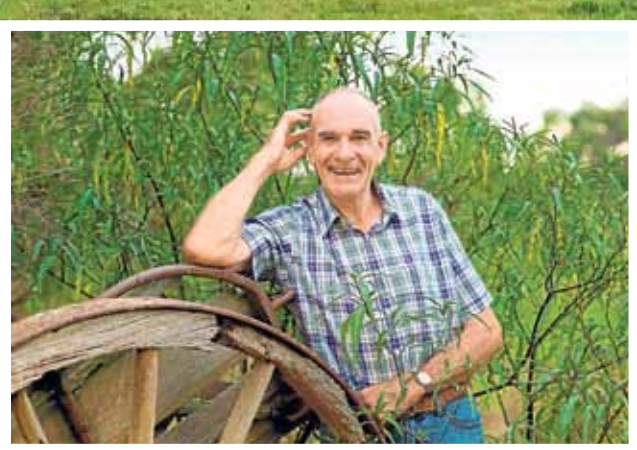
He also noted that active revegetation, in particular planting mid-story species such as shrubs and small trees, helped manage weeds in fenced riparian areas where stock had been excluded.

In an evaluation of the field day 85 per cent of participants said they would make changes to their management based on something they had learnt that day.

The field day was made possible with support from the federal government.

Soil biology boost aims to fix root mat problem

By SAM SHANNON, regional Landcare facilitator



LEFT & INSET: Daryl Hook spreads the second application of compost at his soil trial site on his beef property in Pound Creek in Gippsland last year 2014.

BEEF farmers Daryl and Margaret Hook have teamed up with their local Bass Coast Landcare Network, the West Gippsland Catchment Management Authority (WGCMA) and the Department of Economic Development to take part in an on-farm demonstration looking at the effect of using compost and lime to mitigate their acid root mat problem.

The demonstration is part of WGCMA's Healthy Soils, Sustainable Farms project, funded through the National Landcare Programme, which is working with five Landcare networks across the West Gippsland CMA region to improve soil health and farm productivity.

Daryl and Margaret's 130- hectare beef property at Pound Creek, near Inverloch on southern Victoria's Bass Coast, has been affected by acid root mat since they purchased the property 22 years ago.

Acid root mat is formed when pastures become dominated by low production species, such as bent grass and fog grass, which form a dense mat of roots above the soil.

These organic root mats build up over time when poor soil conditions, such as waterlogging or acidic soils, stop the normal process of organic matter breakdown of roots. The mat reduces water and nutrient infiltration into the soil, which reduces nutrient cycling, sub-surface decomposition and pasture productivity.

Acid root mat affects many farms in Gippsland and although Daryl's management of the property may have reduced the root mat, it still remains a problem.

"We take a biological approach to farming, adding chicken and pig manure occasionally, using spike aeration, smudging and compost tea," said Daryl.

"The root mat has improved a bit since we have been here but it is still chronic."

As part of the WGCMA's soil health project, the Hooks are trialling three different rates of compost with and without lime, to attempt to stimulate decomposition of the organic root mat. A strip of nitrogen has been applied across all plots. Treatments also include a lime-only plot and a control.

Baseline soil monitoring has shown that high levels of nutrients are caught up in the root mat. It is hoped that by stimulating the biological activity in the soil, the root mat will break down over time, allowing those nutrients to become available for pasture growth. The depth of root mat and available nutrients will be measured over the next four years to monitor the impact of each treatment.

"This is one of several on-farm demonstrations underway within the region as part of the Healthy Soils, Sustainable Farms project," said Tony Gardner, WGCMA manager for its Healthy Soils, Sustainable Farms Program.

"This opportunity allows us to look at, and learn from, the innovative ways farmers are managing constraints to production.

"The result of improved management will not only be improved productivity but improved efficiency of nutrients, and the protection and enhancement of our most precious soil resource."

More information about this and other projects can be found on the Gippsland Soil Trials and Demonstrations page at www.wgcma.vic.gov.au.

This project is supported by the West Gippsland Catchment Management Authority, through funding from the federal government's National Landcare Programme.

1.3 million trees planted in two days

AUSTRALIANS planted an astonishing 1.3 million trees in this year's National Tree Day and Schools Tree Day. That equates to 22 million trees put in the ground over 20 years of the special annual event.

More than 300,000 people across Australia participated in events held on July 24 and 26, hosted by councils, schools, businesses and communities across the nation. Their participation meant that now, 3.5 million people have been part of the annual acknowledgment of the importance of nature for health and wellbeing.

> From the stories ... it was evident that the theme really resonated with Australians.

National Tree Day organiser Planet Ark – which acknowledges the huge role played by Landcare groups in hosting events annually – this year released a new study into the connections between nature and human wellbeing.

The report, Needing Trees – The Nature of Happiness – found that spending time in nature produces a physical response in the body, in the form of hormone secretions and brain function, that relate to sensations of wellbeing.

Conversely, changes in technology, including access to on-screen forms of entertainment, is contributing to other changes in behaviour. Research shows these activities activate areas of the brain linked with addiction.

"Our theme this year 'You Can Grow So Much' focused on the wealth of opportunities engaging with nature brings to individuals, communities and the environment," a Planet Ark spokesperson said.

"From the stories and photos we saw from the many events held this year, it was evident that the theme really resonated with Australians.

"The campaign wouldn't continue to grow if it wasn't for the passion that Australians have for the environment. And it's a testament to the individuals who work to preserve the environment and have a positive impact in their communities. In saying this, we will continue to encourage individuals, families and communities to continue to host planting events, even in their own backyard, because at Planet Ark, every day is Tree Day."

Baranduda Landcare on Victoria's Bellarine Peninsula participated in its 16th National Tree Day this year.

Bass Coast Landcare participating in National Tree Day this year.

Huon Valley Roamers Landcare participating in National Tree Day this year.

Baranduda Landcare on Victoria's Bellarine Peninsula participated in National Tree Day again this year.

Friends of the shire at the John Herington Memorial Sign.

MUNDARING AND FRIENDS

MUNDARING Shire, in the Darling Ranges east of Perth, has some friends. To be exact, the 644-square-kilometre shire has 87 Bushcare Friends groups, each looking after their own patch of bushland and each with their own objectives.

With about 300 members in total, some of those groups only number two people. "Sometimes they are more an extension of people's backyards," said Toni Burbidge, the shire's environment and sustainability co-ordinator.

Across the shire's five catchments, which flow east and west, these groups collectively make a big contribution to maintaining the integrity of patches of bushland isolated by development. It was in response to development in the 1980s and the selling-off of reserves, that started the aggregation of citizens into BushCare Friends groups in the first place. Mundaring Shire introduced its Friends group strategy in 2003, enabling it to more effectively co-ordinate group activity through a Bushcare co-ordinator. Together over the past 10 years, the Friends groups have volunteered more than 60,000 hours and planted more than 152,000 plants.

Much activity involved weed removal, Ms Burbidge said, but planting native seedlings harvested and propagated in the Darling Ranges was also a big part.

The Friends of Boya Trail reserve beside Greenmount National Park began as a weekly meeting seeking to keep down the fuel load before fire season. As the six members realised what they could achieve in an hour a week, they progressed from weed control to restoration of the reserve's creek and wetlands. They also sourced funds for signs acknowledging the reserve.

Ms Burbidge said the Friends' biggest challenge was attracting new members to supplement the ageing demographic.

"We go out to talk to the schools quite a bit. If you can plant the seed of the idea that bushcare is fun, they might come back and join us when they are older."

RIGHT: Bushcare site in Mundaring Shire before restoration work.

LEFT: After planting seedlings in Mundaring Shire.

Funding kiss of life for habitat

ABOVE: Volunteers at the Dora Creek site plant more than 500 saltmarsh and swamp oak seedlings.

By DANIELLE NIELSEN

A CLEVER use of fees collected from NSW recreational fishing licences is helping Landcarers in Lake Macquarie City generate tangible sustainability outcomes – including benefits for the area's scaly inhabitants.

Saltmarshes are biological hotspots that function as critical fish habitats and nurseries. They maintain water quality by buffering and filtering nutrients, and they even sequester carbon.

Despite the wildlife they support, and wealth of ecosystem services they provide, coastal saltmarshes have historically been undervalued and considered by many to be mere swamps or wastelands, and of little use.

As a result, many saltmarsh areas around Australia have been drained, reclaimed or degraded.

Mangroves along the lake edge at Dora Creek in Port Macquarie, NSW.

Coastal saltmarsh, which functions as a nursery and critical habitat for fish, faces a very high risk of extinction in NSW and has been identified as an endangered ecological community under the Threatened Species Conservation Act in NSW since 2004.

The outlook for these important natural areas and the species that inhabit them would seem grim; however, a recent project between the Dora Creek Landcare group, Climate Ready Dora Creek sustainable neighbourhood group, Lake Macquarie Landcare and Lake Macquarie City Council demonstrates how community partnerships are attracting funding and building local capacity for the long-term management of these valuable environments.

In 2014, the Dora Creek Landcare group received a NSW government habitat action grant from the NSW Recreational Fishing Trust to extend weeding works and fund planting to help restore local saltmarsh and swamp-oak vegetation.

The Dora Creek project site is an important fish habitat and acts as a nursery for many species, including bream and flathead.

The trust directs funds raised from fees for recreational fishing licences to initiatives that improve recreational fishing in NSW by rehabilitating wetland habitat, controlling invasive weeds and erosion of banks and foreshores, revegetating riparian zones, providing enhanced access for fish, fencing out stock, and installing snags and woody habitat.

Lake Macquarie Landcare co-ordinator Jason Harvey said the funding program was excellent for Landcare projects.

"Landcare co-ordinated fish habitat projects provide opportunities for private landholders, farmers and recreational users to become involved in local Landcare activities," he said.

"The Dora Creek project supported local volunteers by building their skills in regenerating sensitive saltmarsh and swamp-oak environments through professional assistance and on-site training."

> Saltmarshes are biological hotspots that function as critical fish habitats and nurseries.

Weed-removal sweeps by professional regeneration crews targeted noxious and environmental weeds such as asparagus fern. Working alongside Dora Creek Landcare volunteers, they cleaned up an area of 530sq m.

The Lake Macquarie Landcare Green Team also worked at the site, planting 420 plants and weeding 30sq m, while volunteers weeded an additional 69sq m and added 100 plants along drainage lines and road edges in the weeded zone. This work was supplemented by follow-up weeding and planting by local volunteers.

"A co-ordinated approach was needed to get us started and build local skills so that long-term maintenance could continue and the benefits of the initial investment of labour and money would endure," Mr Harvey said.

The habitat action grant for Dora Creek adds to the regular yearly investment of more than $640,000 made by Lake Macquarie City Council to the Landcare Resource Centre to support Lake Macquarie Landcare and its network of 270 local Landcare groups.

"When we saw what the professional bush regenerators had achieved in just four days, our response was 'Wow!'," said Dora Creek Landcare volunteer Laurene Mulcahy.

"The foreshore was transformed and we could really see the value of doing ongoing work to maintain it," she said.

"We were so motivated by what they had achieved, we kept going out for two hours every Tuesday to continue to restore the site."

● Applications for Habitat Action Grants for 2015-2016 are now open. For details visit www.dpi.nsw.gov.au/fisheries/habitat/rehabilitating/ahr-grants-program.

Birth of Landcare nationally

By ANDREW CAMPBELL

TOYNE OBITUARY

PHILLIP Toyne died recently, aged 67, after a long illness with cancer, leaving an indelible legacy of influence and achievement.

Along with Rick Farley, former leader of the National Farmers Federation (NFF), Phillip Toyne was the best strategist I've known. We worked together in the early days of Landcare. Phillip has been a close friend for almost 30 years.

We first met in 1987 when, as head of the Australian Conservation Foundation (ACF), he visited the Potter Farmland Plan project in Western Victoria.

With $1 million in funding from the Ian Potter Foundation, we were attempting to show demonstration farms that, with good planning, conservation and production could be complementary activities in farmed landscapes.

Phillip was taken with what he saw on the ground and what he learned from participating farmers. Coincidentally, Rick Farley, then executive director of the NFF, visited that same week and responded similarly. Both asked how this work could be scaled up nationally.

I suggested that they should be working together but they had already started talking with each other about a national alliance, and had begun what became an unlikely, close and highly influential friendship.

The Victorian Landcare program initiated by Joan Kirner and Heather Mitchell of the Victorian Farmers Federation provided a model for bipartisanship and community engagement. The Potter project illustrated the value of whole-farm planning to integrate conservation and production.

Mr Toyne and Mr Farley asked me to work with them in developing a proposal for a national program of community-based land conservation, based on farm and catchment planning, to take to then Prime Minister Bob Hawke. Our proposal was also informed by a workshop held in the then new Parliament House in Canberra prior to its launch, attended by leaders of pioneering community landcare groups in Australia. Mr Hawke (supported by Resources Minister Peter Cook, Primary Industries Minister John Kerin and the shadow minister for primary industries, Bruce Lloyd) agreed to fund a national program and a $340 million Decade of Landcare.

In the new position of national Landcare facilitator, I reported to Mr Toyne, Mr Farley and the minister over the next four years and after more than 200 tours to all parts of the continent.

It was exhilarating to track the rapid growth of Landcare – voluntary groups caring for their land, bringing together farmers and conservationists, traditional farmers and hobby farmers, women and men, young and old, rural and urban – and its practical actions in local communities.

Mr Toyne was justifiably proud that his friendship and partnership with Mr Farley was the catalyst for the ACF-NFF alliance and the national development of Landcare (also mentioned in his Order of Australia [AO] citation in 2012).

I later worked with him in the environment department in Canberra, establishing the Natural Heritage Trust and the Bushcare program, and worked to dramatically reduce land clearing and reverse the decline in the extent and quality of native vegetation in Australia.

LEFT: Rose Harney, Rowan Reid and Phillip Toyne in 1991 on Rowan Reid's Bambra Agroforestry Farm in the Otways, Victoria.

We initiated new incentives for conservation on private lands (a boon for organisations such as Bush Heritage) and helped to establish Australia's distinctive regional model of natural resource management, building on the foundations of Landcare.

We had stayed in touch ever since, conspiring only last week on how best to facilitate large-scale expansion of indigenous savanna burning programs funded by multinational resources companies across northern Australia.

Mr Toyne had a formidable bullshit detector and did not suffer fools gladly. He was not over-endowed with patience, especially earlier in his career, and his critiques could be bracing to say the least.

However, he was generous to a fault and his insights, advice and mentoring helped many people in their own careers.

As he came to terms with his cancer, a softer, more reflective and philosophical side of his big-hearted nature came to the fore, making it easier for those around him to deal with his obvious pain and discomfort.

Bob Brown called him "a magnificent Australian" and former independent MP Tony Windsor summed it up beautifully on Twitter: "Australia has lost a visionary in Phillip Toyne – my thoughts are with his family. He cared for those who cared for the land, black & white."

● This is a modiefied excerpt from an article published in The Conversation. The full obituary is online at theconversation.com/phillip-toyne-cared-for-land-carers-black-and-white-43235. Author Andrew Campbell's obituaries on Rick Farley and Joan Kirner are also published by The Conversation.

Landcare one of Kirner's 'greatest achievements'

● From p1 of this feature

They became close friends.

Ms Kirner launched the first group at Winjallok near St Arnaud on November 25, 1986. For the next two years, Ms Kirner and Ms Mitchell vigorously promoted Landcare, personally inaugurating many of the next 30 Landcare groups, and people in other states were showing interest.

By late 1989, 63 groups operated in Victoria.

At the 1988 election, shifting to the lower house, Kirner accepted a promotion to the long-coveted education portfolio, and effected controversial reforms. Later that year she became deputy premier and in 1990, when Premier John Cain resigned under duress, she took over – becoming Victoria's first and only female premier.

In the face of looming financial concerns, she called an election in 1992 and, although still popular, lost the contest to the Liberal Party's Jeffrey Kennett.

Ms Kirner briefly remained Opposition leader before resigning. When she retired from politics in 1994, Steve Bracks, a former aide and future premier, took her seat.

Thereafter Ms Kirner devoted much of her time to Emily's List, a network encouraging women to enter politics. She died aged 77 on June 1, 2015, after a long and challenging illness.

On the back of Landcare being officially launched in Victoria, the initiative went national in late 1989, after fruitful Canberra politicking led by Phillip Toyne and Rick Farley – another interesting and unexpected alliance, well-supported by several parliamentarians, public servants and NGO stalwarts.

Landcare has also gone global. Its first overseas appearances were in New Zealand and, surprisingly, Iceland after a longish gestation in the mid-1990s. South Africa and the Philippines soon followed.

Ms Kirner herself said Landcare was one of her best achievements. The groups and networks across Australia, numbering some 6000, would gratefully agree. Landcare empowers communities with its autonomy, flexibility, training, creativity and multi-disciplinary approach, and is a wonderful force for social cohesion and reconciliation.

It encourages the conception, planning and management of major regional projects, and the most advanced networks run as community enterprises under boards, generally with a cricket team of part-time paid co-ordinators.

Landcare has greatly helped change and restore our landscapes, and has since spread to more than 20 other countries. Ms Kirner, with her background in local activism, her huge drive and big-picture approach, initiated it in 1986.

She spoke at Landcare forums to warm ovations.

Her marvellous intellect, memory and humanity meant she still knew names, personal details and achievements of scores of individuals, whom she freely acknowledged.

Ms Kirner was an admirable woman with superb stage presence and sublime humour. With her total commitment to better education, she would appreciate the very effective Junior Landcare programs, especially in Africa.

Thank you, Joan!

Former Victorian premier Joan Kirner

● The obituary of Phillip Toyne, who also passed away recently, is on the facing page of this feature.

Microscope on key wetlands

EAST of Busselton is a wetland that supports more than 37,500 water birds from 90 different species, more than 30 fish species and the largest regular breeding colony of black swan in south-western Australia.

The Vasse-Wonnerup Wetlands system is a Ramsar-listed site and a wetland of national importance.

On World Environment Day recently, the South West Catchments Council (SWCC) celebrated the official launch of the Vasse Wonnerup Wetlands research program at the ArtGeo Gallery in Busselton.

Considerable and ongoing joint efforts across the catchment from agencies, natural resource management and community groups over the past 10 years has led to water quality improvement in the catchment but the Vasse Wonnerup Wetlands system still suffers from periodic water quality issues.

In collaboration with the agencies, local governments and leading researchers, the SWCC has identified key knowledge gaps and management questions for the system and, through funding from the Australian government's National Landcare Program, SWCC has fostered a strong partnership with Murdoch and Edith Cowan universities.

"The collaborative project has led to the establishment of an interdisciplinary investigation node aimed at answering key management questions for the improvement of the Vasse-Wonnerup Wetlands that we will rely on for future decision-making," said SWCC chief executive officer Damien Postma.

The collaborative research program, led by Murdoch University and Edith Cowan University, is providing value to other projects and filling gaps in our knowledge on these important wetlands.

Community values of the wetlands and adaptive management will all be topics investigated as part of this program.

> Vasse-Wonnerup is a Ramsar-listed site and a wetland of national importance.

Dr Jane Chambers from Murdoch University will be leading the program and the research will be primarily undertaken by PhD and master's students with supervisory teams from the collaborating organisations.

"The program enmeshes the ecological and social sciences and advances our knowledge to provide an integrative solution to the management of this wetland system," said Dr Chambers.

It is anticipated that the research outcomes will assist managers in developing appropriate adaptive management strategies, mitigation measures and on-ground actions, as well as identifying key indicators to be monitored that will promote increasingly informed decisions.

NT's first Major Day Out

McMinn's Lagoon

> We encourage those in the Top End who care about preserving our precious environment to get involved.

TERRITORIANS have the opportunity to participate in Bushcare's Major Day Out (BMDO) in September for the first time in the event's history.

McMinns Lagoon, 30km south east of Darwin, is the first Northern Territory site to be registered since the national annual bushcare event started in 2010.

The McMinns Lagoon Reserve Association is inviting volunteers to the site on Sunday , September 13, for family-friendly activities including tree planting, weeding, nature walks, displays, environment talks and more.

Site organiser Brian McWilliam says McMinns Lagoon, in the Litchfield municipality, is an area of significant environmental, social and cultural value to the Larrakia and local residents.

Bushcares Major Day Out founder Don Wilson (left) with former PM Bob Hawke and the son of a bushcarer, at the video shoot promoting this year's event.

A group of volunteers formed the McMinns Lagoon Reserve Association more than 30 years ago to revive this "rundown waterhole" and bring it back to its original state.

The lagoon has as an abundance of native woodland, wetland and aquatic plant species including ironwoods, weeping paperbarks and water lily.

Brian says the group's tree planting has substantially improved habitat for birdlife and other wildlife including white bellied sea eagles, northern long-necked turtles and common water fowl. The lagoon is an important stopover for a number of migratory birds such as the yellow wagtail, common greenshank and a variety of sandpipers. "People from all over the world are coming to look," he said.

Don Wilson, founder of BMDO of which Landcare Australia is a sponsor, said it was exciting to finally have a Northern Territory site registered. "We encourage those in the top end who care about preserving our precious environment to get involved.

"Just as Clean Up Australia Day has made us a litter-conscious nation, Bushcare's Major Day Out aims to make us conscious of the need to protect the bush.

"Come along on September 13 and discover the role we can all play in its continued care."

BMDO encourages other NT land managers to register sites for this national event.

When: 13 September 2015, 10.30am-3.30pm.

Where: Shed/office, 5 Dreamtime Drive, McMinns Lagoon.

Contact: Brian McWilliam on 0409 882 120 or email mcminnslagoonnt@gmail.com

For more details, visit www.bushcaresmajordayout.org

Family farmer switches from 'commodity supplier'

AFTER working for a decade to transform his own farming system, Charlie Arnott, a Boorowa, NSW, farmer and Landcarer is exploring how to change family farming in general.

When he began moving into non-conventional forms of agriculture about 10 years ago, Mr Arnott felt he was pushed and pulled into choosing a new direction.

The chairman of the Lachlan River Catchment Region Landcare group (LachLandcare) felt that the intensive mixed farming model he inherited with the family farm Hanaminno put him on a treadmill with little time to care for the land.

As he pushed away from convention, exploring how to do things differently, he was also pulled towards alternatives such as biodynamics, organics and holistic farm business management.

"The fundamental change was that I began asking myself about my purpose," Mr Arnott said. "Was it to produce a commodity to sell to commodity traders, or to grow good food from healthy land to support health in people?"

He opted for the latter. Several enterprises – prime lambs, wool, trade and breeding cattle – were consolidated to production of high-quality beef. Since 2014, Charlie Arnott Natural Grass Fed Beef has been sold direct to consumers and through selected butchers.

It wasn't easy to "stop using the 'cides", as Mr Arnott put his conversion to biodynamic and organic practices. But as he perservered with his commitment, the changes he observed in the landscape and himself meant that it wasn't hard, either.

"It was challenging making the social and cultural shifts, and coming to grips with the operational differences, but once you have made those changes it becomes easier, especially when you see a renewed vigour in yourself, the landscape and your team."

While Mr Arnott was able to make changes within his own boundaries, the wider problems he observed in the Boorowa district and in rural areas in general are not so easily tackled.

Youth is bleeding from rural areas, and landless young people can't take up farming because of the enormous capital required.

Urban consumers have little understanding of where their food comes from; urban people in general have little understanding of rural life.

And farming is generally not getting any more profitable.

Mr Arnott says he believes every farmer, and every Landcare group, has an opportunity to address these issues.

As a farmer, he has stepped into his own social experiment by going into partnership with a 23-year-old man who will use the land on Hanaminno to run enterprises complementary to beef production.

Initially that will entail free-range pork production, but Mr Arnott hopes the partnership will also evolve to free-range egg and broiler hens.

These enterprises won't detract from beef production, and managed well, should help to improve fertility and resource use. "We don't know how well it's going to work, but if we can make it work, opportunities abound ," Mr Arnott said.

"I'm giving this young man a chance to farm he wouldn't get otherwise. It allows me to tap into the enthusiasm and drive of a younger generation, and we're bringing people into the community with new skills.

"For older farmers, this model might give them another opportunity for succession planning."

At the same time, Mr Arnott is constantly working to build better connections between city and country.

That's been a long-term project for Boorowa Landcare (Mr Arnott is a former chairman of the group), which since 2000 has worked with North Sydney Bushcare to bring urban volunteers annually to the district to help with Landcare projects.

Mr Arnott is pushing the city-country connection on a more individual front.

"Many of us have accountants, solicitors and other people on our 'team' of personal service providers that we know well, respect and connect with every few months," he wrote on his blog.

"We consider them important in our lives.

"Now think about this: Who's your farmer? How often do we need a farmer? Three times a day?

"Why wouldn't we consider a farmer as important as our doctor?"

Charlie Arnott will be at the official launch of From Farm to Fork on Monday, September 7, in Wynyard Park from 11am-2.30pm. Join in the conversation if you can't make it in person on the Facebook page, From Farm to Fork.

CHARLIE ARNOTT: AMBASSADOR

Charlie Arnott is an ambassador for From Farm to Fork, which is open for registrations and runs through spring. Funds raised from the campaign will be used in part to support a sustainable farming program through Landcare Australia.

- People can get involved in From Farm to Fork by:
- Hosting a From Farm to Fork feast
- Undertaking a Fresh Living Challenge
- Nominating or eating at a participating restaurant
- Sponsoring a participant (above).

Details and registrations are via fromfarmtofork.org.au

Charlie Arnott, middle, on a panel at the 2014 National Landcare Conference.

Charlie Arnott with Angelica and daughter Lilla.

Mustering cattle