



**Nº 126**  
**October**  
**2015**

President's Perspective  
2

Combining conservation  
with restoration—the CLC  
experience  
4

Lyme Disease Update  
Borrelia and other tick-borne  
pathogens confirmed in  
Australian ticks  
5

South Burnett rainforest  
restoration: a perspective  
6

AABR walk and talk—Wallis  
Lake  
10

Is “no net loss” an illusion?  
lessons from Weipa mine  
rehab  
12

Chemical-free weeding  
14

Urban bandicoots and ticks—  
time for a fair go!  
15

What's Happening  
16

# AABR NEWS

Australian Association of Bush Regenerators

*working with natural processes*

## **AABR walks and talks and AGM**

### ***Recovery at Green Bluff***

A spectacular headland, with regenerating littoral rainforest, recently burned Themeda grassland, and possibly whales!

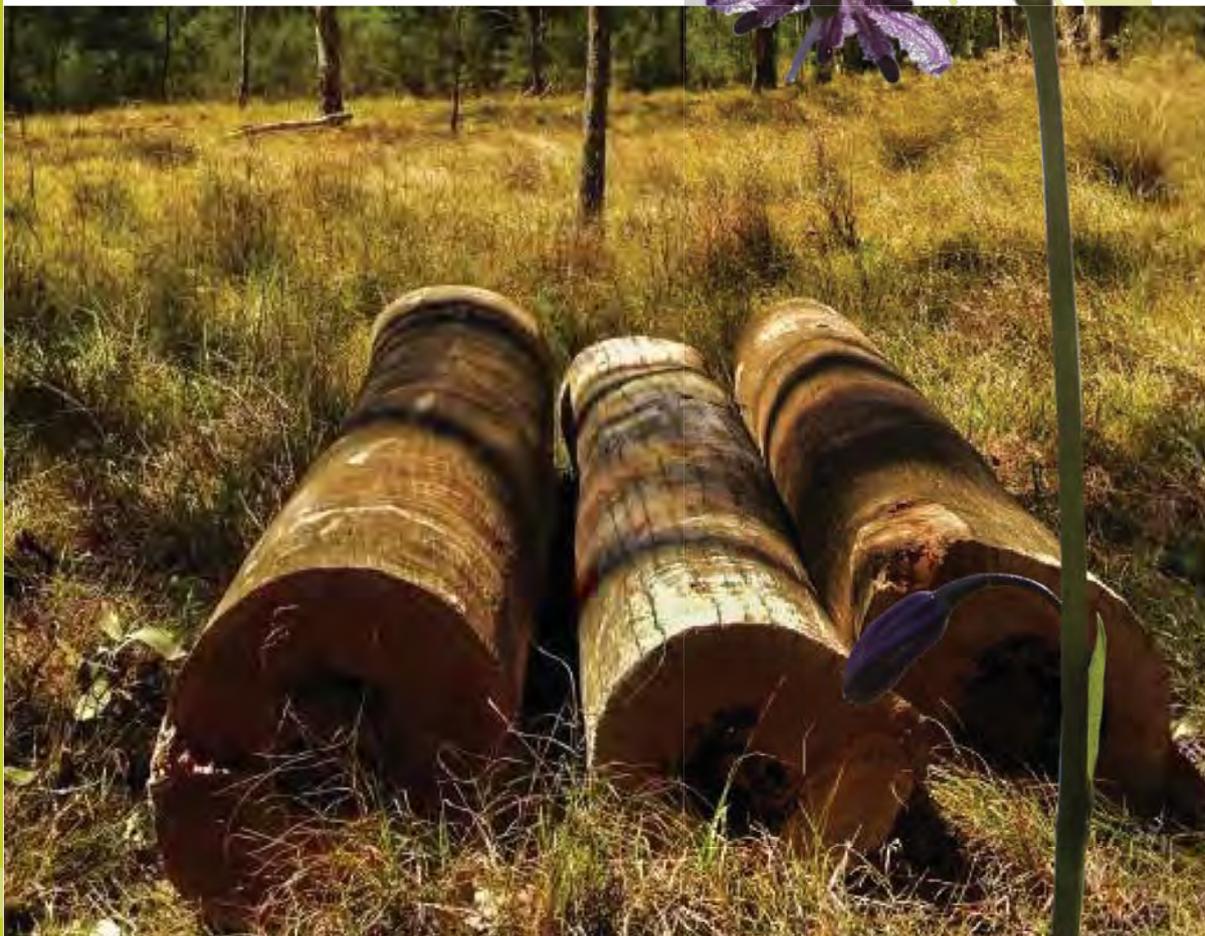
Saturday 31 October. Coffs Harbour NSW.

### ***Restoration of Cumberland Plain grassy groundcover***

An exciting day with Greening Australia Chief Restoration Ecologist Dr Paul Gibson-Roy, concluding with brief AGM.

Thursday 5 November. Richmond NSW. 10am-3pm.

[More details on back page.](#)



Logs rescued from development sites, ready to house small animals in an area that has lost most of its fallen timber. The Cumberland Land Conservancy are the “new kids on the block” stepping up to conserve Sydney’s Cumberland Plain. See story on page four. Photo: Wildside Australia/CLC

Chocolate lillies *Dichopogon fimbriatus* are a delightful part of the Cumberland Plain grassy groundcover. Photo: Virginia Bear.

# President's Perspective

As winter ebbs and spring starts, AABR continues to thrive, with the committees and working 'clusters' progressing with our multiple goals. These include improving our social media engagement, our field trips, facilitating plant identification courses, establishing network services to contractors, developing our video platform and generating income for new initiatives.

A total of 74 new members (individuals and groups) have joined AABR in the past year. Some 80 'bush regenerator practitioner' accreditation applications have been fully processed since May last year, with 50 of those applicants being awarded accreditation. This marathon accreditation assessment effort has served to streamline AABR's accreditation process and places AABR in an improved position for future applications.

Further good news comes from the VET training sector. Probably as a result of hundreds of submissions (including AABR's) to the recent review of the Smart & Skilled reforms, students with Cert 4 and above are now eligible for subsidised courses. While the fees are still much higher than in previous years, this reverses the decision to introduce crippling costs, which was already having the effect of shrinking CLM training programs across the state and starving industry of workplace recruits. Hopefully we will see brighter times ahead where mature age people can retrain or graduates can pick up add-on certificates to allow them to enter the bush regeneration workforce.

The AABR AGM is coming up on Thursday 5th November. (A formal notice and map will be sent to each member soon.) We are pleased to say that most committee members are prepared to re-nominate - but we encourage anyone who is considering nomination for the committee to please email Jane Gye [secretary@aabr.org.au](mailto:secretary@aabr.org.au) before October 12th 2015.

The AGM will be held at the Western Sydney University campus, and reflects AABR's increasing efforts to reach out to a wider range of participants in the broader ecological restoration industry. It will follow the Greening Australia (GA) grassy groundcover field tour conducted by Paul Gibson-Roy —and, at the AGM, Paul and I will give a short presentation on how GA's grassy groundcover project conforms to the draft Standards for the Practice of Ecological Restoration in Australia. (These national Standards are being prepared by the Society for Ecological Restoration Australasia (SERA) and its network of NGO partners— including AABR and GA.)

As some may know, I am heavily involved in the preparation of the Standards and am finding the process one of the most stimulating and heartening I have experienced in recent years as we engage more and more with a very wide range of stakeholders. I am looking forward to sharing the main principles of the standards with you at the AGM.

Speaking of AABR's role in the SERA Standards—AABR's reps on the SERA Standards working group are Jen Ford and Scott Meier, both highly respected regenerators with many years experience. Scott is gestating some ideas around a major AABR event in 2016 to tap into the potential for the national Standards to galvanise greater clarity and activity in our restoration movement as a whole and regen in particular. This is likely to be the event that marks AABR's 30th anniversary—and could be a two-day event focusing on (to quote Scott) "where we have come from, why we are relevant and where we are going". We are working on ideas for it to also include a fundraising dinner with a compelling guest speaker, yet to be announced.

**Tein McDonald.**  
President AABR

## Welcome to new AABR Members

Daniel Cleaver  
Linda Fienberg  
Benjamin Henderson  
Chris Howe  
Miles Jackson  
John Leedom  
Jodie mae McGill  
Elizabeth Moore  
Jennifer Owens  
Michelle Rose  
Shawn Ryan  
Hester Slade  
Sharon Taylor  
David Trees  
Bree Jashin  
Darryl Larsen  
Rita Larsen

## Organisations

Australian Network for Plant Conservation Inc  
Strathfield Council

## Congratulations on accreditation

Russell Leplaw  
Kojiro Oishi  
Nigel Parker  
Peter Poropat  
Russell Schubring  
Sara Whitehead  
Soren Mortensen

## What is happening in your area and on your site?

AABR is always looking for contributions from members to share knowledge and opportunities. Ideas for other stories are always welcome.

Drop us a line [newsletter@aabr.org.au](mailto:newsletter@aabr.org.au)



## NCC NSW bushfire conference transcripts and slides now available

The Nature Conservation Council of NSW held their 10th Biennial Bushfire Conference on May 26 and 27 2015.

The theme was *Fire and Restoration: working with fire for healthy lands*. The conference examined how fire can be used to rehabilitate degraded landscapes, restore ecological integrity and reinstate resilience into the environment and the community.

The program explored four key questions aimed at supporting agencies and communities in their fire and restoration efforts:

1. **Why do we need to use fire for restoration and how does this practice link with risk management?**
2. **What does using fire for restoration mean for different groups** including: ecologists, councils, Aboriginal communities, farmers, fire agencies, regeneration teams, Local Land Services, National Parks and others?
3. **How are people currently implementing fire for restoration and what would they like to be doing?** This included the practicalities and logistics of ecological burns, challenges faced and outcomes achieved.
4. **Where to from here?** This theme discussed how can knowledge be developed and distributed, how we can build confidence in using fire, what gaps need to be addressed and how we can strengthen networks.

These excellent presentations—some given by AABR members, including our president Tein McDonald (shown above)—can be downloaded as transcripts plus slides. [www.nature.org.au/healthy-ecosystems/bushfire-program/conferences/](http://www.nature.org.au/healthy-ecosystems/bushfire-program/conferences/)

Slides from Paul Gibson-Roy's presentation. Hear more from Paul at the AABR walk and talk in Sydney on 5 November.



### PhD scholarship opportunity—manage African olive and conserve species diversity

The Plant Invasion and Restoration Ecology Lab (PIREL) at Macquarie University is seeking a PhD candidate to work on a project assessing the ecology and species interaction.

The PhD candidate will be supervised by Prof Michelle Leishman (MU), Dr Peter Cuneo and Dr John Martin (Royal Botanic Garden, Sydney). The successful applicant should apply for an Australian Postgraduate Award by 31 October 2015 but may be eligible for a University PhD scholarship. The project is anticipated to commence in first semester.

The broad aims are to assess the flora and fauna assemblages associated with recently managed (<5-years), managed

(during the project) and unmanaged patches of African olive.

Applicants can discuss their eligibility and interests with Prof Michelle Leishman [michelle.leishman@mq.edu.au](mailto:michelle.leishman@mq.edu.au).

Contact the Office of Research Services to discuss enrolment and scholarships here [www.hdr.mq.edu.au/information\\_about/contact\\_us](http://www.hdr.mq.edu.au/information_about/contact_us).

Submit an application form (download at [www.hdr.mq.edu.au/information\\_about/home](http://www.hdr.mq.edu.au/information_about/home)) and CV (including two referees) by 31 Oct 2015, together with a one-page outline of how your training, experience and vision will fit with the project.

# Combining conservation with restoration—the CLC experience

**Peter Ridgeway**

What happens when you combine land conservation, flora regeneration and wildlife recovery?

Cumberland Land Conservancy Inc. (CLC) is a not-for-profit, community based charity established to protect and restore the natural environment. We aim to help protect bushland in the Sydney region, particularly on the Cumberland Plain.

We formed in January 2015 so we are new kids on the block. However the CLC membership and committee includes familiar faces from the bush regeneration community. So what have we been up to—and what lessons can we share?

## Protecting bushland

Our core purpose is to acquire preserve land for conservation purposes. The CLC protects land in perpetuity by placing it under a legally-binding conservation covenant. Land can be donated by the public, corporations or government knowing it will be protected and restored.

This is increasingly important as we observe the development of our region, see state and local governments declining to receive land donated for conservation, and watch hard-won conservation areas 'opened up' for inappropriate uses.

We are still in the process of receiving our first land donations, so there's no news on that front. But from the start we've recognised that it isn't enough to protect land—we need to restore it too. So we've jumped straight in with restoration projects on land we are working to acquire, and other sites that need a hand.

## Landcare and wildlife recovery

The CLC is a registered landcare group and works closely with other local landcare and bushcare groups (e.g. Mulgoa Landcare). Most of this work is traditional bush regeneration in Cumberland Plain Woodland targeting African olive, small and large-leaved privet, and cats claw creeper.

However it's the fauna of Western Sydney which have suffered the most and we were keen to direct some of our efforts to local fauna. A key limitation for woodland fauna is the availability of hollow logs on the ground. These provide refuge from foxes (which are baited on our work sites), protection from wildfire, and a key source of food such as fungi and insects.

But how could we provide a sufficient quantity of logs to make a difference for local wildlife populations? The recommended quantity of coarse woody debris for grassy woodlands is 20 tonnes per hectare. However the lands we are regenerating

were formerly grazing country and most had less than five tonnes per hectare of woody debris. We needed about 350 tonnes of logs to make a difference at a local population level. We had to go big!

To help the project CLC partnered up with private landowners, Mulgoa Valley Landcare, Penrith City Council, Sydney Water, Greater Sydney Local Land Services, University of Western Sydney and the NSW Office of Environment & Heritage. And at the last minute we had the key addition of a local helicopter company—who kindly offered to airlift our logs into the reserve for free.

We've just completed the first two stages of the project—all in-kind—and installed over 40 tonnes of logs. We rescued logs from the chippers at local development sites and laid them by truck in accessible areas and by helicopter in less accessible areas. All materials and work (including helicopter support) were donated by the project partners.

While this 40 tonnes outcome is a big project it's just 10% of our target. For the next stage we have secured a small grant to assist with transporting the logs, and have been gifted the 300-odd tonnes of logs needed from approved development sites. We hope to begin this major installation later this year.

Of course it is important to monitor the impact of the project on the target wildlife species, other wildlife species and on the flora. To do this we've split the site into two adjoining ridgelines—with one receiving logs (the treatment) and one left as-is (the control). In association with UWS we have installed a grid of wildlife cameras and flora quadrats to monitor the changes over time.



Photo: Wildside Australia/CLC.

## Education and engagement

The Conservancy also provides a range of educational services ranging from informal discovery tours to TAFE training in wildlife recovery. Initially we started this as a way to raise our profile and help cover our costs. However the program quickly became so much more.

In just six months we've trained 40 bush regenerators in wildlife habitat management through local councils and given technical wildlife restoration skills to as many again through our TAFE workshops.

There is so much community interest in recovering native wildlife and it's an ideal way to engage with bush regeneration. We encourage you to tap into this in interest with your local community!

## How you can help

You can help by just being a member (annual fee \$10), making a donation or assisting with on-ground activities. Visit us at [www.cumberlandlc.org.au](http://www.cumberlandlc.org.au) or like us on Facebook.

However it's not all about us! We're keen to share what we've learnt and encourage other groups to add wildlife recovery to their regeneration toolkit. Come along to our training (see the website for details) or drop us a line to say hello—we're happy to help.



# Lyme disease update

### Borrelia and other tick borne pathogens confirmed in Australian ticks

Lynn Rees

In previous editions of AABR News, we have requested members to send ticks to Professor Peter Irwin from Murdoch University, Western Australia to test for tick borne pathogens.

Prof Irwin and his team recently published research which found a number of bacteria pathogenic to humans, including a new species of *Borrelia*, the genus which is known to cause Lyme disease in humans. These findings add to the growing body of research that has found *Borrelia* and other tick borne pathogens in Australian ticks.

Although the team did not find the American species *Borrelia burgdorferi*, one of the causative agents for Lyme disease in the northern hemisphere, it did find bacteria of medical significance in the paralysis tick *Ixodes holocyclus*.

These bacteria included a *Borrelia* of the relapsing fever group, *Bartonella henselae*, novel *Candidatus Neoehrlichia* spp., *Anaplasma*, *Clostridium histolyticum*, *Rickettsia* spp., and *Leptospira inadai*.

These results raise a whole new level of questions about tick-borne pathogens in *I. holocyclus* ticks.

For a copy of the research follow this link: [www.parasitesandvectors.com/content/pdf/s13071-015-0958-3.pdf](http://www.parasitesandvectors.com/content/pdf/s13071-015-0958-3.pdf)

Professor Irwin wishes to thank all the people who sent ticks over to WA and advises that, "our next steps will be to apply this research methodology to many more ticks on a wider geographical scale to see what's around. I think, for the time being, I have enough ticks—but please thank all of your people for their help. We have about 20,000 so we need to decide which ones to use!"

The Lyme Disease Association of Australia was asked to comment on these findings. "While the Murdoch research is very exciting, it doesn't change the picture very much on the *Borrelia* front, simply because the *Borrelia* found in Irwin's study is yet to make the link to cause infection in humans. This is the current line from the government put out to anybody asking about this research. It does open up the possibility that other *Borrelia*

strains may be carried by ticks, and the implication of all strains on human health.

What it does highlight is that harmful bacteria are being found in Australian ticks that were previously unconfirmed; this opens the possibility that there may be more pathogens being carried in ticks than present science is aware of. As the study is ongoing we are very interested to see what else comes to light. Aside from the first case of a *Borrelia* in the relapsing fever group in Australia, the study did find *Bartonella henselae* for the first time in an Australian tick, and that bacteria is already acknowledged as being able to infect humans."

In 2014 a Clinical Advisory Committee on Lyme Disease (CACLD) was established by the Australian Government Chief Medical Officer (CMO), Professor Chris Baggoley, to provide advice on evidence for Lyme disease in Australia, diagnostic testing, treatment and research requirements.

I sought comment on the significance of this research from the CMO, but none was forthcoming. It will be interesting to see the State and Federal government's response to yet a further piece of research finding *Borrelia* in Australia. Will it finally be recognised this time?

The LDAA advises that at the wind down of CACLD, the CMO made a list of recommendations to government, and the LDAA followed this up with their own "strategic action plan" to government including a time frame, but now 16 months later there has been no movement there. The strategic action plan can be found here: [www.lymedisease.org.au/wpcontent/uploads/2010/11/20140129LDAAPatientStrategicActionPlan.pdf](http://www.lymedisease.org.au/wpcontent/uploads/2010/11/20140129LDAAPatientStrategicActionPlan.pdf)

The Dept of Health published a brief update on Lyme disease (updated 24th August, 2015) to include and acknowledge the recent Murdoch University research:

"The department welcomes this work and will remain engaged with Prof. Irwin to consider the implications of this research for human health in Australia. The department anticipates research on ticks taken from humans will be published later in 2015."

So whilst their statement is nothing major, it is still nice to see their acknowledgement of research. Read the entire update: [www.health.gov.au/lyme-disease](http://www.health.gov.au/lyme-disease).

Reference LDAA August News 2015.

# South Burnett rainforest restoration: a perspective

Caroline Haskard, Vegetation Matters

Dry rainforests (vineforests): evolutionary relicts; ecosystem complexes home to the Araucarians, the most ancient and primitive of the world's conifers; fundamental to my South Burnett-based environmental consultancy.

When I started here in 1996 restoration and rehabilitation practices were virtually unheard of, but times do change and being in the right place at the right time is more than coincidence.

The South Burnett region, approximately three hours north-west of Brisbane, is probably best known for its peanuts. Soils and landscapes in southern and western localities are derived from Main Range Volcanics, with red basalts predominant on hills and ranges. The highest point in the volcanic sequence is at Mt. Kiangarow (1146 m) in the spectacular Bunya Mountains.

The project site is located on a range system within this volcanic sequence. In most other locations the vegetation found here would be classified as a lowland subtropical rainforest community.

Such identification would confer protection as a critically endangered ecological community under the Australian Government's *Environment Protection and Biodiversity Conservation Act 1999* (EPBC); however that is not generally true west of the

coastal ranges, where the vegetation community occurs at higher elevation, in areas of reduced rainfall.

The EPBC occurrence boundary for the listed ecological community is restricted to 0-450 above sea level (ASL) and areas of high annual rainfall  $\geq 1300$  mm (DoE 2011). Consequently, with an altitude range from 585-620 m ASL and an average annual rainfall of 789 mm (BOM 2015), the vegetation here fails to meet the key diagnostics.

As with most vegetation communities dry rainforest classified by Webb in 1978 as Araucarian notophyll-microphyll vine forest, has been refined for the purposes of the Queensland Government's *Vegetation Management Act 1999* (VMA) into a complex of regional ecosystems. At this project site, the dominant vegetation is regional ecosystem (RE) 12.5.13.

RE 12.5.13 (Microphyll to notophyll vine forest +/- *Araucaria cunninghamii*) is scheduled endangered under VMA Classes.

Characteristic species include *Araucaria cunninghamii*, *Cupaniopsis parvifolia*, *Dendrocnide photinophylla*, *Rhodospaera rhodanthema*, *Flindersia australis*, *F. schottiana*, *F. xanthoxyla*, *Drypetes deplanchei*, *Olea paniculata*, *Diospyros geminata*, *Gossia bidwillii*, *Excoecaria dallachyana* and *Vitex lignum-vitae*. *Argyrodendron trifoliolatum* sometimes present especially in subregion 6. Occurs on remnant Tertiary surfaces especially lateralised basalt (Qld Herbarium 2015).

Regeneration activities generally remained unknown in the South Burnett until the late 1990s, when the Worldwide Fund for Nature Australia funded a project to support regeneration of the endangered vineforest. This was triggered by the discovery of a new vineforest species on the Stuart Range, south of Kingaroy.

While historically most local vineforest communities have been heavily logged and cleared in the pursuit of agricultural activities, statistically almost 50% of RE 12.5.13 remains (Qld Herbarium

2013). This is due to restricted occurrence on lateritic (deeply weathered and leached) land surfaces unsuitable for most production purposes. Remnants occur in a highly fragmented mosaic across local landscapes, with many sites including some public forests and reserves, readily accessible via the road corridor network.

As an experienced regenerator, it was significant that when further clearing of vineforest was approved in the mid-2000s a biodiversity offset was required. Initially, whilst others were contracted to undertake regeneration activities for the offset, Vegetation Matters involvement was limited to technical advice and immediate land management tasks such as mapping; however, since 2009 Vegetation Matters has been engaged to undertake all regeneration activities.

Anyone who has ever worked in vineforest, more so west of the coastal ranges, will know how limited the practice of regeneration of these plant communities is, ergo the lack of useful information to guide recovery of these ecosystems.

Empirical data to guide rainforest regeneration inland remains limited, and as a botanist-ecologist with nearly two decades experience with vineforest projects, I know that may yet take a very long time to change—we are not in the spotlight here.

Every metre in this drier, colder inland location is a battle far from everything, including the money and community support for such works. Increased risk of fire from the dominant exotic pasture grasses, and trampling by livestock are constants. These are nothing however when compared to battles with ticks.

For some reason the offset property is lousy with *Ixodes holocyclus* (paralysis tick), supposedly more common in coastal areas. Work teams have found insecticidal sprays are required at two-hour intervals to maintain any success against these toxin-laden parasites.

Then there is the everyday matter of working in this often dense, tangled vegetation, with vines wending everywhere and every second plant armed with prickles, spines, thorns and other 'stickery' appendages designed to irritate and fester. Recovery of vineforest is not for the faint-hearted, nor the short-sighted, but it is rewarding for the dedicated few.

With the exception of major flood events in 2011 and 2013, the region more commonly experiences drought. As recovery waxes and wanes in tune with seasonal conditions, it is irrefutable that regeneration activities clearly facilitate dynamic recovery.

Work has been undertaken following bush regeneration principles including 'best to worst', prioritising closure of canopy gaps and edges, weeding strategically and not wholesale, applying crowning and other minimal disturbance techniques when weeding, and wherever practicable minimising chemical use.

Some of the best tools include mattocks as lantana levers, bayonets for first-hand manual weeding, a wick wiper for large infestations of *Megathyrus maximus* var. *pubiglumis* (green panic) and to a lesser extent *Chloris gayana* (Rhodes grass), and splatter guns for minimal collateral damage when treating 'oceans' of lantana.

Critical success is not text book, perhaps explaining why there is little documented information available to support regeneration of vineforests in inland areas. From experience it is a specialised field of its own. The climatic differences between here and sub-tropical coastal areas are beyond the capacity of most non-inland inexperienced regenerators to truly comprehend.

Science is critical, that is botanical and ecological knowledge and training, not to mention soils and horticultural knowledge. And yet to be a successful regenerator here, where one truly is much more 'up against it', it is considerably more about intuitive application of that knowledge in response to everyday changing factors more than anything else, and more than most anywhere on the sub-tropical coast.

Successful regeneration of this patch of vineforest is ascribed to:

- engagement of skilled practitioners to train, supervise and manage the project (like any other project)
- correct identification of introduced weed species
- the even more critical identification of pioneering herbaceous groundcover species
- improved stock management and ongoing reduction in numbers



Typical foraging sign of the vulnerable black-breasted button quail. Wherever strategic weeding of the understorey occurred, the quail was sure to follow, leaving behind these saucer-shaped depressions, or platelets. They pivot on one leg whilst scratching and digging with the other.

Prior to manual weed control.



The same patch three years later.



- regular follow-up (hundreds of generations of weeds cannot be eradicated in less than a decade, more so in drought-prone areas)
- the intuitive application of acquired operational knowledge.

As stated earlier, soils for RE 12.5.13 tend to be deeply laterised, with a 'snuffy' soil surface. 'Snuffy' soils are notoriously hard to wet due to a covering of moisture-repellent fungal hyphae, and once impacted by farming, with the exception of herbaceous groundcovers, few species other than introduced problems are able to readily colonise these fragile surfaces.

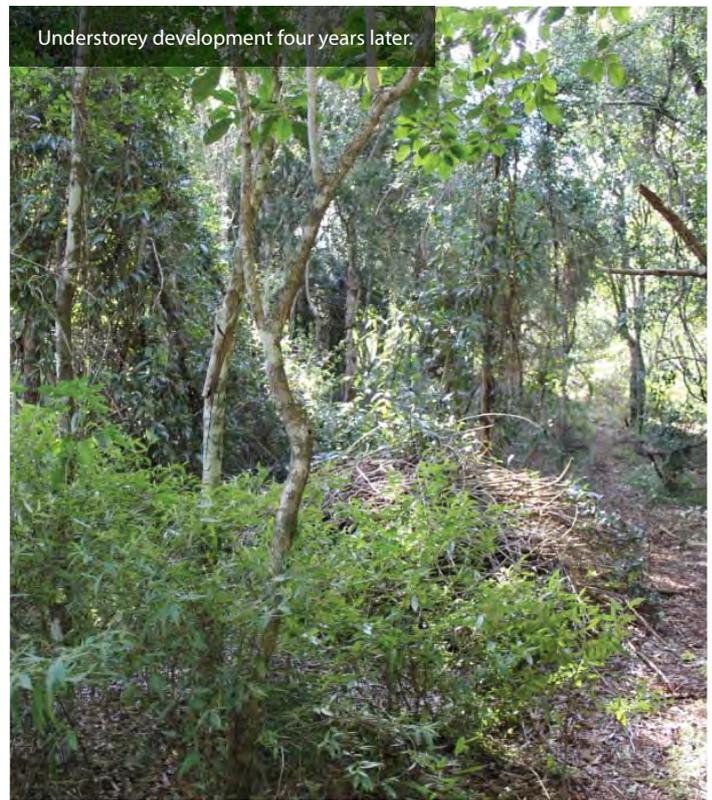
Some years experience working in this drier inland climate under these conditions (water repellent and fragile depleted soils), clearly makes generally overlooked species such as *Tetragonia tetragonioides*, *Sigesbeckia orientalis*, *Chenopodium carinatum*, *Einadia trigonos* subsp. *stellulata* and *E. polygonoides* 'gold' for vineforest regenerators. Once some canopy is re-established these early colonisers begin to drop out of the system, being replaced in the 'new' understorey by regular vineforest pioneer species such as *Solanum* and *Nyssanthes*.

However, once the canopy was gone from these soils, precious little regeneration has occurred in many decades. Instead, recruitment remains dominated by highly competitive fire-adapted exotic pasture grasses and lantana. Historic cropping, with subsequent grazing by beef cattle resulted in loss of the native soil seed bank (trend of decline), further limiting natural regeneration.

Time has been committed to observing and mimicking site specific colonisers and identifying the differing generations to guide associated (minimalist) revegetation works, designed to facilitate secondary regeneration and link disjunct patches.

Without intervention, the collective aspects of the highly modified local environment will continue to provide perfect ecological conditions for exotic grasses and lantana to proliferate and aggressively displace critical herbaceous pioneers from substrates.

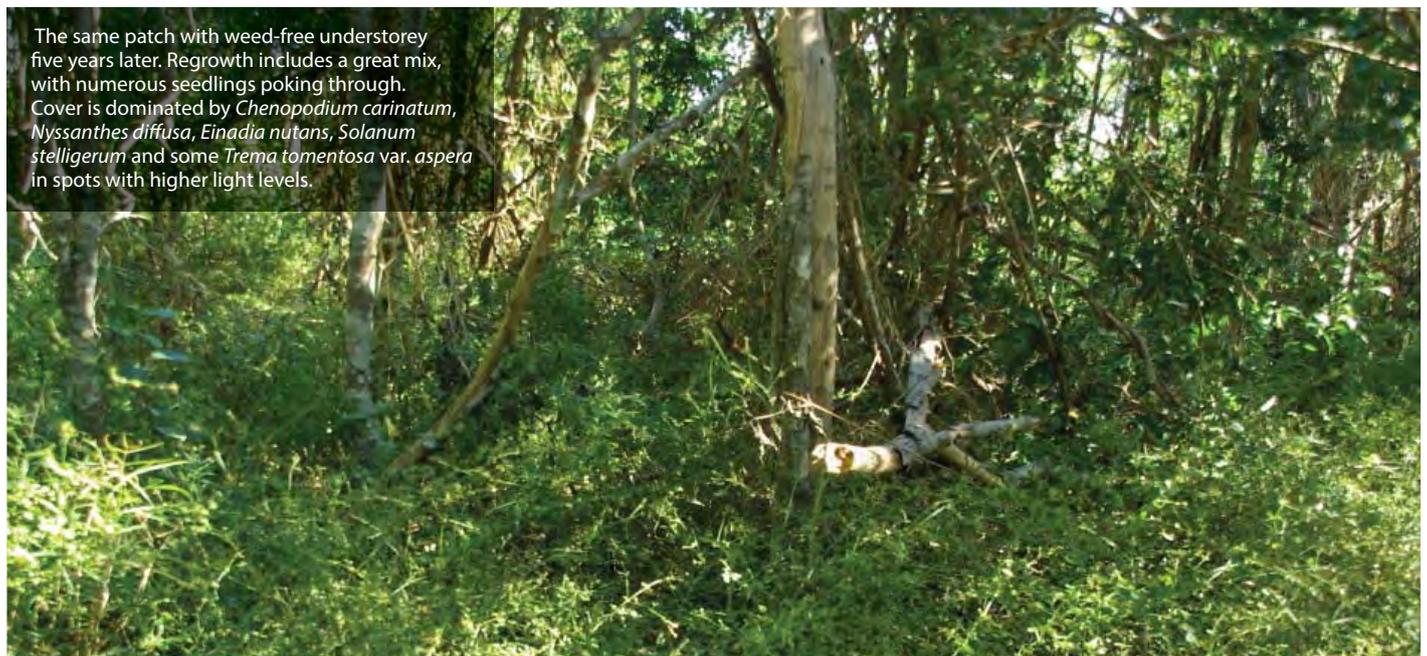
I believe bush regeneration is economically sound. Is it not more economic to restore natural systems to a pest-free status in critical landscape locations? Surely it pays dividends in the longer term: maintaining biodiversity and landscape function to protect and sustain agricultural and pastoral production systems, maintaining water and air quality, with results also becoming a useful trading commodity?



Understorey development four years later.

#### References

- Accad, A and Neldner, VJ 2015, *Remnant Regional Ecosystem Vegetation in Queensland, Analysis 1997-2013*, Queensland Department of Science, Information Technology and Innovation, Brisbane.
- Australian Government Bureau of Meteorology 2015, *Climate Statistics for Australian Locations: Nanango WILLS ST* (ONLINE). Available from: [www.bom.gov.au/climate/averages/tables/cw\\_040158.shtml](http://www.bom.gov.au/climate/averages/tables/cw_040158.shtml). (Accessed 24/08/2015).
- Department of the Environment 2015, *Lowland Rainforest of Subtropical Australia in Community and Species Profile and Threats Database: Commonwealth Listing Advice on Lowland Rainforest of Subtropical Australia*, Threatened Species Scientific Committee 2011, Department of the Environment, Canberra. Available from: [www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=101](http://www.environment.gov.au/cgi-bin/sprat/public/publicshowcommunity.pl?id=101) (accessed 24/08/2015)
- Johnson, RW 1989, *Intraplate Volcanism: In Eastern Australia and New Zealand*, 3.4.4 Main Range pp 111-112, University of Cambridge Press Syndicate, Melbourne.
- Queensland Herbarium 2013, *Subregion and bioregion analysis of remnant regional ecosystem vegetation 1997-2013*.
- Queensland Herbarium 2015, *Regional Ecosystem Description Database (REDD), Version 9.0 2015*, Department of Science, Information Technology and Innovation, Brisbane.
- Royal Australian Survey Corps 1982, *Australia 1:100,000 topographic survey; 9244 Kingaroy*, Australian Army, Canberra.



The same patch with weed-free understorey five years later. Regrowth includes a great mix, with numerous seedlings poking through. Cover is dominated by *Chenopodium carinatum*, *Nyssanthes diffusa*, *Einadia nutans*, *Solanum stelligerum* and some *Trema tomentosa* var. *aspera* in spots with higher light levels.

# AABR walk and talk—Wallis Lake

Melanie Ledgett

Friday 24th July 2015 started off quite wet for the walk and talk around the Wallis Lake foreshores on the NSW Mid North Coast. We had a few cancellations but an intrepid 17 set off to enjoy the beauty of the wetlands, saltmarsh and swamp oak forests. The audience had travelled from near (on the same street) and far—Central Coast, Newcastle, Tea Gardens and Taree so we had a great mix of professionals, local volunteers and residents all keen to explore the area.

We headed into the bush off Burraneer Rd, Coomba Park to view the most recently worked area. Coastal morning glory *Ipomoea indica* and lantana are the main stranglers of the cabbage tree palms and *Casuarina glauca* in this part of the site. Disturbance in the form of dredge spoil from the lake (possibly over 25 years ago) has introduced huge amounts of sand and shells and raised the soil level, right in the middle of the wetland/swamp oak forest. Thus shifting the balance drastically and allowing the weeds to flourish. We are no longer getting the regular saline inundations which help immensely with weed control.

Other invasive weeds here include cape ivy, mother of millions, moth vine and pampas grass—thriving in the drier soil. As a result, work has been circling this mess in the centre with ever decreasing circles with the aim of strengthening the surrounding area before opening up this difficult patch.

The impetus to actually get this part of the wetlands under contract was the sighting of a large infestation of bridal creeper *Asparagus asparagoides* from a boat during a foreshore inspection by council. This weed and its cousin, ground asparagus *Asparagus aethiopicus* are currently Great Lakes

Council's target weeds. Both were sprayed with a mix of Glyphosate®, Metsulfuron® and Pulse® in autumn. This has proved very successful. Now as the second winter passes, the only specimens present are seedlings, which are easily hand removed due to their small size and shallow depth in the *Casuarina* carpet.

Our group then moved in convoy around to the Coomba Aquatic Club site via Coomba Road, following the foreshore and checking out the spectacular views of Wallis Lake and Booti Booti National Park in the distance, from the hills around Coomba Park village.

After morning tea in the gazebo, the sun came out for our tour of the Aquatic Club site which was a very satisfying look at what can be achieved after 20 years of regeneration. Volunteers first started work here in 1994 when the whole site was a lantana and senna jungle. Nowadays a small but devoted crew works every Thursday to keep the site moving on and dealing with those pesky, and more difficult, follow up weeds such as morning glory and moth vine. The recovery—from almost completely cleared in the 1960s to this beautiful cabbage tree palm forest and wetland—is such a great sign of ecosystem resilience, and consistent effort on behalf of the workers.

TOP LEFT. Creative use of cabbage tree palms last school holidays!  
Photo: Melanie Ledgett.

TOP RIGHT Bridal creeper dying following spraying. Photo: Melanie Ledgett.

CENTRE LEFT Previously covered by lantana now free and happy. Aquatic Club Coomba Park. Photo: Melanie Ledgett.

CENTRE RIGHT Large base of coastal morning glory in the Aquatic club surrounded by *Carex apressa* and *Hypolepis muelleri*. Photo: Melanie Ledgett.

BOTTOM LEFT A sausage sizzle was provided by Council back at the gazebo where all enjoyed the sunshine, views and lively chat. A vibrant discussion was had regarding the future of TAFE and our industry—the hot topic of the times! Photo: Adrienne Ingham.

BOTTOM RIGHT Jill and Peter Madden, volunteers from Tea Gardens.  
Photo: Adrienne Ingham.



# Is “no net loss” an illusion? lessons from Weipa mine rehab

Sue Gould

It is commonly assumed that we can “restore” habitat and fast track natural regeneration. Our assumptions about how ecosystems change are largely based on observations of relatively undisturbed ecosystems.

Whereas this may be true for sites that are largely intact, these assumptions do not apply to synthetic ecosystems. Sites with novel combinations of species, changed physical conditions or where the biological legacy has been removed may not respond as we expect them to. A case in point is rehabilitation following bauxite mining at Weipa on Cape York Peninsula.



Weipa grassy open tall woodland (pre-mining). Photo: Sue Gould.



Weipa acacia shrubland (post-mining rehabilitation site 23 years old). Photo: Sue Gould.

The Weipa bauxite ore body occurs as a shallow deposit over large parts of north-western Cape York Peninsula. Darwin Stringybark open forest grows on the deep, well-drained matrix provided by the Weipa bauxite plateau. To access the ore, the Darwin Stringybark forest is cleared, then windrowed and burnt. Approximately 50 cm of topsoil is stripped and stockpiled for later use in rehabilitation. So the biological legacy of the forest in the form of plants and animals, accumulated nutrients, and soil structure is completely removed. The only biological legacy that remains is what survives in the stockpiled topsoil. In addition, site physical conditions are permanently changed. Mining lowers the entire landscape on average by 2 to 3 metres but up to 10 m. After removing the ore, sites are prepared for rehabilitation by spreading stockpiled topsoil over the compacted ironstone mine floor. Sites are then deep-ripped, ploughed, fertilised and direct seeded with a mix of species.

The plant species mix used is based on a facilitation model of vegetation succession. This assumes that early "pioneer" species will improve site conditions for later species, and that they will then die and be replaced by "late successional" species. Primary succession models also assume that in the long term, climate is the overriding determinant of vegetation composition and structure. At Weipa, large seeded, fast growing species that germinate reliably from seed, for example acacias, were used in the seed mix in the expectation that they would re-build soil nitrogen then die and be replaced by more long-lived, slow growing eucalyptus species.

However, I compared vegetation and birds between pre-mining native forest and post-mining rehabilitation at Weipa and found that expectations about rehabilitation were not being met. Vegetation cover was successfully established by post-mining rehabilitation, but it remained dominated by acacia species even after 20 years. The desired eucalyptus species that provide key habitat resources for local native forest birds were established at very low densities or not at all. The stark differences in vegetation composition and structure between pre-mining forest and post-mining rehabilitation were reflected in the bird assemblages.

Many bird species are more choosy about habitat than people realise. When habitat changes, the population size and distributions of some bird species increase while others decrease. Often, it is the common, generalist species that are the winners, while habitat specialists lose out. I found that approximately one third of native forest bird species are missing from rehabilitation sites at Weipa. Importantly, rehabilitation did not provide habitat for the native forest bird species that are declining Australia wide as a result of habitat loss.

My findings have implications for the effectiveness of biodiversity offsetting through rehabilitation as a conservation strategy and for the concept of "no net loss". Unless a number of conditions are met, rehabilitation may well result in habitat conversion rather than habitat restoration, with adverse consequences for fauna of conservation concern.

Sue Gould lived in Weipa for 15 years. During that time she worked in community based natural resource management for Weipa Catchment Coordinating Group for 10 years then did a PhD on the mine rehabilitation there.

## **Biodiversity offsets: more info in the August edition of Decision Point**

It is available at <http://decision-point.com.au/issue/91-august-2015/> and includes the following articles:

- Legal & institutional dimensions of biodiversity offsetting
- Offsets entrench the decline of Carnaby's black-cockatoo
- NGOs on offsets & recovery
- Offset policies don't work
- Of apples, oranges and offsets
- Step forward then look back
- Could well-designed offset policies actually increase loss?
- Offsetting in the context of policy
- Offsets in the system
- Offsets in Decision Point: a list of articles from previous editions.

## **Fashion accessories for cats reduce bird kills**

A brightly coloured scrunchie, worn by a cat as a collar, turns out to be an easy and effective way of reducing the number of birds it kills. (Do we need to explain that a scrunchie is a big, ruffled, fabric-covered, elastic hair tie?)

It works because birds have great colour vision, and it becomes very difficult for the cat to sneak up on them. The scrunchy effect

doesn't seem to work for reptiles and mammals, but there may be some good news here too. People who keep cats for their ability to control rats and mice may be willing to use this measure (sorry skinks and antechinids!).

See [www.abc.net.au/news/2015-03-20/scrunchies-prevent-wildlife-death-study-finds/6337222](http://www.abc.net.au/news/2015-03-20/scrunchies-prevent-wildlife-death-study-finds/6337222)

## **What is Australia's biggest weed?**

It's the Norfolk Island Pine of course! Check out this delightful Sydney Morning Herald article by Michael Pascoe, about the living skyscraper that is "Boring, predictable, soulless, unneighbourly, without nectar for birds... everything the rich varieties of native gums and wattles, sheoakes and banksias are not."

The pine that gained a reputation as the symbol of the Australian beach should have been left on Norfolk Island "to brood darkly about world domination the way bad trees do".

If you still have a soft spot for *Araucaria heterophylla* "feel free to plant your 'living Christmas tree' and watch it stretch 50 metres into the sky and effectively scorch the earth for 20 square metres around it".

Read more: [www.smh.com.au/comment/selfpropagated-norfolk-island-pines-prove-tenacious-invaders-20150305-13vziy#ixzz3lUKzscD2](http://www.smh.com.au/comment/selfpropagated-norfolk-island-pines-prove-tenacious-invaders-20150305-13vziy#ixzz3lUKzscD2)



# Chemical-free weeding

**Barry Lees, volunteer, Hornsby Shire**

I recently attended a seminar (run by the Greater Sydney Local Land Services in conjunction with The Weed's Network (TWN)) on this topic. It had a big effect on my casual attitude to using herbicides. Here are some notes. I recommend that all bush regenerators consider these issues.

The seminar was introduced by environmental scientist David Low who is general manager of The Weeds Network. Shortly before the seminar, the UN had announced that glyphosate had been found to be a probable carcinogen. There was some discussion on the impact this announcement might have. There was also discussion on the alleged damage done to soil and soil organisms by glyphosate and other chemicals in Roundup®.

He pointed out that in Australia, 1.4 billion dollars per year is spent on herbicides. In addition, manufacturers spend millions encouraging and guiding people in the use of herbicides. Very little is spent on pointing out the damage being done by chemicals and encouraging people not to use them. There are many tools to help in weed removal without chemicals, e.g. fire, soil organisms, animals, increase health of desirable plants, biological controls, better design of spaces, or learn to live with some weeds. The seminar explored several of these mechanisms.

**Dr Nimal Chandrasena, an ecologist from GHD** suggested there is a problem of perception. Many weeds are not a problem and we should be more tolerant. Sometimes the cost of buying and applying the chemical, and the damage done to the sprayer and the environment can be greater than the effect of leaving the weed in place. He suggested a 'negotiated peace' with many weeds. Weeds can provide increased biodiversity, eco-system services, soil improvement, food for humans and animals, medicines, oxygenation of waterways, pollution removal and erosion control.

**Jim Shields from "Herds for Hire"** spoke about goats for weed control. He said they were economical, could work on very steep sites, seeds are usually destroyed (because goats are ruminants), they fertilise the soil, no chemicals needed, and fire risks were avoided. He uses electric netting to contain 20 to 30 goats. Thirty goats can treat one quarter acre in three to six days. Wire cages are put around desirable plants to protect them. Most plants will regrow after the goats leave, but they are eaten to ground level and can be easily managed as they grow.

**The manager of "Graze Away", Colin Arnold**, also spoke about goats. He has been using them for 20 years to restore native habitat, mostly beside waterways and on swampy ground. They kill plants like blackberries by continually pruning the foliage and leaf buds. This eventually exhausts the roots, killing the plant. Unlike when using glyphosate, soil fungi, insects and worms are unharmed. They eat weed species including *Ehrharta* but leave *Lomandra*, *Lepidosperma* and *Microlaena* alone. Some natives need protection. He suggested in many areas, we should plant selected native shrubs and grasses, (the ones goats don't like) and use goats for maintenance.

Another presenter, **Damien O'Sullivan—DAFF (QLD)**, spoke about using cattle to control broad-acre African love grass *Eragrostis curvula*. He tried many methods to control it, without success. Then he turned to intensive grazing. The cattle did not like the grass at first, but ate it because they had no choice. After grazing, the grass put out green leaves that were much more palatable. The tufts reduced in size and more grass grew between them. Over time, the lovegrass disappeared.

**Mia Dalby-Ball—An ecological consultant from Ecological Consultants Australia** spoke about chemical-free restoration techniques. She said if an area had been cleared, at least five native plants per square metre will be needed to combat invasive weeds. Put in pioneering plants, even if they are not the final plants you want there. Plant the final plants later. A flame weeder is useful. Collect native plants with seed attached, spread over weedy areas and burn with a flame weeder. Or burn the area to ground and pull out weeds as they grow back. For trad, rake it into piles and then flame weed the small pieces remaining. Think seriously about chooks for trad removal in smaller areas.

**Dr Ian Chivers—Native Seeds Pty Ltd**, A supplier of native grass seed spoke about establishing native grasses on previously weedy paddocks. There can be 20,000 seeds per square metre in the topsoil. To establish native grasses, you need to overcome this. Scalping the top 50 to 100 mm topsoil will remove the seed load, but may cause other damage. Cultivating the soil several times will deplete the seed bank. Bio herbicides (BioWeed®, WeedZap®, essential oils, vinegar etc), steam and flame weeding may be useful to kill existing weeds. Sowing taller growing annual cover crops with the native grass will allow time for the grass to establish before exotic grasses invade. Before the cover crop drops seed, harvest it. Primed native seed germinates and grows quickly, allowing it to compete better with weeds.

**Jeremy Winer, the manager of “Weedtechnics”** spoke about steam weeding. He said there are seven main costs of using herbicides—off-target damage, bad public image (people in overalls, gloves and respirators spraying in public places), herbicide resistance, public safety, employee OH&S, stormwater contamination and habitat contamination). These are avoided by steam weeding. Steam weeding has come a long way recently—it is now quicker, cheaper and more effective. Steam destroys plant cells in a fraction of a second and unlike flame weeding, it can be done any time of the year and there is no fire risk.

**Personal note:** Since attending the seminar, I do a lot more hand weeding and flame weeding. The known and alleged damage to soil health and personal health from herbicides is a great concern.

# Urban bandicoots and ticks—time for a fair go!

Photo: Greg Schechter  
Flickr creative commons.



The bandicoot has been found guilty without trial. Public perception casts them as the primary host of the paralysis tick, and this is often repeated in the media, but it isn't true.

Bandicoots are already battling habitat destruction, motor vehicles, and predators. Such attitudes add to the list of threats. There have even been calls to stop fox baiting programs, so that more bandicoots will be killed by foxes.

A recent paper in the *Australian Zoologist* (2015 volume 37 number 3) has tracked the source of this misconception to one paper published in Queensland in 1975, where the claim is made but not substantiated. The same paper also claims the paralysis tick has a “wide host range.” However the “primary host” statement has been widely quoted, and extrapolated to other parts of the country with little attention paid to other tick hosts.

Yes, bandicoots host ticks, but they are one of many host animals. Ticks aren't that specific.

If you would like to read the entire article please contact [newsletter@aabr.org.au](mailto:newsletter@aabr.org.au)

## ABSTRACT

### Are urban bandicoots solely to blame for tick concerns?

HW Lydecker<sup>1</sup>, E Stanfield<sup>1</sup>, N Lo<sup>1</sup>, DF Hochuli<sup>1</sup>, PB Banks<sup>1</sup>

<sup>1</sup> School of Biological Sciences, The University of Sydney, A08 Heydon-Laurence Building, NSW, 2006, Australia

The paralysis tick *Ixodes holocyclus* bites humans, companion animals, and livestock in eastern Australia leading to symptoms that range between negligible and severe. Bandicoots (Family Peramelidae) are commonly cited as the “primary host” of *I. holocyclus* in the media and blamed for outbreaks of ticks and disease fears, creating conflicts between conservation and tick management.

We discuss how evidence for bandicoots being essential to the *I. holocyclus* life cycle has originated from a small number of papers that were limited in scope. False assumptions of host-specificity have contributed to the extrapolation of studies in one ecosystem, yet no study has sampled the full range of hosts of *I. holocyclus* to understand the relative role of each species across the entire range of *I. holocyclus* in relation to health threats. Bandicoots are one of many potential tick hosts but cannot yet be considered the “primary host” of *I. holocyclus*.

Researchers and media should refrain from highlighting bandicoots as the main *I. holocyclus* host without mentioning caveats, and work towards gaining a better understanding of tick-host interactions across the range of *I. holocyclus* in order to better understand and mitigate public health risks.

# What's happening

## 12-15 October

18th NSW Weeds Conference Weeds - The Future, Innovation & Adaptation

**Where** Cooma-Monaro Shire Council COOMA, NSW

[www.weedscooma.com.au](http://www.weedscooma.com.au)

## 19-25 October

Aussie Backyard Bird Count

Birdlife Australia invites you to "celebrate National Bird Week 2015 by taking part in the biggest citizen science project to hit Aussie shores!

All you need is 20 minutes, your 'green patch' of choice, and some keen eyesight (or binoculars!) And it doesn't matter if you're a novice or an expert—we'll be there to help you out along the way. Simply record the birds you know and look up those you don't on our Aussie Bird Count app or our website."

[aussiebirdcount.org.au/](http://aussiebirdcount.org.au/)

## Saturday 31 October

AABR walk and talk: recovery at Green Bluff

**Where** Near Coffs Harbour NSW

"Heaven on a stick" according to our enthusiastic guide Lindy Davis. This spectacular coastal headland is home to many threatened plants and animals. Currently worked by volunteers and contractors. Explore regenerating littoral rainforest, and recently burned Themeda grassland. If we are lucky there will still be some migrating whales.

**Contact** Lindy Davis 0448 651 239 or 02 6654 5313.

## Thursday 5 November 10:00-3:00

AABR walk and talk: restoration of Cumberland Plain grassy groundcover and AABR AGM

**Where** Richmond NSW

Join Dr Paul Gibson-Roy, Chief Restoration Ecologist with Greening Australia and leading expert on methods for restoring grassland and grassy woodland on a tour of grassland restoration sites and seed production areas in western Sydney. Paul, whose PhD investigated grassland restoration methods in Victoria, now leads a program to restore complex Cumberland Plain Grassy Woodlands with Greening Australia in Sydney.

We will start with a tour of the GA seed production facilities at UWS followed by inspections of restoration sites and discussion of the various techniques used and challenges faced in trying to restore species-rich communities.

Depending on conditions on the day, we will visit the restoration paddock on campus (a 5 minute drive away) and/or visit a site in Cranebrook Nature Reserve about 15 minutes' drive away. This latter site was seeded in April 2015 and seedlings are currently emerging, both sown and non-sown natives.

After the tour, stay on for an informal lunch gathering—followed at 2 pm (on campus) by a short presentation and discussion on Australia's draft national Standards for Ecological Restoration in the context of Paul's work, then a brief AABR AGM.

**START:** Meet 9.30 am for 10 am

**PLACE:** Meet at the seed production site in the Yarramundi Paddocks of University of Western Sydney, off Southee Road, Richmond.

If coming along Londonderry Road, turn left at the second gate along Southee Road. If coming off Castlereagh Rd onto Southee Road, take the first gate on the right. Follow the signs

**BRING:** Morning tea, lunch (no nearby shops), water, hat, etc.

**Bookings:** [www.eventbrite.com.au](http://www.eventbrite.com.au) or email [secretary@aabr.org.au](mailto:secretary@aabr.org.au). Numbers may be limited.

## Saturday 7 November

RZS NSW Forum 2015. Zoology on the table: the science, sustainability and politics of eating animals

The Australian Museum, Sydney [www.rzsnsw.org.au/#!rzs-nsw-annual-forum/c1ygg](http://www.rzsnsw.org.au/#!rzs-nsw-annual-forum/c1ygg)

## 14-16 March 2016

National Seed Science Forum

**Where** Australian Botanic Garden, Mount Annan SW of Sydney.

A rare opportunity to bring together leading botanical and agricultural institutions, seed scientists, and conservation and restoration experts to share ideas that showcase the importance of seed science to the future of plant conservation and food security in Australia.

An exciting programme of local and international experts is planned, speaking on seed conservation, storage, preservation and germination.

[www.seedpartnership.org.au](http://www.seedpartnership.org.au)  
[info@seedpartnership.org.au](mailto:info@seedpartnership.org.au)

### Friends of Grasslands

For a whole swag of interesting events, check out the FoG calendar.

Friends of Grasslands is a community group dedicated to conservation of natural temperate grassy ecosystems in south-eastern Australia. FoG advocates, educates and advises on matters to do with the conservation of grassy ecosystems, and carries out surveys and other on-ground work. FoG is based in Canberra and its members include professional scientists, landowners, land managers and interested members of the public.  
[www.fog.org.au/](http://www.fog.org.au/)



### President

Tein McDonald [president@aabr.org.au](mailto:president@aabr.org.au)

### Treasurer

Kirsten Vine

### Membership Officer

Louise Brodie [membership@aabr.org.au](mailto:membership@aabr.org.au)

### Secretary

Jane Gye [secretary@aabr.org.au](mailto:secretary@aabr.org.au)

### Website advertising

Mitra Gusheh [advertise@aabr.org.au](mailto:advertise@aabr.org.au)

### Committee members

Heather Stolle, Elisabeth Dark, Spencer Shaw, Kate Low, Scott Meier, Suzanne Pritchard, Kirsten Vine, Mark Cachia, Melanie Ledgett, Tim Baker

### Northeast NSW/Southeast QLD subcommittee

Mike Delaney 02 6621 9588  
[miked@envite.org.au](mailto:miked@envite.org.au)

### Coffs Harbour subcommittee

Lindy Davis 0448 651 239 or 02 6654 5313

## Australian Association of Bush Regenerators

### The Australian Association of Bush Regenerators Inc (AABR)

was incorporated in NSW in 1986, and has several hundred members from all over Australia. AABR is pronounced 'arbor'.

Our aim is to promote the study and practice of ecological restoration, and encourage effective management of natural areas.

**All interested people and organisations are welcome to join.** AABR members include bush regeneration professionals, volunteers, natural area managers, landowners, policy makers, contractors, consultants, nursery people, local, state and commonwealth government officers—and lots of people who just love the bush and want to see it conserved.

**AABR also offers accreditation** for experienced practitioners.

**AABR News** is usually published in March, June, September and December.

### AABR C/O Total Environment Centre

P.O. Box K61 Haymarket NSW 1240

0407 002 921

[www.aabr.org.au](http://www.aabr.org.au)

[enquiries@aabr.org.au](mailto:enquiries@aabr.org.au)

ABN: 33 053 528 029 ARBN: 059 120 802

### Membership fees

Individuals \$30 (unwaged \$15)

Organisations (*does not confer membership to individuals in the organisation*)

• business (< 5 staff) \$120

• business (5-20 staff) \$300

• business (> 20 staff) \$480

Government \$60

Not for profit \$30 (*or \$0 with newsletter exchange*)

### Benefits of Membership:

- discount admission to all AABR events
- four newsletters per year
- increased job opportunities
- discount subscription to the journal Ecological Management & Restoration
- opportunities to network with others involved in natural area restoration
- helping AABR to be a strong and effective force to promote natural area restoration, and support the industry.

### Newsletter contributions and comments are welcome

Contact Louise Brodie [newsletter@aabr.org.au](mailto:newsletter@aabr.org.au) 0407 068 688

*Opinions expressed in this newsletter are not necessarily those of AABR*