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maintaining and enhancing frog habitat



presenter: Arthur White

Haswell's froglet, *Paracrinia haswelli*.

Wednesday October 14 7:00pm

Where Maiden Theatre, Royal Botanic Gardens, Sydney. Access and metered parking on Mrs Macquaries Road (Art Gallery Rd). The entrance is 100m north of the Art Gallery

RSVP Bookings preferred 0407 002 921

Fauna expert Arthur White is well known for his informative, interesting and entertaining presentations.

A short AGM will be held during the evening

Supper provided

President's Perspective

Hi Folks

It's been yet another busy few months for me, status quo really these days, but that's all good so no complaints from here. Sometimes as a bush regenerator I find it very important to sit back or go for a walk, take a look around and remember why I'm doing the many hours on my knees in the dirt and amongst the weeds. August and September was certainly a great experience for me from that point of view with a great trip to the SERI conference in Perth on top of a week checking out the fantastic landscapes and plants of the WA mid-west coast. Tim's done a great wrap up of the SERI conference so I won't elaborate much myself, except to say that it was truly fantastic to see so many like minded people from all around the world—every continent except Antarctica in fact—all looking to share knowledge and wanting to move in the right direction. Amongst the many take home messages for me was the need to improve the relationship between the science and the practice, and that this was something coming from all sections of our bush regeneration/ecological restoration community. The other was that from what I have seen we have been doing things very well, albeit for the need for continuous improvements, in this part of the world, and the global bush regen community (ok, they call it ecological restoration in the rest of the world, but old habits die hard—they're still all Dendrobiums to me) is taking a very keen interest in what is going on in Australia.

Coming back to the east coast I'd hardly unpacked the bags when I headed off to Booroowa with North Sydney Council on their annual trip to help landcare groups with their massive riparian restoration projects. This was the ninth year of this trip which has grown into a model that can be used by suburban

councils to build links with rural landcare groups and guidelines are now available for those interested in starting similar relationships. From my own experience that weekend it was a great trip with an enthusiasm amongst the participants from North Sydney staff and volunteers, the hospitality and the getting things done attitude of the local landcarers. And it did help too that the local footy team won their grand final that weekend for the first time in 23 years—go the Goldies! Big smiles all round!

The RB09 forum followed very closely on the heels of this and brought together some interesting and innovative speakers from far and wide. The formation of RBIA as a vehicle to get the RB09 forum series together this year with limited liability for sponsoring organisations has caused a bit of a stir around the traps with some questioning whether it is going to replace AABR and become the new industry body—which was certainly never the intention of the committee. It has however provoked some very interesting and constructive discussion which will continue into the new year. Bring on RB10 I say! That said, these things such as AABR and RBIA don't happen by themselves and it has been through the hard work of many people in their own time that they exist at all. Want to be involved? Then contact me or come along to the AGM before Arthur's talk on Wednesday 14th October—hope to see you there!

Matt

Welcome new members

Tony Butteriss
Stephanie Chew

International expert says NSW natural area management model is world class

The third of a series of "Restoring Biodiversity 09 Industry Forums" was held in Sydney on Friday 11th September 2009. The one day forum titled Innovations in Ecological Restoration show cased projects, techniques and new approaches to restoration from practitioners and land managers across NSW.

Andre (Andy) Clewell, a practitioner and international spokesman on restoration from USA, gave the inspiring keynote presentation *Restoring Our Future*. Andy showed examples of long-term restoration projects worldwide and spoke of the human values that drive restoration: a reminder for us to take a step back and inquire about why we are restoring an area and what we are restoring it to (the past or the future?). The idea of ecological restoration began in Australia and USA concurrently in the 1930s. When the Society for Ecological Restoration (SER) was formed in the 1990s, good examples of projects were sought from North America and Australia! After visiting sites in Perth, Sydney and NSW regional areas, Andy praised the technical expertise and the integration of federal, state, local government with community participation throughout Australia, as one of the leading countries in the global field of ecological restoration.

The Innovations in Ecological Restoration forum succeeded in bringing together many people and generating discussion from various sectors of the NSW industry. Approximately half of the 155 attendees were from state and local government organisations. The rest were from bush regeneration and landscaping companies, ecological consultants, non government organisations, TAFE, universities and Bushcare groups.

This year's Restoring Biodiversity Industry Forums were made possible with the sponsorship of AABR, Sydney Metropolitan Catchment Management Authority, Hills Bushcare, Bush-It, Toolijooa, Total Earth Care and Sydney Bush Regeneration Co. The forums are for everybody working in the NSW natural area restoration industry, especially bush regenerators!, and are good opportunities to get new information, share ideas and stay in contact with others in the industry.

What is planned for 2010? If you have ideas about what we can do next, you are welcome to come along to the Restoring Biodiversity monthly planning meetings.

Contact Rosanna Luca for more information.
info@restoringbiodiversity09.org.au

A new regen text book

It's 20 years since Robin Buchanan's book *Bush Regeneration Recovering Australian landscapes*, was published. It was a milestone in the development of our industry. There was a weighty and information packed text book and, around the same time, a formal qualification was first offered through the NSW TAFE system.

I was working as a regenerator in the field and I felt my profession had just become that little bit more respectable. It was harder to dismiss regeneration as part of the greenie fringe or a pastime for strange old ladies.

The book sold out within a few years and it became an Australian best seller.

For some years, Robin has been keen to up-date the book. AABR NSW offered to help any way we could, however TAFE held the copyright and had no plans to either republish or relinquish the rights.

It wasn't until 2006, when Tocal College got involved, that the new book really got underway. Tocal is a NSW government training centre specialising in agriculture and land management, and is also a publisher of reference books.

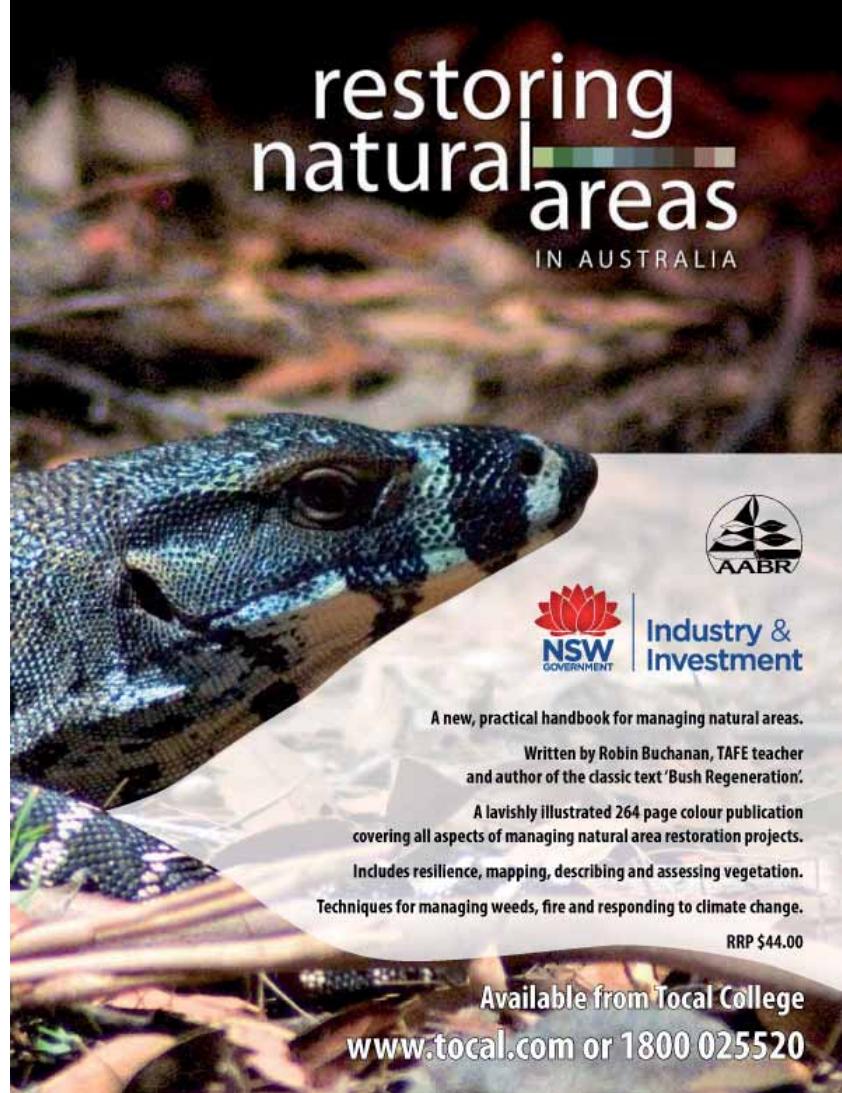
Darren Bayley, Acting Manager of Continuing Education at Tocal, explained that through the National Conservation and Land Management Training Network, he is in regular contact with training providers across the country. He heard a consistent message: we need a basic ecological restoration textbook.

No longer teaching full time, Robin, and her colleague Ann Loughran, were available, and willing to start from scratch to develop a completely new book. With Tocal publishing, and some financial assistance from AABR NSW, *Restoring Natural Areas in Australia* was born. It's being printed now.

Robin has spent the last 2 years researching and writing. She explained that there is a lot of specific information available now—such as planting techniques for particular regions, how to control specific weeds, project descriptions and scientific research. She has tried to bring it together, interpret it and make it accessible. She was also concerned that there was not enough information about general principles: how to think through a project, assess a site etc, so she set out to fill the gaps.

One of Robin's lasting impressions from writing the first book was of piles of books on the floor. However, although there were many volumes about Australian vegetation, animals and ecology, there was almost nothing about ecological restoration. Joan Bradley's *Bringing Back the Bush* was a notable exception.

Twenty years later, we've entered the internet age. So, when writing the second book, Robin's floor was much less cluttered. Less of the information was in book form and much of it was on the web. Many people have been able to publish information about techniques and individual projects, and there was a huge amount to sort through.



Robin says *Restoring Natural Areas in Australia* has a very different look to the last book. There is more emphasis on the images. Robin and husband Tom Hanson selected them, but handed the content over to Tocal's designers to put together. She was surprised—in a good way—at the amount of space given to the photographs, and is pleased with the way it looks. This is promising—the more attractive it is the greater its chance of reaching beyond the regenerator audience.

Robin had vocational students and volunteers particularly in mind when she wrote it, but as a practical guide to working with our ecosystems, it should be valuable for anyone with an interest in the Australian bush.

I'm hoping it will be popular with people who need some understanding of bush regeneration for their job, such as managers in local government, but don't have a regeneration background and aren't likely to do a course.

AABR and Tocal are organising a launch and AABR is planning to sell the book at a discount to members. Details will be on the email and web as soon as they are available.

Virginia Bear

News from the SERI Conference

Tim Baker

The 2009 SER world conference was held in Perth on 24th-26th August. At the RBIA forum in Sydney on Sept 11, I gave a presentation outlining my impressions of the conference and some key messages for NSW. Here is a summary.

Several industry people from NSW attended the Society for Ecological Restoration International conference held in Perth last month. The theme of the conference was *Making Change in a Changing World*. There were over 700 delegates including scientists, academics and practitioners from all around the world, and over 500 presentations, posters & workshops about a wide range of ecological restoration topics.

There was a huge range of ecological restoration topics, and 9 concurrent workshop sessions. Everyone who went will have come away with a different experience.

Topics included resilience and restoration planning, Ramsar convention on wetlands, social and cultural aspects around local engagement, management and technical aspects, landscape scale restoration, disturbance and fire, monitoring, genetics, post-mine restoration and Indigenous knowledge and connection to country.

Some of the worlds leading scientists in restoration ecology presented their research, findings and perspectives on Day 1, together with Indigenous, cultural and philosophical leaders. A holistic perspective on all aspects of ecological restoration was presented, bringing to light the enormous challenges we face in this time of rapid change with climate change, globalisation, urbanisation, invasive species, nutrient enrichment and population growth. Where are our sites going to be in 100 years?

There were many presentations about inspiring projects happening throughout the world - e.g. Working for Water in South Africa which has been addressing invasive species (mainly Australian Eucalyptus and Acacia) and bring environmental issues into the political agenda.

Kieth Bradby from Gondwana Link gave an inspiring presentation on the large scale project they are undertaking in south-west WA where agricultural practices have had considerable impact on this biodiversity hotspot. The project covers a huge area from the Karri forests in the south-west corner of WA to the Mallee bordering on the Nullabour Plain.

There was also lots of talk about terminology particularly "resilience" and how it can be quantified/assessed from a bush regeneration perspective.

Another term "novel ecosystems", new to most of us, was used to describe landscapes that might include a mix of plantation agriculture buffered by biodiversity plantings. However the more intensive fine-scale weeding practices of bush regen, and the principle of working from less degraded areas appeared to be rarely practiced in other parts of the world – (even in most of WA).

I noticed the two different approaches to regeneration goals being discussed and advocated.

- 1 Using reference sites to guide restoration, and to try and achieve particular states—such as a high level of diversity. This is advocated in the SER primer.
- 2 Focusing on processes—fundamentally resilience. Aiming for a restored ecosystem that is able to adapt, to fire drought etc.

We (NSW people) all attended different sessions and took away a number of take home messages for the NSW industry:

- We need to engage more with science and researchers in our on ground projects. However this is not to underestimate the role of practitioners and everyone else involved in the process of restoration.
- We need to engage with the community to achieve project outcomes - including indigenous communities. Indigenous use of fire was well illustrated by talks from indigenous scientists both in Australia and Americ). One speaker was coming to Sydney last week to talk to DECC's Land Alive program about introducing Aboriginal burning practices
- We need to communicate better across our industry generally - eg hold regular Forums (like the RBIA forum). Get our case studies into print if possible. A statement made by one delegate from the Hunter where he is involved in mine restoration was "Until this week I didn't know I was an ecological restorationist" and "where can I get more information."
- There is a lot of information out there that we can access: the SERI website, journals (Ecological Management & Restoration, Restoration Ecology, etc.) and even Botanic Gardens.. Eg the Kew botanic gardens website has information on how to trigger seed dormancy in many native genera & species which will help diversify ecosystems applying direct seeding, brush matting and propagation techniques.
- We need to reflect on WHY we are doing this work, as well as the HOW- the process and be conscious that we are restoring for the future.

Resilience

...was a term used often in a range of contexts

- 1 as a measure of health, a goal of restoration and a measure of restoration success as well as
- 2 to describe the natural recovery capacity that can be harnessed on many restoration sites.

Nearly 80 % of the participants at a workshop on natural recovery terminology at the conference considered that natural recovery was under-used in restoration, with about 13% saying it was over-estimated and about 7% saying it was adequately used. The workshop spawned a small working group (including Ian Perkins, Tein McDonald, Mark Sheahan, Ian Davidson and Robin Buchanan) to develop a simple system of resilience mapping to guide restoration practice in NSW.

Regional sub-committees

Hunter Region

The group's main concerns are likely to strike a chord with most readers: overemphasis on reveg in local restoration projects, and land managers lacking in appreciation of resilience. They are also concerned about the need for wage increases for regenerators.

Finding enough regenerators willing and able to put voluntary time into projects is a longstanding problem. Trisha Barker, one of the co-ordinators says that a small core of people carry most of the load in the Hunter branch, but morale and enthusiasm are high

One of the branch's main activities is attending community events, such as fairs and field days to raising the profile of bush regen, and offer advice to the general public. They have also identified a need for a more targeted approach to help contract specifiers keep up to date with ecological restoration theory and practice.

But there is plenty of work in the Hunter region, which has a beaut array of habitats to work in, including various threatened plant communities and threatened species.

AABR membership and networking grows in South-east Queensland (SEQ)

A 'catchup' meeting was held for AABR SEQ members and subscribers on the 22nd July at 'The Hut' in Brisbane. Attendance wasn't as high as expected due to clashes with other events, but progress on a range of topics was good.

Discussion was set in the broad context of the vision of forming an independent SEQ AABR group in the future to raise standards of practice in the rapidly developing coastal areas of SEQ. (Currently there are 18 Queensland members and 11 subscribers, with 6 current non-standard applicants lined up for assessments.)

Needs for SEQ bush regeneration were identified - and included better understanding of assisted regeneration approaches among contractors, which in turn depends on training opportunities in Queensland. (Currently many Queensland regenerators travel to northern NSW to undertake the TAFE course.) Negotiations are ongoing with Nambour TAFE, but are currently stalled on the issue of whether experienced natural area restoration practitioners could be engaged as teachers rather than existing CLM general land management teachers. (Sound familiar?) It was resolved to send a letter to TAFEs about the importance of industry-ready teachers, something that is currently also being discussed in some NSW regions.

The meeting put together an action plan for a series of 3-monthly field trips in different parts of SEQ to allow members and supporters to meet each other and share ideas. For information contact:

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Big Scrub Rainforest Day 2009

Since 1999, Big Scrub Rainforest Day has inspired and educated thousands of landholders and volunteers to conserve, regenerate and replant rainforests of the previous Big Scrub area between Lismore and Byron Bay in north coast NSW.

The Big Scrub was once Australia's largest subtropical rainforest at 75,000 hectares. Now only 1% remains as rainforest remnants, which suffer from fragmentation, isolation and exotic weed invasion. Now a state-listed EEC (with federal listing being considered), Big Scrub remnants have been the target of substantial restoration effort, thanks to both government

funding, private donation and the efforts of landholders.

Started by Rainforest Rescue and the Big Scrub Rainforest Landcare Group, Big Scrub Rainforest Day has grown to become the largest annual landcare education event in Australia. People travel from all over southeast Queensland, northern New South Wales and beyond to join the festivities and discover practical ways they can help the environment.

The educational focus of the day is complemented by fun activities for all the family like eco games with the children, puppet making, theatre performance and yoga in the rainforest. Market and food stalls also contribute to a festival atmosphere.



AABR mounts an annual display at the Big Scrub Day, working with many other local groups in the support of habitat restoration. Pictured at the September event in Bangalow this year are (L to R) north coast NSW AABR executive members Paola Rickard, Rhonda James and Mike Delaney.

AABR walks and talks: Rainforests of the Illawarra

Virginia Bear and Danie Ondinea

Anders Bofeldt was our guide, on April 11 2009, sharing his enthusiasm and vast knowledge of plants. The Illawarra rainforests are his speciality.

From Coledale to Stanwell Park on the NSW coast there is a narrow strip of land between the cliffs of the Illawarra escarpment and the sea. Much of it has retained its original forest.

The railway runs close to the edge of the escarpment, and around Scarborough station—where we started our walk—the bush is just across the road.

The bush closest to the coast is Eucalypt forest (Escarpment Blackbutt Forest), becoming rainforest further up slope.

Anders believes the Illawarra Rainforest is a refuge for evolution's first experiments with flowering plants. He pointed out some species, such as Bolwarra, that have primitive features.

He explained that the Illawarra is like an island surrounded by a barrier of schlerophyll forest. It reminds him of a piece of the NSW north coast transplanted here.

Sydney is a gap in distribution of rainforest species. They occur from the NSW central coast, south to the Illawarra but most miss the sandstone country of the Sydney basin. This isolation has become worse in recent years because the few small rainforest pockets around Sydney that may have acted as stepping stones have been lost to development. Gosford plants have to travel 150km south before they find suitable habitat.

Rainforest pigeons and flying-foxes are the main seed carriers, but they usually digest things fairly quickly so are unlikely to carry the seed far.

Now there is horticultural spread of plants—*Cordyline stricta*, and Native frangipani are examples, and there is now lots of *Cyathea cooperi* in the Illawarra, spread from garden plants—it was very rare.

Maytenus silvestris doesn't occur in the Illawarra, it's found in the Shoalhaven and Kiama and West Dapto but appears to be colonising the Illawarra from the south.

The way Anders sees it, when nature moves plants around, it's extraordinary—if we do it, it's boring.

Eucalypt forest The northern Illawarra escarpment slope has only 4 eucalypts. Blackbutt *E. pilularis*, Bangalay *E. botryoides*, Grey Ironbark *E. paniculata*, and an *E. saligna/E. botryoides* hybrid, which occurs in pure stands. According to Anders, it could be reclassified as a separate species.

The fewer Eucalypt species in the north tells Anders this area was predominantly rainforest, otherwise there would be a greater diversity of Eucs.

Acacia maidenii is the most common wattle in the area. *Poa labillardieri*, also grows here. It is the most common grass in the Illawarra, found in every community except rainforest.

Hakea salicifolia is common in the Illawarra.

Subtropical and warm temperate rainforest occur locally.

We arrived in the subtropical rainforest first. It needs a warmer climate, and is favoured by closeness to the ocean which moderates temperature extremes, and slightly increases soils fertility due to calcium and magnesium from the salt spray. Subtropical rainforest is more diverse than warm temperate, the understorey can be dense with ferns and shrubs. Large figs emerge above the canopy.

Warm temperate rainforest is further back from the sea, at higher altitude, closer to the escarpment. It has fewer tree species, and a more open understorey.

Feral deer are one of the threats to the Illawarra rainforest.

Anders believes most of the shrub and herb layer is going to go extinct if we can't do something about the deer soon. Plants have evolved for grazing but not by animals as large, persistent and numerous as deer.

He is helping to prepare a list of plants that deer don't like—that can be used in restoration. Native raspberry is a useful one, producing a dense barrier quite quickly.

Male deer rub their antlers on trees, and can strip the bark.



Geology. Anders explained the role of the geology in shaping the local landscape. At the top of the escarpment is about 20m of Hawkesbury sandstone, with the Narrabeen group below. The Narrabeen consists of layers of sandstone, claystone, and mudstone, with the Bald Hill claystone at the top. The claystone is soft and erodes quickly, undercutting the Hawkesbury sandstone and causing large blocks to fall off and roll down the hill.

Further south (around Hospital Hill and Smiths Hill) the soils are very fertile and derived from a hard-grained sandstone called Budgong Sandstone. It is made of material eroded from

a volcanic flow and is about as rich as a sandstone can get, with fine grains in a very fertile matrix.

Basic rainforest ecology. A distinguishing feature of rainforests is the dense tree canopy, and the shady moist microclimate it creates. Very little light reaches the ground, and plants need to grow tall and fast to get to the top where there is light. Vines do this well. Bush regenerators can exploit this feature, allowing the canopy to shade out some weed species. It doesn't work in more open forests and woodlands.

The local rainforest trees don't flower every year—perhaps every 3rd to 4th year, but those on the margins flower more regularly. The irregular food supply prevents predator numbers building up, and plants can concentrate more on producing leaves.

Logrunner A few of us heard a logrunner scurrying around in the undergrowth, and caught a quick glimpse of it. Later we came across a recently used nest in a patch of settlers flax. We have since found that local bird experts are concerned about logrunners, once regularly seen along the escarpment, they have declined since housing moved well up into the escarpment.



Interesting plant encounters

Ground Orchids. There aren't many ground orchids in rainforest. They are more common in sclerophyll forest. But rainforest orchids stay above ground for longer and have larger leaves, to make up for the lack of light.

There are just two ground orchids here, and they are not common. Possibly *Pterostylis hildae* rainforest orchid or *P. curta*. Anders wants to check the species against herbarium specimens once they flower because they may be a new species.

Ferns. Half of all NSW ferns are found in the Illawarra. *Christella dentata* is common. There are 7 different maidenhairs in the area, and 3 are common: *Adiantum aethiopicum*, *A. formosum* and *A. hispidulum* which is found on slightly drier, rocky creekbanks.

Patches of ground were covered in kangaroo fern *Microsorum scandens* It is also called fragrant fern—rare to have a scented fern. It has simple leaves and climbs.



We were lucky enough to come across the rarely seen parsley fern *Botrychium australe*. It's a bit like an orchid, with much of the structure underground, it only ever has one or two leaves and frequently none. We also saw *Arthropteris tenella*—a climbing fern.



Native rasberry *Rubus rosifolius*. Forms thickets on the rainforest edge—a niche now often filled by Lantana. It is a big fruiter, over a long period. Has commercial possibilities.

Rubus nebulosus—a big rainforest climber with big fruit.

Lantana is a problem. Anders showed us the dead spots on the older leaves caused by the introduced biological control (about 10-15 years ago?) - a leaf miner. It doesn't kill the plants but slows them down, reduces photosynthesis.



Bolwarra *Eupomati laurina*—a shrub that forms bendy canes. Typical of climax rainforest, very fire sensitive. A primitive plant with an unusual and fragrant flower.

There are two species of *Cryptocarya*. They are in the laurel family and have a yellow mid vein like camphor laurel.

C. glaucescens native laurel has a glaucous underside to the leaves, it will rub off and can be set alight.

C. microneura murrogon – has a fine network of veins. It looks like its close relative, the avocado.



White passionfruit *Passiflora subpeltata* is a weed



Native passionfruit *Passiflora cinnabarina* grows here too but it's rare. Found on edges, and it dies after a year or 2 (we didn't see one).

Bolly gum *Litsea reticulata*. A climax Sub-tropical Rainforest. rainforest species, needs reliable moisture. Has lots of reticulate veins on the leaf underside. As the tree matures, the bark comes off in round plates giving the main trunk a mottled look.

Brush Bloodwood *Baloghia lucida* has blunt, opposite leaves and sap the colour of dried blood.

Guioa semiglaucia—same family as lychee and rambutan.

Brittlewood *Claoxylon australe*—has 2 small stipules on the leaf stalk at base the of the leaf.

Pennywort either *Hydrocotyle laxiflora* or *acutiloba*.

Black Plum *Diospyros australis*—leaf underside is pale.

Prunella vulgaris – there is some debate about whether it's native or weed – Anders is inclined to think it's native—citing reports of the first europeans coming across it in remote places and were surprised to find something from home.



Myrsine howittiana (syn. *Rapanea howittiana*)—white, smooth trunk, found more often in rainforest, on moister soils, fewer teeth than *Myrsine variabilis* (syn. *Rapanea variabilis*) which has rough bark, is found on drier, shallower soils in higher light conditions, leaves more toothed.

Hibiscus trionum. Anders believes this is a native although it is sometimes listed as native to eastern Europe. Rare in the Illawarra.

Native pepper. *Piper hederacea*. It is closely related to commercial pepper, but larger, with stems to 40metres. Can be dried and used as pepper. We saw a massive specimen growing on a red cedar and hanging in curtains.



Red cedar *Toona australis*—a fast growing, pioneer species, tolerant of dry conditions as long as the soil is fertile. It produces lots of seed.



Climbing panax *Cephaelaria cephalobotrys*—furry juvenile form, hairless when mature.

Whalebone tree *Streblus brunonianus*—found in Dry and Sub-tropical Rainforest.

Snow wood *Pararchidendron pruinosum* has white fluffy flowers, and a twisted, bright red seed pod.

Churnwood *Citronella moorei* The dead leaves are black, water that collects in leaves on the ground turns blue.

Scrub beefwood *Stenocarpus salignus* Proteaceae family.

Common silkpod *Parsonsia straminea* on *Acronychia oblongifolia*.

Phyllanthus similis grows only in rainforest, usually in a colony, flowers when young, usually about 50cm tall—looks like *P. gasstroemii* and *P. gunnii* when young but flowers and fruits larger and has a more reddish stem.

Cockspur thorn *Maclura cochinchinensis*—a thorny climber in the fig family.

We didn't see any bangalow palms *Archontophoenix cunninghamiana*, they are now very rare in the Illawarra, but Anders doesn't know why.

Settlers flax *Gymnostachys anceps* is useful for weaving and has blue fruit.



Marsdenia rostrata common milk vine.

Marsdenia flavescens yellow milk vine.

Giant stinging tree *Dendrocnide excelsa*. Only stings when it's young—once it's tall it doesn't need to protect its self so much.



Tree heath *Trochocarpa laurina*—the largest epacrid, it grows into a small tree.

Flintwood *Scolopia braunii*—leaves get smaller and less angular with maturity.

Pollia crispata—a creeping herb known as giant native trad.

Bird lime tree *Pisonia umbellifera*. Belongs to the Bougainvillea family *Nyctaginaceae*. Long narrow fruit in big clusters, sticky when ripe, they stick to birds' feathers and can eventually kill them. Spread by birds and mammals including flying-foxes. Anders considers it endangered, as it is being wiped out by deer locally. Found in the Illawarra and at Port Macquarie.

Creek with orange staining from iron manganese bacteria.



Anchor Vine *Palmeria scandens* has fruit which is a green capsule and splits open, revealing bright red fruit.

Common silkpod *Parsonia straminea* climbing on *Acronychia oblongifolia*.

Daphnandra ?johnsonii socketwood. Has a ball and socket joint branch attachment, a primitive fruit, leaves finely toothed, grows to 15m. Endemic to the Illawarra and endangered—found at Scarborough and then none until West Dapto-Calderwood and then found to Berry. Only 2 trees known to produce seed. Same family as sassafras.

Pencil cedar *Polyscias murrayi*—found in cooler mountainous forest.

Celery wood *Polyscias elegans*

Wonga vine *Pandorea pandorana*

Crab apple or white cherry *Schizomeria ovata*—a big, attractive tree, has grey bark with deep fissures and edible white fruit.

Oxalis chnoodes—big yellow flowers, dark, greeny blue leaves with purple undersides.



Doryphora sassafras. Can look like a conifer at a distance because of its pyramidal shape. We saw one with some lichen on the leaves—this is unusual because although plants let lichen grow on their trunks, they go to a lot of trouble to stop it growing on leaves and inhibiting photosynthesis.



Stellaria flaccida native chickweed.



Gahnia melanocarpa—shade tolerant and likes rich soil.

Tristaniopsis collina watergum more common than *T. laurina* which becomes common further north.

We weren't able to check the text with Anders, so any errors are ours.

Photos : V.Bear

The stats add up: bush regen gives the best value



In 2005 I published some statistics demonstrating the cost effectiveness of bush regeneration and the importance of good project management. Four years on, a review of the work hours for the site showed that maintenance requirements were even lower than predicted.

The article *Bush Regeneration of Paddy Pallin Reserve A comment on the importance of reliability and flexibility of funding to deliver ecological outcomes*. Featured in the journal *Ecological Restoration & Management* Vol. No 2 August 2005.

EMR Editor Tein McDonald explains "The article showed that there was a reducing level of regeneration inputs needed at the site, giving weight to the proposition that more sensitive maintenance of bushland well might cost council no more than traditional expenditure on 'park maintenance'. It seems that no-one had formally tested that—comparing regen costs with council inputs prior to the regen project starting—until Rymill published this article, drawing on the rigorous records kept by the bush regeneration contractors over the years."

The reserve, in urban Lindfield on Sydney's North Shore, contains a small remnant of the endangered ecological community Sydney Turpentine Ironbark Forest. Previous management had been inconsistent and at times damaging. Weeds were well established when the project began in 2000. Ehrharta covered most of the site and tradescantia, morning glory, madeira vine, fishbone fern, agapanthus were also extensive.

Secure, consistent funding and well directed bush regeneration turned the situation around. Beginning in 2000, a few years of intense work had the weeds under control, and maintenance requirements were decreasing. In 2005 I predicted 20 hours of skilled bush regeneration each quarter would be necessary to maintain the quality of the bushland.

This was double what reserve manager Ku-ring-gai Council was estimated to have been investing in the previous mowing and spraying maintenance approach. We felt, however, that even if costs are higher, the bush regeneration approach represents a better long term investment as it actually achieves substantial regeneration of a natural asset.

Paddy Pallin Reserve in 2004. After the first four years of consistent bush regeneration the diverse grassy understorey, typical of Sydney Turpentine Ironbark Forest, is almost weed free.

New figures

We have now updated the figures to include the hours for the last 4 years, and found that the reduction in required maintenance has been sharper than predicted. It would seem that my prediction of 20 hours of skilled bush regeneration each quarter being necessary to maintain the quality of the bushland, was more than has been found to be necessary. The actual figure as determined over the past four years is close to 9 hours each quarter. As estimated in the original note, this is the same amount of time for the Council employees' previous quarterly involvement in working in that bushland area. Thus the original case of bush regeneration being a superior long-term investment for the maintenance of urban bushland has, in this situation, been verified.

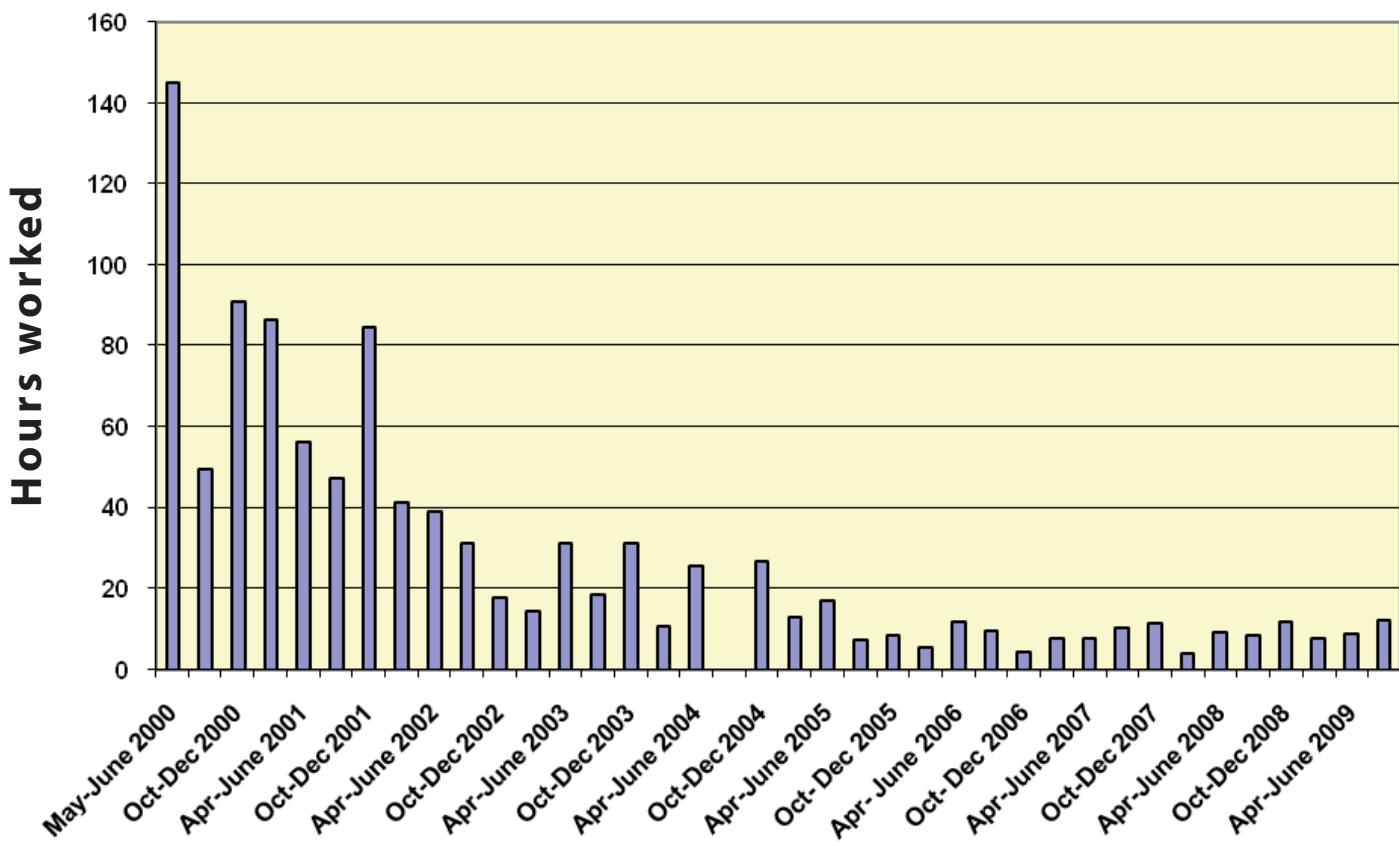
Paddy Pallin Reserve bushland area has continued to receive bush regeneration by the same contractors mentioned in the early EMR article (the Lane Cove Bush Regenerators Cooperative Ltd). Due to receiving regular bush regeneration maintenance and the current good season, the reserve is, at this time, in excellent condition. Maintenance efforts are scheduled for about 9 visits each year with decisions as to timing being affected by consideration of the weather and seasonal variations

A major factor in the good results achieved in Paddy Pallin Reserve is the respect and trust between the contractor and the corporate sponsor funding the work (Paddy Pallin Pty Ltd, whose founder was commemorated when the reserve was dedicated in 1985, now the Paddy Pallin Foundation). Work has been done at appropriate times when natural events or changing seasons have given rise to the need to deal with particular problems.

The updated results show that, after the restoration phase, bush regen-type maintenance dropped to a level that is equal to the 'maintenance' that council carried out prior to restoration. (i.e. that was the main factor degrading the site in the first place: council's mowing, whipper snipping and spraying of edges etc.)

This adds further weight to the idea that, if you retain the bushland and maintain it as a bush regen site, you may well avoid the need for a more costly restoration phase. Even more importantly, however, it provides some strong figures to counter the argument that traditional park maintenance is necessary because Councils don't have the funds to maintain bushland to a high standard.

I am grateful for access to the good record keeping of Fay Fennell, the supervisor who has overseen the bush regeneration being done in Paddy Pallin Reserve and the bushland south of Highfield Road.



Paddy Pallin Reserve, Lindfield

From the Paddy Pallin Foundation Website

Paddy Pallin Reserve was named after Paddy Pallin by the then Mayor Ron Yeates, a keen bushwalker. Paddy Pallin Reserve was previously partly a drainage easement and partly land owned by Lindfield Laundry and was opened on 27th July 1985. The upper part of the Reserve is a formal park with barbecue facilities and a children's play area and open grass. The majority of the Reserve was weed infested bushland.

This small reserve in the catchment of Little Blue Gum Creek, had a volunteer bush regeneration group start in the 1990s. This group is still going and is doing an excellent job on a part of the reserve near Polding Road.

In April 2000 it was decided that to regenerate the whole reserve would need a professional team. The Paddy Pallin Foundation employed the Lane Cove Bush Regenerators Cooperative Ltd to carry out this work. This work is continuing.

The reserve is responding to this long term project and a large part of the reserve is now nearly weed free. Ku-ring-gai Council has contributed by paying for the removal of some large camphor laurels and other large exotic trees. The Council has also in July 2009 upgraded the track through the lower part of the reserve.

The importance of this project is that there has been consistent funding and a consistent approach to the bush regeneration by using the same contractor.

Consistent funding has been possible because of the commitment of the Paddy Pallin Foundation to this project and to Ku-ring-gai Council supporting the funding to be made direct to the contractor and not having to go through the bureaucracy and the associated delays.

www.paddypallinfoundation.org.au/index.php/current/paddypallinreserve

Secure, ongoing funding for bush regeneration

From Fay Fennell of the Lane Cove Bush Regeneration Co-op

The success of Paddy Pallin Reserve is almost entirely due to secure, ongoing funding. It was only when the Paddy Pallin Foundation stepped in and provided ongoing funding that real progress was made on both north Paddy Pallin Reserve and lower Paddy Pallin Reserve. The previous long delay between contracts was counter productive often resulting in a waste of time and money.

The long association between LCBRC and the Pallins has provided a trusting work association. Their interest and appreciation of the work we do has contributed to the work satisfaction of the team members (one of which is one of the originals and the previous supervisor) and promotes a genuine interest and connection to the site. It is more than a job.

A well thought out work plan, a great team, regular monthly visits, diligent follow up weeding, progressive primary work and the natural resilience of the Reserve did the rest.

What's happening

20-21 October 2009

2009 Environment Institute of Australia & New Zealand Conference

Policy to Practice: Achieving Better Environmental Outcomes

For environmental professionals interested in policy development and implementing policy to achieve better environment outcomes.

An opportunity to discuss which policies work and why. A broad range of issues from soil conservation, environmental impact assessment and endangered species protection through contemporary policy issues such as water security, climate change risk assessment and carbon pollution reduction.

EIANZ is the peak professional body for environmental practitioners in Australasia, and promotes independent and interdisciplinary discourse on environmental issues.

Where Hotel Realm, Canberra

www.conlog.com.au

02 6281 6624 eianz@conlog.com.au

September 26-30 2010

17th Australasian Weeds Conference

New Frontiers in New Zealand

Where Christchurch, New Zealand

Organiser The New Zealand Plant Protection Society Inc.

and The Council of Australasian Weed Societies Inc.
www.17awc.org

EMR journal celebrates its tenth anniversary with a bumper, free on-line issue

Since the Ecological Management & Restoration (EMR) journal started 10 years ago, it has been an ambition of journal board to bring a selection of the most outstanding, already-published, practitioner feature articles together in one issue. This was finally achieved in August with the release of a freely available 'virtual issue' containing not only 13 outstanding on-ground restoration case studies but an additional 13 highly relevant articles by researchers working on management

The issue starts with a new article, written by the journal Chair Jann Williams and myself, titled 'A perspective on the evolving science and practice of ecological restoration in Australia. This is followed by the 13 outstanding practitioner features from a wide range of industry sectors and geographic areas throughout Australia. The very interesting and relevant research-based articles conclude the issue.

Anyone can access this virtual issue at no cost (no strings attached) by simply going to the journal website and clicking on 'virtual issues' (www.wiley.com/bw/journal.asp?ref=1442-7001&site=1).

Subscribers can access all previously published articles including quite a few outstanding reports on bush regeneration projects. Members of AABR can subscribe at the discount price of \$60 + gst (instead of \$79 + gst) through the journal website.

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AABR News is the newsletter of the Australian Association of Bush Regenerators (NSW) AABR Inc. AABR NSW was established in 1986 out of concern for the continuing survival and integrity of bushland and its dependent fauna in or near bushland areas, and seeks new members and friends for promoting good work practices in natural areas. The Association's aim is to foster and encourage sound ecological practices of bushland management by qualified people.

AABR NSW has regional committees in northeast NSW/Southeast Queensland and the Hunter, and a sister organisation in Western Australia: AABR WA.

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To keep in touch and be notified about events, subscribe to Bush Regeneration or Bushcare list servers and check out Solutions, the Bush Regeneration Bulletin Board—see website for detail.

AABR Newsletter Subscription	(all interested people)	\$20.00 p.a
AABR Membership	(appropriately qualified & experienced bush regenerators)	\$25.00 p.a
AABR Contractors & Consultants List	(appropriately qualified & experienced bush regenerators)	\$25.00 p.a

Newsletter contributions and comments are welcome

Contact Virginia Bear newsletter@aabr.org.au 0408 468 442

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