



Landcare
Junee Area

Junee Area Landcare

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JAL meeting dates are published in the monthly Murrumbidgee Landcare e-news.



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JAL Newsletter

Winter 2014

Skye Bellamy for Junee Area Landcare

It has been another interesting winter season, with June being the warmest on record since 1880. These warm days have been kind to establishing small trees. We have, in some parts of the Riverina, experienced scattered showers to help with crops and pastures. It was a huge relief to get 50 odd millimetres of rain mid to late March, to kick start the growing season. Along with the warm weather we had overnight growth, sowing began, pastures were growing, trees were flowering. My Pin- Cushion Hakeas were glorious! Spring in Autumn!

The *Cross-property planning (CPP)* project continues to drive NRM activity in the Junee area. The "Healthy dams" workshop was held at Bill and Maria Muller's property, "Nunlong". Here we looked at an existing dam which Bill has fenced off, and plans to turn into a biodiverse dam by enlarging and re-shaping it, and planting vegetation to connect to nearby areas of remnant native vegetation. John and Nicole Hopkins, "Allawah", and Murrumbidgee Landcare Inc (MLi) hosted a cropping and pastures update for the Illabo district in mid-June. Topics covered included: livestock feed requirements and health, cropping update, pastures and drought lots.

The CPP project continues to be a well-received, funded, and inspirational project for the Junee area. The community based focus of the project has rekindled the ethos of Landcare.

The 25 Year Anniversary of Landcare in NSW ticked over in July. What an achievement! 25 Years of LANDCARE! Driving around the Junee area we can see all these years of rehabilitating, repairing and growing. It is hard to imagine what our landscape would look like without the pioneering efforts of our local Landcare founders.

FREE Soil Biology Workshop—Expressions of interest

MLi's CPP project in conjunction with Riverina Local Land Services, would like to invite you to participate in a soil biology workshop in your local area this spring. The workshop will cover techniques to identify and monitor soil biological health, provide management options to encourage soil biota and build soil organic matter on farm and examine the significant role of soil biota for sustainable production. Participants are entitled to two free chemical soil tests with the results from these tests used to discuss the correlations between chemical soil test results and soil biological health.

Other activities at the workshop include: litter trays, microscopes to identify different soil organisms, and demonstration of practical on-farm tests.

If you are interested in participating please contact **Jacinta Christie, MLI, via email jchristie@mli.org.au or phone 0431 953 778.**

This newsletter has been produced by Murrumbidgee Landcare as part of its 'Cross-property planning to balance production and biodiversity' projects, assisted with funding from the Australian Government's Clean Energy Future Biodiversity Fund and the NSW Government's Environmental Trust.

What has been happening with the *Cross-property planning project*?

By Jacinta Christie, Project Co-ordinator

The MLI CPP project involves 65 landholders across the Illabo/Bethungra and Junee, Kyeamba Valley and Tarcutta/Humula districts- 35 are in the Illabo/Bethungra and Junee area. Individual property maps have been produced for local landholders, with 25 producers to date receiving funding for on-ground works in the following target areas: biodiverse plantings, protection and enhancement of existing remnants and invasive species management.

Specific works include fencing out and planting creek lines and eroded gullies, planting tree lines, erosion control, adding trees to existing tree lines, controlling foxes and rabbits, planting scattered paddock trees, fencing off and enhancing existing remnant vegetation patches, fencing and planting around dams and revegetating with understorey in existing remnant vegetation.

Over the last six months the Project has offered workshops and farm updates on Healthy Farm Dams and Pastures and Cropping. Soil biology workshops are also being offered for interested landholders this spring (see notice).

Encouraging beneficial insects by planting native vegetation- IPM project update

By David Orchard

An experiment to investigate the effects of revegetation on insect dynamics was established in the Illabo area in July 2013. The experiment initially focused on a single property (Bill & Maria Muller's property "Nunlong") and revegetation work was carried out using locally native species. However, this planting failed due to poor conditions at the site, and the focus of the experiment has now shifted to focus on determining the background insect populations of six properties in the Illabo area. This will allow comparisons to be made between crops, pastures and shelter belts in terms of the relative abundance of pest and beneficial insects. It is hoped that revegetation work will be reincorporated into the experiment in future.

The experiment involves the use of insect traps (sticky traps for aerial insects and pitfall traps for ground-dwelling species) to determine the species composition of a site over the course of several years. These sampling methodologies are currently being tested and have changed significantly; further changes are possible. For the first sampling period, 24 pitfall traps were installed in a grid pattern in the remnant verge and the adjacent cropping paddock.

Initial insect samples were collected from "Nunlong" in mid-October, with many pest species recorded and several – including mites, thrips and lucerne fleas – were found to be extremely abundant. A second sampling, at all six sites, was carried out in February 2014. Insects were generally less abundant and diverse during this period, with ants and springtails tending to dominate in the pitfall traps and many of the sticky traps being almost entirely devoid of life. Thrips and other damaging pest insects were generally scarce but so too were the most beneficial species, such as parasitic wasps. Revegetation areas appeared to display the greatest abundance and diversity of life: beetles, centipedes and spiders tended to favour these areas over adjacent crops, and the largest populations of parasitic wasps were recorded from revegetated areas.

Additional surveys will be carried out in the near future and it is hoped that this monitoring project will provide a better understanding of the existing insect dynamics.

Revegetation may allow these dynamics to be manipulated to help reduce the damage caused by crop and pasture pests.



Left: Dr Peter Orchard, Graham Centre and Phil Bowden, Murrumbidgee Landcare (formally NSW DPI) setting out sticky traps and pitfall sampling containers mid-October 2013.

What's lurking around your property at night?

By Jacinta Christie, MLI

The nocturnal and often cryptic behaviour of many Australian mammals can make it difficult and time consuming to detect their presence in a particular area. Traditional live trapping methods using cage traps and box traps are not only labour intensive but involve significant handling of animals, potentially causing them a great deal of distress. In more recent years, remote wildlife cameras have become an increasingly popular way to survey fauna, as they are able to capture images of a broad range of species.

With the assistance of a remote wildlife camera, local landholders, Peter and Sandra Heffernan from 'Claris Park' Junee, found out exactly what was lurking around their property after dark. The infra-red camera, on loan from MLI through the CCP project, was easily set-up in a location of interest, focused on the bait and left undisturbed for a number of days, to record those animals that come to investigate the bait.

By using the correct bait at different times, the Heffernans attracted both herbivorous and omnivorous species (e.g. rodents, marsupial mice, possums) and carnivores (e.g. cats, foxes). They also captured images of birds of prey, such as the Brown Goshawk (*Accipiter fasciatus*) which feed on introduced birds, such as sparrows and common starlings, as well as small mammals, reptiles and insects.

The cameras are available for loan to Landcare members throughout the catchment. If you are interested in finding out what is lurking around your property at night, please contact Jacinta Christie on 0431 953 778 or jchristie@mli.org.au

*Below. (left) A hungry possum attempts to prise open the tea infuser holding the herbivore bait and (right) A Brown Goshawk (*Accipiter fasciatus*).*



Creating a healthy farm dam

By Alison Elvin, Natural Capital

Is your farm dam just a hole in the ground storing stock drinking water of dubious quality? Many farm dams are like this: the banks are bare, eroded and trampled. There are few aquatic plants and animals. There is no buffering vegetation to slow, filter and spread the polluted storm water that rushes across the paddocks into the dam. Where stock walk along the water's edge, the eroded sediment and animal manure further contaminates the water. Without shade, the water becomes uncomfortably warm in summer, and with little dissolved oxygen, it can brew up many disease-causing microorganisms.

While the water keeps stock alive, it has been estimated that the live weight of stock reduces by as much as 20% when they drink poor quality water, and their overall health similarly deteriorates. Improving the health of your dam will boost your farm business and local biodiversity.

How can a healthy farm dam be created from such a typical dam?

The key to cleaning the water and renewing biodiversity is vegetation cover - a dense cover of tussock-shaped grasses across the inflow area and throughout the buffer zone, with reeds and rushes and other water plants at the water's edge, clumps of shrubs and trees scattered around the riparian zone, and habitat logs and rocks both in and out of the water.

To achieve this, the biggest single cost will be to exclude your stock while the vegetation establishes. This can be achieved by fencing out the entire dam, its in-flow and the surrounding riparian edges. This will also require the cost of providing alternative stock water with troughs, pumps and piping. Alternatively, you could fence out the dam but leave a relatively narrow walkway access into one small section of the water, stabilized with rocks or logs to prevent erosion from stock trampling the edges.

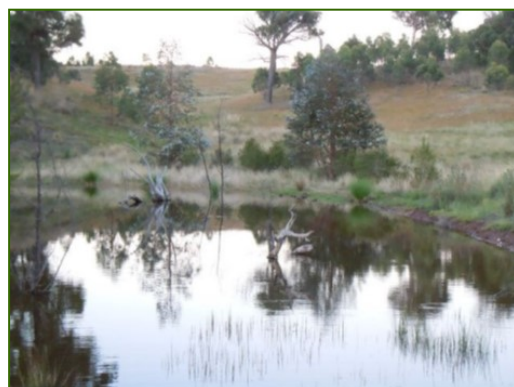
If you practice rotational grazing regimes, with stock grazing a paddock for a few days or weeks a year, you may not need to fence out the dam, providing appropriate vegetation cover establishes. Once the protective vegetation is established - which typically takes about three years - the dam area can then become another source of feed, especially suited to crash grazing when required.

What does the vegetation do to the water flowing into the dam?

The vegetation slows and filters the in-flowing water, causing it to drop some of its sediment and attached pollutants. The improved water quality reduces animal diseases and boosts their growth. Slowed run-off water also begins to percolate into the soil, providing sub-surface moisture into the pasture and increasing resilience to drought. In addition, vegetation, logs, rocks and pebbles all increase available habitat and create microclimates. This encourages many native species to live in and around your dam - you will start to see birds, insects, frogs, yabbies, fish, tortoises, reptiles and mammals making use of the water and habitat provided by your healthy farm dam.



Above left: A typical farm dam, with little biodiverse vegetation surrounding it.



Above right: A biodiverse farm dam

What plants belong where?

All dams have a series of recognisable 'zones'. The outermost zone is the **catchment zone** - this is usually the surrounding paddock. Reducing over-grazing in the paddock allows rainfall to percolate into the soil before running off, which reduces the amount of sediment, manure and chemicals running into the dam.

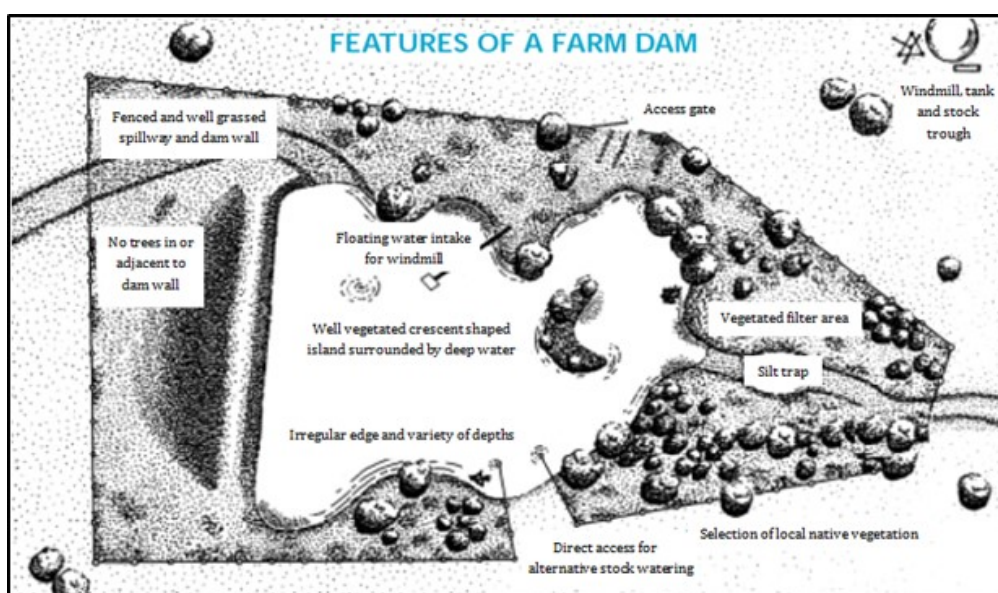
Around the dam, up to 30 metres or more from the high-water mark, is the **buffer zone**, or riparian edge, which includes both the inflow and outflow areas. Dense sedge, pin rush and grass cover including ground-hugging species such as couch grass are critical in this zone to reduce erosion and compaction, provide habitat, increase soil moisture and slow and filter water flows. You can also plant clumps of trees and shrubs through the grasses and sedges, with the tallest-growing species planted to the northwest to reduce evaporation from summer winds. Species can include eucalypts, wattles, bottlebrush, tea-trees, paperbarks, banksias, bursaria and other prickly shrubs, and many forbs such as Lomandra. Revegetate so you can slash or spray weeds without damaging your desirable plants. Standing and fallen trees with hollows will provide additional habitat.

The **batter zone** lies between the high- and low-water mark, where wind-blown water can erode the water's edge without protective vegetation. The water in this zone is shallow, warmer and often nutrient-rich, supporting a wide diversity of sedges, rushes and reeds. Each species will grow in different depths of water, and perform remarkable water-cleansing roles. They also provide critical breeding, nesting, feeding, sheltering and perching habitat for aquatic life, from insects to frogs and fish. Often, these plants begin to appear naturally within weeks or months of stock exclusion, then wax and wane in density depending on the seasons. Be sure to avoid native species such as bulrush, that can become invasive in water less than 2 metres.

To further increase the habitat value of the batter zone, and ensure the water's edge has a variable margin, you can add clumps of rocks and logs here and there around the dam - you'll be surprised how quickly life returns to these spots!

Permanent water is the final zone. The greater the variety of width and depth in this zone, the greater the diversity of aquatic life. Adding fallen logs into the dam itself will offer shelter, nesting and breeding sites for many aquatic species, including fish. Farmers have found that many of the plants that live exclusively in the body of water will just appear in and around their dams once the stock pressure has been removed and the habitat increased.

You often don't need to do too much more to have a healthy, vibrant farm dam, but the results can be amazing! *For more information on creating a healthy farm dam, or to request an information pack, contact Jacinta Christie at MLI: jchristie@mli.org.au, or 0431 953 778*



Left: A picture showing many of the important features of a healthy farm dam

(image courtesy of the Mount Lofty Ranges Catchment Management Program and the SA Environment Protection Agency)

Using native species to manage roadside weeds

By David Orchard

Roadsides often serve as vital refuges for native plant species and provide important corridors for the movement of native animals. Just as often, however, roadsides act as reservoirs and transmission vectors for weeds. Historical disturbance has left many roadsides entirely bare of natural groundcover and has allowed exotic species to multiply. From these reservoirs, weeds can spread into surrounding farmland and into areas of natural vegetation, diminishing the value of both. Replanting with native species may be one way of combatting this problem. Locally native species may possess specific adaptations to local conditions that give them a competitive advantage against exotics. This competition, as well as shading effects and possible allelopathic effects, may act to exclude introduced species and reduce weed infestations.

To this end, a series of trials are presently being conducted on the Marrar North Road. These trials, planted in the spring of 2013, aim to investigate the competitive effects of various native species on the weed flora of the site. Initial weed surveys revealed significant infestations of a number of important herbaceous weeds, including Paterson's curse (*Echium plantagineum*), St. John's wort (*Hypericum perforatum*), common horehound (*Marrubium vulgare*) and several species of thistle, as well as a dense understorey of undesirable grasses, chiefly wild oats (*Avena fatua*) and brome grasses (*Bromus* spp.).

On the northern side of the road, this weed community was sprayed and then mown to facilitate planting. The southern side of the road was scalped, with soil removed to a depth of roughly 5 cm, so as to reduce weed seed banks and soil fertility, giving the natives an advantage. A series of trials were then planted on each side of the road. Where possible, similar trials have been conducted on both sides of the road to allow an informal comparison of the effects of scalping versus the effects of spraying and mowing.

In all, thirteen trials have been planted, employing a range of native shrubs, forbs and grasses. Planting was initially planned for Spring 2012, but dry conditions prevented all but a few plots of a grass trial from being established. Most species failed to persist but wallaby grass (*Rytidosperma caespitosum*, formerly *Austrodanthonia caespitosa*) survived and flourished.

The weed population at the site has since returned and several native species have failed to persist. However, several species show considerable promise as weed excluders. The best of these is the saltbush *Rhagodia spinescens* (figure 2), which is thriving despite severe competition from wild oats. Also impressive are *Acacia cultriformis*, *Xerochrysum viscosum*, *Rytidosperma* spp. and, to a lesser extent, *Calotis cuneifolia*.

Further, several species have flowered at the site, allowing them to establish seed banks and potentially increase their competitive ability. While it is too soon to draw any definite conclusions from these trials, two observations can be made—when planting small shrubs and herbaceous plants, higher planting densities seem to give a better chance of survival and when planting slower-growing shrubs, larger plants are more likely to avoid being overwhelmed by weeds.



It is hoped that these and other findings will help to improve the success rate of future plantings and assist in the suppression of weeds. For further details, contact David Orchard (mob: 04 3980 2850).

Left: Wallaby grass (*Rytidosperma caespitosum*) planted in spring, 2012. Around the edges of the plot can be seen dense stands of wild oats (*Avena fatua*), successfully excluded by the native grass.

Case study: Trees to target weed spread

Snapshot

Farm manager: Toby Jones

Location: Bethungra, New South Wales

Property size: 6844 ha

Enterprises: Wheat, barley, canola and lupins, merino ewes, cattle



An interest in the use of certain tree species to suppress the spread of silverleaf nightshade (SLN) prompted Bethungra farm manager Toby Jones, to become involved in the CPP project in 2013.

Toby has managed 'Coreena' - a 2400 hectare mixed farming property, owned by the Melbourne based Bunn family, since 2011. The property has good areas of remnant native vegetation, which has been enhanced over the last 21 years by further plantings of strategically placed shelter belts and wind breaks. These have helped to reduce the impact of the hot easterly summer winds and further plantings are planned for the future to not only reduce wind speed but also improve the aesthetics of the property.

Toby explained that silverleaf nightshade was introduced onto the property from the roadside in the 1960's, when infested sheep from outside the area were brought through the stock route. The weed has since spread across the property through cultivation and livestock movement, and now occurs on shale hills down to the alluvial creek flats.

Whilst SLN control has been successful on the flats, gaining control on the rocky hilltops is still a problem. Funding from the Cross Property Planning project is being used to plant out two areas on the property with eucalypt species, to give allelopathic control of the weed. These plantings will hopefully not only suppress and contain the populations of SLN, but also reduce the chemical and labour costs required each summer to control it.

It is hoped that the new native plantings will provide environmental, economic and aesthetic value across the property. The large block plantings also link to existing native remnants and existing shelter belts, improving the connectivity across the landscape, providing habitat for native bird species, particularly smaller insectivorous woodland birds which are declining across the area, and other native fauna.

Both sites (site 1 - 6.5 ha and Site 2 - 2.4 ha) were ripped at 3 m intervals in June 2014 and sprayed with a mixture of glyphosate 570 g/L, simazine 900g/kg and oxyfluoren 240 g/L to control the existing grasses and broadleaf weeds, such as mallow and nettles. Due to an inability to source sufficient tree numbers of the required species, only one block of around 2,200 trees will be planted this year - at 3 m spacings along the rows. The remaining block will be planted in Winter 2015.



Right: Toby Jones, Manager, Coreena, Jacinta Christie, CPP project co-ordinator and Phil Bowden, Silverleaf Nightshade project officer inspecting ground preparation at Site 2 on Coreena

2014 National Landcare Conference

*Celebrating our history,
growing our future*
Sept 17th-19th, Melbourne

As Landcare celebrates a quarter-century since its launch as a national initiative - and looks at how the grass-roots movement can continue to tackle important questions of land and water security - this year's National Landcare Conference promises to be the key knowledge sharing event for everyone involved in caring for Australia's natural environment and its productivity.

Highlights include:

- Renowned **chef Matt Moran** - whose journey has brought him from an award-winning family farm on the Central Tablelands in New South Wales to travelling Australia championing local, fresh produce.
- **CSIRO Futures Lead Scientist, Dr Stefan Hajkowitz**, whose material on global megatrends features on TedX, and whose research helps organisations plan for an uncertain future.
- Award-winning science journalist, **environmentalist and behaviour-change researcher, Tanya Ha**.
- **ABC Landline presenter, Pip Courtney**, who will frame the discussions, as Master of Ceremonies.
- **Dr Mark Howden**, Chief Research Scientist for CSIRO Ecosystems Sciences, and **expert on the impacts of climate on Australian ecosystems**.
- 2014 National Landcare Awards

<http://nationallandcareconference.floktu.com/home>

MLi Silverleaf nightshade project update Phil Bowden, MLI

The project has been going since the start of 2014 and contacts have been established with Landcare and farmer groups in NSW, Victoria and South Australia. Other groups in WA and Qld are being organised at present.

Silverleaf Nightshade (*Solanum elaeagnifolium*) is an introduced perennial weed that can dominate pastures and cropping areas. It can reduce crop yields by as much as 20-40% by taking moisture and nutrients over summer and autumn that could be used by following crops. In pasture paddocks it can reduce growth of productive species and render areas useless for livestock grazing. It reproduces from both seed and root fragments so can be difficult to control by conventional means. Many common farm activities such as livestock movement and cultivation will spread this weed. Research has shown that up to 90% of seeds remain viable after passing through the gut of sheep, so is easily spread by grazing animals.

Surveys of grower practices have shown that many farmers are not aware of the extent of the problem on their farms and that adoption of effective control methods has been poor. SLN is often not specifically targeted as it occurs in many situations as scattered infestations and if not treated over the long term will re-establish. It has been a frustration for many farmers that efforts to control it have failed and it has spread to other areas of the farm. Recent research has shown that a systematic approach using a dual action control over the growing season from spring to autumn is needed. In many cases more expensive residual herbicides may be required to be used in conjunction with normal summer weed programs to give effective control of SLN.

The next step is to get on farm demonstrations of the best management practices in each region, led by local groups, to validate the research that has been carried out in NSW over the last 10 years by NSW DPI.



Above: (left) Dr Hanwen Wu, NSW DPI, Wagga checks Silverleaf Nightshade at Cootamundra. (right) Mature berries on autumn regrowth of SLN