



Australian Association of Bush Regenerators

Regenerating

Endangered Ecological Communities

Blue Gum High Forest

Tues April 12 from 1-4pm

A tour of Dalrymple Hay Nature Reserve, St Ives, Sydney. Meet at the Vista St entrance (off Rosedale Rd.)

Roger Lembit will be speaking on veg and Nancy Pallin on fauna habitat.

We hope to have industry representatives and volunteers to share their experiences.

We are also hoping to visit Brown's Forest which is adjacent and Blackbutt Park which is a short drive away.

RSVP: aabr@zip.com.au or 0407 002 921

*Site visits with expert ecologists and bush regenerators
Practical Advice
Best Practice Examples*



Grasses and Sedges Workshop

Sat 12 and Sunday 22 May

AABR is hosting a workshop on the identification of the sedges and rushes of the Sydney region lead by Van Klaphake.

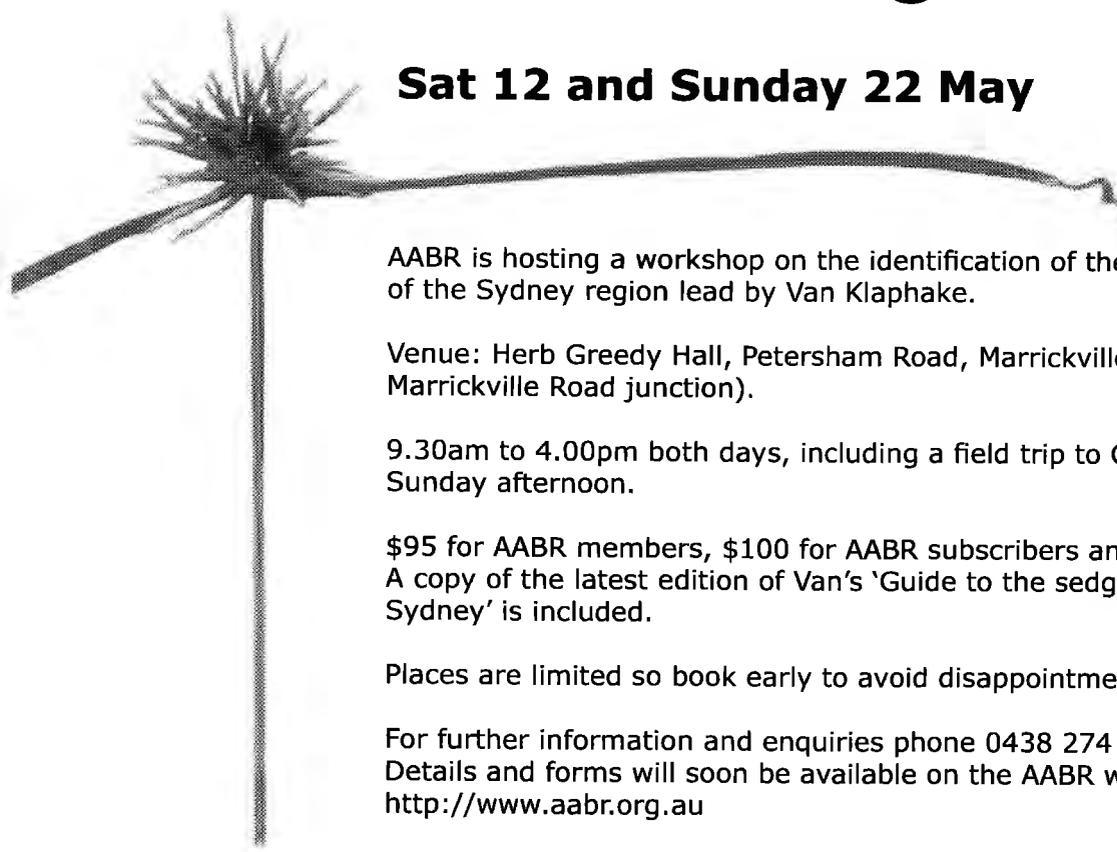
Venue: Herb Greedy Hall, Petersham Road, Marrickville (close to the Marrickville Road junction).

9.30am to 4.00pm both days, including a field trip to Centennial Park on Sunday afternoon.

\$95 for AABR members, \$100 for AABR subscribers and \$105 for others. A copy of the latest edition of Van's 'Guide to the sedges and rushes of Sydney' is included.

Places are limited so book early to avoid disappointment!

For further information and enquiries phone 0438 274 749. Details and forms will soon be available on the AABR website <http://www.aabr.org.au>



President's Perspective

G'day all,

The big picture:

In order to effectively facilitate changes in the Bush Regeneration industry it is crucial that AABR gets feedback and support from its members and subscribers. At present all the AABR committee members donate their free time and energy into the betterment of the industry. I would like to say a huge thank you to them all, as they are the backbone of AABR.

Over the next two months I intend to research similar associations and gain insight into ways in which AABR can develop in the future. If you have any ideas or information that you feel will help the industry in any way, please don't hesitate to let me know. In August 2000 AABR conducted a workshop on the issues facing Bush Regeneration, many if not all of the issues raised are still relevant today. The important thing is that we need your help to actively find solutions and ways to improve the industry.

So if you've been thinking what can AABR do for me, perhaps its time to take a different perspective and ask what can I do for AABR and how can I help the Bush Regeneration industry grow. What comes around goes around... Just imagine great working conditions, opportunities for career progression and a whole swag of good things.

Recently I have joined the Urban Bushland/Remnant Vegetation Committee as AABR representative. This new committee brings together a range of different

stakeholders including representatives from the Nature Conservation Council, Sydney Metropolitan Catchment Management Authority, Sydney Regional Organisation of Councils, Australian Defence Industry Resident Action Group and other affiliated organizations. The committee is a great vehicle for instigating positive actions towards the protection of biodiversity throughout Sydney.

Other news:

The official launch of the VCN manual recently occurred, go to www.aabr.org.au/vcn for more information.

The AABR website www.aabr.org.au has had minor changes over the last couple of months, check it out and let us know if there is anything that could be added. If your interested in either finding work or listing a job go to www.aabr.org.au/bushjobs. In the Bush Telegraph section you can subscribe to various list servers also.

On a more personal note, along with a group of contractors at a recent site meeting, I was lucky enough to witness a Red bellied black snake regurgitate a brown snake over half its size (though wasn't game enough to positively identify it) Keep your eyes peeled while your out in the bush, there is always a surprise awaiting.

Have a great couple of months... **Tim Baker**
president@aabr.org.au

Credit Where Credit is Due.....

We wish to thank **Bob Makenson** personally for his role in organising our seminars with the Australian Network for Plant Conservation and the Centre for Plant Conservation of the Botanic Gardens Trust.

Maureen O'Brien stepped down from the committee at the last AGM. Maureen deserves special thanks for her contributions to AABR over many years.

Since July 2004, the following welcomed the following **new members**: Jocelyn Chenu, Lachlan Garland, Jenny Virgona, Tim Baker, Phil Hosking, Brenda Borroman, Rae Broadfoot, Maralyn Lawson, Nerida Gill, Donovan Adcock, Matthew Atkins, Brent Hely, Carl Fulton, and Dan Lemke.

Korinderie Ridge article, Dec 2004. We neglected to credit the author David Megitt. We really appreciate it when people make the effort to write-up bush regeneration events, so thanks very much to David.

“Urban biodiversity or weed free wastelands: what are we working towards?”

From a workshop held in Sydney in November 2004 at the Hands on Environmental Forum, prepared by facilitator, Frank Gasparre

What are our long term goals for urban bushland?

An interactive discussion on current approaches and future directions”

Overview

This session was based on three case studies highlighting aspects of the industry that are important for the future of urban bushland management. The case studies highlight some key points that need to be considered in determining long term goals for urban bushland.

The presentations were not scientifically referenced academic research, but outlined the experiences of the presenters through reference to case studies.

Particular discussion points for the session were:

- *Processes that help to determine suitable long term goals*
- *Lessons learned – both positive and negative*
- *Success stories and what made them a success story*

Heather Stolle, Bushcare Officer with Hurstville Council provided a presentation on Evatt Park, Lugarno titled ‘Weeding natives and scratching around to maintain Biodiversity’ which described managing changes to the composition of native species in a small urban bushland remnant, as well as dealing with the issue of weed control and other human impacts.

Nick Gooden from the Toolijooa bush regeneration company followed with a presentation on issues relating to the contracting arm of the bushland management industry. This is the source of much of the professional labour used in bushland management and is therefore an increasingly important part of the future of our bushland.

Rachel Yeomans, from Mosman Council wound up the speakers with a presentation on “Kunzea Carnage” in the quiet suburbs of Mosman, which also dealt with managing succession in isolated fragments of Coastal Heathland at Bradley Reserve, Mosman. This case study outlined an aggressive approach to the restoration of fragments of coastal heath and woodland communities through the clearing of senescing Kunzea with chainsaws, combined with a carefully thought out pile burning and maintenance strategy.

As an introduction to the discussion, the challenge of establishing suitable long term goals was put into perspective with an example of regional forest plans in

Northern NSW that work on 80 – 100 year hardwood plantation cycles. Forestry in Australia is not without its important issues of debate, but the question was posed, how many urban bushland managers are planning for the state of their bushland in 100 years?

Both Evatt Park, and Bradley Reserve are experiencing significant changes to the native vegetation present, both in species composition and community structure. These two case studies highlight one of the greatest challenges in establishing long term goals for urban bushland, managing the inherently dynamic changes within natural systems, whilst also managing the many human impacts conflicting with natural processes.

Each bushland area is the product of a blend of influences, the relatively static factors such as topography, soils and geology, interact with more changeable influences such as rainfall and temperature patterns, disturbance such as fire and erosion, and human impacts.

The process of change in community structure and form and species content over time is known as succession, and is a key part of the natural cycle of things. The challenge of managing succession means that although we often want our bush to stay the same forever, the natural environment is dynamic and changing and doesn’t allow this luxury. Add to this the many influences of urban development, and how we manage change to achieve our long term goals becomes one of the key challenges for natural area managers.

Both case studies highlight a range of site changes from the “natural” state of these bushland areas. The impacts of changes to natural processes on urban bushland are well documented. In small fragmented areas of urban bushland the most common changes are:

- changes to natural fire regimes,
- increases in moisture and soil nutrient status,
- the introduction of weed propagules and weed competition
- erosion of drainage lines
- sedimentation of waterways
- pollution
- rubbish dumping
- infrastructure
- and many others

Add to these changes the small, isolated and fragmented nature of many urban bushland reserves, as well as the influence of issues such as long term climate change, and deciding on appropriate long term goals for bushland can become a complex task

One of the key issues at Evatt Park Lugarno is the

encroachment of mesic vines such as *Cissus antarctica*, *Cissus hypoglauca* and *Morinda jasminoides* into what was formerly Open Forest and Open Woodland communities. The change to a plant community typical of more moist conditions is commonly known as a "mesic shift".

The key factors influencing this are changes to fire regimes, and increased soil moisture and nutrient status. To illustrate the extent of change, Heather showed several photos of vine encroachment, including a photo of the last remaining *Banksia serrata* seedling in the reserve, surrounded by encroaching native mesic vines.

In some situations, regenerators would be ecstatic to find such vigorous growth of locally indigenous native species in a fairly disturbed site.

However at Evatt Park, the long term objective for the site is to try and retain local representation of the open forest and woodland communities. The reasons for establishing this long term objective are to:

- Maintain adequate representation of community types that are poorly represented locally
- Take into account the goals of local volunteers and the community
- Maintain habitat for local fauna

Therefore the extensive expansion of the locally indigenous native vines is working against the long term goal for the site. Heather described several methods that have been employed to try and control the expansion of these mesic native species including:

- 'Herbicide spraying of encroaching native vines to control their spread
- Attempts at soil disturbance such as scratching the ground surface with rakes
- Broad area burns - which in this instance did not have great success. (*Factors contributing to this lack of success will be discussed later in the paper*).

Heather concluded her talk with the point that "for all its impacts and problems, Evatt Park is still a very diverse patch of bushland and I would like to keep it that way". The implicit long term goal in this statement is that the maintenance of biodiversity is the key long term objective. The hard part of achieving this goal at this site is determining what biodiversity means in the context of this site. To achieve the long term goals of maintaining open forest and woodland communities will require active intervention to prevent the shift to completely mesic communities. Finding ways to maintain "natural" disturbance patterns is critical of achieving this long term goal in Evatt Park.

A detailed outline of Rachel Yeomans's presentation follows, however, the key points are about managing successional change where "natural" succession is unable to occur. In this instance, the key threat to maintenance of biodiversity was the lack of an appropriate fire regime, combined with the effects of fragmentation and other human impacts outlined previously.

A long term goal of maintaining the case study areas

in Mosman is the retention of a coastal woodland / heathland community association.

After researching the life cycles of key plants and community needs within the subject areas, and carrying out a small scale trial broad area burn, it was determined that the key requirements of the "natural" fire regime could be mimicked using a pile burning strategy. The use of pile burns to stimulate natural germination of soil borne seedbanks is now a fairly commonly used and successful strategy in bushland regeneration. Where the strategy differed in this case study is in the decision to chainsaw senescing *Kunzea ambigua* (Tick Bush). The benefits of this were increased ground fuel loads and less light competition for germinating seedlings. This approach better mimicked the sort of fire that would occur in a less disturbed example of this type of community.

A word of caution before you hit your local bushland with your chainsaw, this approach is not as simple as it sounds and needs a great deal of careful thought. In this instance the likely response to this strategy was well researched and then pilot tested before it was applied to large areas. An illustration of how important this can be is an understanding of the response of the species *Banksia ericifolia*. This species is an obligate seeder, which means that an adult individual is killed by a hot fire. The seeds of a live *Banksia* are protected by large woody follicles and open following drying out by the heat of a fire as it passes. The papery seed then falls to the ground long after the fire front is passed, and is very likely to germinate in the ash bed. The research showed that chainsawing this species would lead to the woody capsule opening and the seed being destroyed in the pile burn, leading to the local loss of this species.

The lessons from these two case studies can be summed up as:

- have a clear long term goal in mind before you implement an action as part of your management strategies
- base your long term goal on good science and a thorough research effort
- keep the local community informed and involved in the strategies, and in developing long term goals
- make sure that your long term goal is an achievable one
- do your research to guide your management strategies
- think through all of the implications of the management strategy that you propose
- identify the likely outcomes for a range of species, and the community as a whole, not just your favourite or the most obvious species
- pilot test your strategy before applying it on a broadscale basis

A member of the audience suggested that in the instance of the failed broad area burn at Evatt Park, Lugarno, a more aggressive approach to clearing the mesic vines prior to the burn would have allowed the site to dry out more, resulting in a more successful broad area burn. This method has been used a number of times in the Ku-ring-gai area with good success. The discussion highlighted the need when using fire

as a management tool to recognise that in many situations potentially successful burning strategies have been wasted due to a lack of a clear goal, poor communication, poor maintenance and weed control, and lack of information for the local community.

A key discussion point in the workshop was the need with any management approach involving fire to:

- have a clearly defined goal
- prepare - including pre fire weeding
- carry out the burn when conditions are right to achieve the desired goal - not when its convenient only
- maintain
- maintain and
- maintain

Contracting

The labour to do much of the work in urban bushland comes from the bush regeneration contracting industry. This industry has expanded rapidly in the last decade, as have the quality and skills of the professionals working in the industry.

Key issues presented to the forum in relation to the contracting industry are highlighted below. Discussion points in the workshop regarding each issue follow.

- Short Term nature of contracts

The short term budget cycles of many tendering bodies often mean that there are large gaps in site work. This can lead to critical delays in the timing of works -eg seed set of key weed species, maintenance around plantings etc. Many local councils are not able to advertise for tenders until July 1 each year (the beginning of the financial year), which means that contracts are often not let until several months later. This is often at a critical time in staging works for regeneration.

Council representatives at the workshop said that this issue is often beyond their control and is a part of the industry that is slowly being addressed, however it remains a key problem in ensuring effective bushland management through the use of contractors.

The workshop identified a need for longer term contracts as a means of avoiding problems of discontinuous maintenance work due to delays between contracts.

Another related problem is the funding cycles for grant projects. Contractors are often a key part of implementing environmental grant programs. Delays in the determination of funding and the short time frames sometimes imposed for completion of work do not work well with the natural cycles required for successful urban bushland management.

Grant funding bodies are attempting to address this, however it remains a significant problem that needs to be addressed.

- High turn over of staff

The lack of long term funding commitments to urban bushland management projects has another negative side effect, with the cyclic nature of available work leading to poor continuity of employment, meaning many people do not stay in the industry, or are frustrated by a lack of certainty.

This leads to high staff turnover, a lack of continuity of skills, and a lack of historical appreciation for individual site characteristics.

- Lack of knowledge sharing due to contractors competing for work

The industry currently has a limited exchange of information on key issues such as herbicide success rates, plant responses, new techniques etc due to the competitive nature of the contracting market. AABR currently make a valuable contribution to this area, however the workshop participants felt that there was a need for more work in this area.

- Difficulty measuring progress and success of work carried out.

Performance measures for urban bushland management projects have improved significantly in recent years with much more clearly detailed contracts and reporting requirements. However, there are still significant limitations in measuring performance, eg measures for achieving biodiversity outcomes are limited and need improving.

- Science vs. Observation strategies - eg *Pittosporum undulatum*

There is significant inconsistency in the application of scientific research into contracts. An example highlighted was the issue of *Pittosporum undulatum* where in some areas it is being eradicated and in others completely left.

The workshop linked this issue to that of better exchange of technical information across the industry to achieve more consistent approaches to key urban bushland management issues.

Wrap Up

The approach to urban bushland management has come along way in the last decade with new and innovative approaches bringing positive results and a much greater recognition of the need to manage our natural areas in the long term.

The workshop highlighted the importance of remembering why you are doing what your doing, and where you want to be at the end of the process. Even a project of the shortest duration needs to keep in mind what the impacts will be 5 years, 10 years, 20 years and more ahead in time.

A clear well thought out long term goal is an essential part of getting it right.

Chrysophyllum oliviforme, Satinleaf ... a new Australian weed?

Chrysophyllum oliviforme (Satinleaf) showing white flower buds and copper-coloured lower leaf surface. (Photo: E. Birmingham)

Serpentine Park in East Ballina, on the far north coast of New South Wales (NSW), has an amenity planting of Australian native and non-native trees. Until recently, the identification of one specimen in this planting has been in question. The Queensland Herbarium has now positively identified this species as the *Chrysophyllum oliviforme* (Satinleaf, or Wild Star Apple) native to tropical America (Guymer, G.P., pers.comm., October 2004).

This specimen of *Chrysophyllum oliviforme* was previously identified by a botanist as *Niemeyera antiloga* (syn. *Amorphospermum antilogum*, syn. *Chrysophyllum antilogum*) (Brown Pearwood), an Australian native rainforest tree with a distribution from Tweed River, NSW to Olive River, in northern Queensland (QLD) (Lymburner, S., pers.comm., 2004). This species has also been incorrectly identified as *Niemeyera chartacea* (syn. *Planchonella chartacea*) (*Thin-leaved Coonoo*), native to Australia and *Chrysophyllum cainito* (Star Apple), native to tropical America.



Chrysophyllum oliviforme is a member of the Sapotaceae family and is native to South Florida in the USA (where it is listed as endangered), Cuba, Jamaica, Puerto Rico, the Bahamas and a number of Caribbean islands. It is related to other members of the Sapotaceae family endemic to Australian rainforests and was previously classified under the genus *Chrysophyllum*, which could explain the previous confusion in its identification.

Chrysophyllum oliviforme grows to a height of 10m with a spread of 4m. Young twigs, lower leaf surface and flower buds are densely golden-brown or rusty-brown with silky sericeous pubescence. Leaves are alternate, simple and entire, elliptic in shape and pinnate. The apex of lamina is abruptly short acuminate. The flowers are white, 5-merous, in axillary fascicles occurring in late summer to autumn in Australia. The fruit are a fleshy, purplish-black drupe approximately 2-2.5 x 1cm, ellipsoid (olive-shaped) containing a single brown seed that is pointed at each end. The fruit are edible and eaten fresh, ripening from

December to January on the far north coast of NSW.

This species is related to *Chrysophyllum cainito* (Star Apple), which is also a native to tropical America and is grown commercially for its fruit in the tropical north of Australia. *Chrysophyllum oliviforme* is the hardier of the two species and will survive brief frosts. It is generally grown as an ornamental for its attractive, golden-coloured, lower leaves. Timber is used for construction and furniture in the northern hemisphere.

The habitat of *Chrysophyllum oliviforme* is low elevation moist forests. Wild specimens have been found growing in different remnant forest types in East Ballina, NSW. Mercer Park is a small, though valuable, littoral rainforest remnant in urban East Ballina that is currently being regenerated by Australian Association of Bush Regeneration (AABR) members. Mercer Park is located approximately 200 metres from the parent tree in Serpentine Park. Wild seedlings of *Chrysophyllum oliviforme* growing in nutrient enriched sand in Mercer Park have

now been correctly identified. Incorrect reference is made to these seedlings in the management plan for Mercer Park as a "somewhat unusual" occurrence of *Amorphospermum antilogum* (Lymburner, S., July, 2003).

Progeny of *Chrysophyllum oliviforme* have also been identified growing in nutrient enriched sand on the margin of a *Melaleuca quinquinervia* (Broad-leaved Paperbark) swamp-forest, located approximately 1 kilometre from the parent tree.

Seed germination trials of this species prove that seed germinates readily and has a high viability. Seed is distributed by frugivorous birds such as the *Specotheres viridis* (Figbird), observed eating fruit from the parent tree at East Ballina in December 2004. It would appear that seed from the parent tree has been dispersed over East Ballina, as no other specimens have been observed in this area. This species is not yet commonly planted as an ornamental on the far north coast of NSW, nor is it widely sold by local nurseries (Dott, Chester, pers. comm., 2004). However, it has been observed in amenity plantings in far north QLD and may have been planted further afield.

Further research reveals that this plant is listed as an invasive species in the Pacific region by the Pacific Island Ecosystems at Risk Project. It is also identified as one of the alien plant species that are among the greatest threats to native Hawaiian biota. Low-elevation moist forests are considered to be the ecosystems at greatest risk. On Kauai, Hawaii, the species has naturalised in secondary forest, secondary thicket and among *Eucalyptus* forestry plantings (Lorence *et al.*, 1995).

In conclusion, it is possible that this species could potentially naturalise in our ecosystems. *Chrysophyllum oliviforme* is an attractive ornamental with beautiful foliage and edible fruit. Mature specimens are already growing in amenity plantings in both NSW and QLD. Confusion in identity of the species, or recognition of its ornamental qualities may lead to further plant distribution. Seed appears to be readily dispersed by avifauna and will germinate in different forest types.

Although *Chrysophyllum oliviforme* appears to be relatively unknown in Australia and is not yet on the national list of naturalised invasive and potentially invasive garden plants, it is listed as an invasive species overseas. This is a species to be identified and monitored by Australian bush regenerators. It is important to assess whether this weed has become

a minor or major problem and in how many locations it has naturalised within Australia. Further research in order to assess the status of this naturalised non-native species in natural ecosystems may be of future significance.

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Important Groups of Wildlife Habitat Plants

Most Australian plants provide valuable resources for wildlife. The best habitat plants provide some food, shelter and nest sites for a range of nectar, fruit, seed, leaf and insect (and other prey) eating animals such as birds, mammals, lizards, frogs and insects and other invertebrates.

The top habitat plant groups which provide many resources for a wide range of Australian animals are ***Eucalyptus*, *Angophora*, *Melaleuca*, *Acacia*, *Banksia*, *Leptospermum* and *Kunzea***.

Shelter plants – many *Acacia* (wattles), *Leptospermum* (tea-trees), *Melaleuca* (paperbarks), *Bursaria* (blackthorn), *Hakea*, *Ceratopetalum* (Christmas bush), *Kunzea*, *Clematis*, *Pandorea* (wonga-wonga vine), *Rubus* (native raspberry) and any dense and/ or spikey planting.

Insect-pollinated plants - *Acacia* (wattles), native peas (eg. *Dillwynia*, *Hardenbergia*, *Kennedia*), *Leptospermum* (tea-trees), native daisies (eg. *Olearia*) as well as *Hibbertia*, *Clematis*, *Pomaderris*.

Nectar plants - *Banksia*, *Grevillea*, *Hakea*, *Correa*, *Lambertia* (mountain devil), *Callistemon* (bottlebrush), *Eucalyptus*, *Angophora*, *Melaleuca*, *Xanthorrhoea*

(grasstrees) and others with big, showy flowerheads, *Epacris*.

Seed plants – *Eucalyptus*, *Angophora*, *Acacia* (wattles), *Casuarina* and *Allocasuarina* (she-oaks), *Glochidion* (cheese tree), *Lomandra*, native grasses (eg. *Themeda*, *Danthonia*), rushes (*Juncus*) and sedges (*Gahnia*).

Fruit plants - *Acmena*, *Syzygium* (lillypillys), *Ficus* (figs), *Alphitonia*, *Trema*, *Cissus* (native grape), *Persoonia* (geebungs), *Dianella* (native lily), *Breynia*, *Stephania*, saltbushes and many rainforest or wet forest species.

Native bee plants – *Persoonia* (geebungs), native peas (eg. *Hovea*, *Pultenaea*), native daisies (eg. *Helichrysum*), heath plants (eg. *Epacris*, *Leucopogon*), *Goodenia*, *Tristaniopsis* (water gum), *Leptospermum*.

Native butterfly plants – native peas, native daisies, native grasses (eg. *Poa*), sedges and rushes (eg. *Carex*, *Juncus*), *Lomandra*, *Dianella*, *Bursaria* (blackthorn), *Macrozamia* (burrawang), *Dodonaea*, *Zieria*, *Correa*, *Indigofera*, *Cupaniopsis* (tuckeroo), *Melaleuca* and mistletoes.

Danie Ondinea 2002

More Bush Renen Holidays

Fraser Island 17 – 28 October 2005

Regenerators can now take their skills to help regeneration work on Fraser Island by joining a group of environmentalists to help eradicate weeds in Eurong, Fraser Island. The work is being carried out under the umbrella of FIDO (Fraser Island Defenders Organisation). Weeds include grasses, eastern cassia, lantana, Asparagus ferns, Umbrella trees and a number of succulents, including sisal and mother-in-laws tongues.

Accommodation will be in 2 houses next to the beach with all meals provided – weeding will start early in the morning with afternoons free. Enjoy a trip to the famous Lakes and other places on the island.

John Sinclair of Fraser Island Defenders Organisation is scheduled to speak to the group in Sydney late September to brief everyone and present the group with maps and information about the "Top 45" pests on Fraser, most of which are weeds.

Cost starts from \$30/day for 12 days commitments and \$35/day for 6 days. Numbers are limited: 12 – 15 places only. Preference will be given to 12-day stays and trained volunteers.

Call Mary 02 9909 0438 or email mtang@zip.com.au for further information.

Lord Howe Island Weeding Ecotours

Out of these ecotours a Friends of Lord Howe Island group has been formed, with 300 members who help raise funds and get involved in projects to assist the LHI Board in conservation on the island. The Friends of LHI have 22 weeding kits on the island for volunteers, and provide bush regeneration supervisors for training and supervision of each group.

Since 1995, there have been 30 weeding weeks, 410 persons have been involved and 10,169 hours has been put into the LHI environment by volunteers. A quarterly FLHI newsletter keeps members informed of conservation and research activities on the island and helps spread the conservation message.

Dates have been set for 2005 Lord Howe Island weeding ecotours. These tours involve spending a week on Lord Howe Island, assisting the LHI Board with control of noxious weeds, primarily Ground asparagus *Asparagus aethiopicus*.



Cost for the trips in 2005 is \$1683.95. This includes airfare, accommodation and all meals at Pinetrees, all walks and talks, and lots of fun.

Dates for 2005 are June 11 to 18, June 25 to July 2, July 9 to 16, July 23 to 30, August 6 to 13, August 28 to Sept 4. Contact Ian Hutton on 02 6563 2447 or email lhitours@bigpond.com or post to PO Box 157 Lord Howe Island NSW 2898.

Photos from recent trips, by Ian Hutton

Frog Fungus Wrongly Accused?

A fungus believed to have caused a worldwide decline in frogs may not be as deadly as thought, say Australian researchers, and may not even have killed off frogs at all.

PhD student Richard Retallick from James Cook University <<http://www.jcu.edu.au/>> in Townsville and team publish their research in the Public Library of Science journal PLoS Biology <<http://www.plosbiology.org/plosone/?request=index-html>>.

The amphibian chytrid fungus *Batrachochytrium dendrobatidis* was blamed for the decimation and extinctions of frog species around the world in the late 1990s. But now Retallick and team have shown that at least some frog species have happily lived with the fungus for years. The researchers studied a frog population, in an east-central Queensland national park, which suffered particularly catastrophic losses in the late 1990s, with one species, the Eungella Gastric-Brooding Frog, becoming extinct. They studied samples (preserved toe clippings) taken from frogs which had been captured and then re-released to park between 1994 and 1998, before the fungus was identified as a problem.

Samples from the six species of frogs were found to have the fungus. Even more surprising was that subsequent recapture showed that some frogs with the fungus had survived. The researchers found that on average 15% of the frogs that they examined had the fungus, a higher percentage in summer. Researcher Associate Professor Hamish McCallum from the University of Queensland <<http://www.uq.edu.au/>>, said the team had not expected to find chytrid fungus in the toe clippings, nor to find it existing in frogs today. "I was surprised to find the disease was still there at substantial levels of prevalence," said McCallum. "What was more surprising was that this didn't seem to affect survival rate."

Two theories. McCallum said there were now two theories on the table about the role of the fungus in the decline of frogs. One theory is that the fungus never caused the decline in the first place. "When they declined, the frogs simply disappeared. One day they were there, the next time we looked for them they were gone," he said. "There was never any smoking gun that proved it was the fungus." "If it wasn't [the fungus], then we still don't know what killed them." He said a second hypothesis was that less deadly strains of the fungus had evolved and the frogs had developed immunity to the disease. McCallum said it could be similar to the case of the lessening effectiveness of myxomatosis virus introduced to eradicate rabbits in Australia. Over time, the rabbits evolved resistance to the virus and the virus itself became less virulent. "Animals evolve resistance to lethal pathogens going through a population very rapidly," McCallum said. At the same time the pathogen evolves towards a lower virulence because it doesn't spread as effectively, he said.

After five years the virus strain that originally killed 99% of rabbits was only 77% effective, he said, although he added that the fungus would evolve much more slowly than a virus. McCallum said that it would be difficult to test which of the hypotheses were right, but if the evolution theory was true it could hold out help for endangered rare frog species. "If there are frog

species surviving with the fungus, we may be able to select these frogs and breed them to create a generation of frogs resistant to the fungus." He said it would also be interesting to do controlled infections in a non-endangered species using fungus from different sources to test the virulence of the disease.

In Australia, 27 species of frog are currently endangered or threatened and four have become extinct.

Heather Catchpole
from ABC Science Online 7 October 2004

New Weapon Against Plant Killer

A new weapon against a common plant killer is offering fresh hope to home gardeners and Australia's nursery industry.

Scientists from the Cooperative Research Centre for Tropical Plant Protection have developed a rapid identikit that will enable growers to detect and identify the common cause of root-rot, Phytophthora.

The deadly disease is estimated to cost 10 percent in lost revenue for the nursery industry each year and another \$300 million in losses across Australia's farming sector.

Environmentalists are also concerned by Phytophthora's attack on Australia's forests, with Jarrah dieback devastating forests in Western Australia and Tasmania.

Phytophthora represents a family of more than sixty plant pathogens that can be spread by water, soil and the plants themselves.

The new Phytophthora -IDENTIKIT- uses DNA technology to detect Phytophthora in soil, water or plant samples, and delivers an identification within a day, compared to a week or more using traditional laboratory methods.

According to Dr Andre Drenth, from the Cooperative Research Centre for Tropical Plant Protection, Phytophthora cannot be eradicated, making management strategies of vital importance - a process that begins with detection.

"Detection and identification is essential. By the time Phytophthora is identified using traditional methods, the infection might have spread far and wide," Dr Drenth said.

"Phytophthora is very easily spread by the movement of water, by human activities, and by the movement of plants themselves.

"Sprinkler systems, irrigation and the use of dam water which catches run-off from infected areas are particularly liable to spread the organism."

For home gardeners, Phytophthora infection would likely be characterised by an area in the garden where only the toughest of plants can survive, and is almost certainly transferred from nursery-bought plants with the disease.

From Farm Weekly's FarmOnline e-bulletin
11 January 2005.

Native Veg Update Autumn 2005

An occasional email bulletin from the Native Vegetation R&D Program. For information on the Native Vegetation R&D Program visit www.lwa.gov.au/nativevegetation.

TO RECEIVE THIS UPDATE: Subscribe or unsubscribe by phoning Julie Hinchliffe on 07 3277 0961 or email juliehinchliffe@bigpond.com.

1. TREES SHOULD COVER OVER A THIRD Native vegetation may need to cover at least a third of rural landscapes if its fauna are to have a future. Based on extensive surveys carried out in northern Victoria, scientists Andrew Bennett and Jim Radford say an average of 30-35% native vegetation cover is likely to maintain resilient populations of most species of birds and mammals in the region. The team observed marked changes in the richness of woodland birds at around 10% tree cover, providing strong evidence for a threshold response in species richness. When the level of tree cover dropped below 10%, species richness was found to go into rapid decline. They point out that the threshold represents the stage at which the woodland bird community 'crashes'; the end-point of the extinction process for many species. Also, many species begin to decline at much higher levels of vegetation cover warranting management goals well above the 10% threshold value. This project is supported by the Native Vegetation R&D Program. **MORE INFORMATION:** For further information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

2. COMMON SPECIES FACE GENETIC THREATS Casting doubt on the way seed is often collected in Australia, new genetics research suggests common species suffer many of the same genetic and ecological problems that rare species do in fragmented landscapes. As part of a groundbreaking study supported by the Native Vegetation R&D Program, Andrew Young and team have discovered that genetic erosion, inbreeding and reproductive failure in small or isolated populations can all occur in common species. These changes limit the viability of many remnant populations and their value for in-situ conservation of biodiversity as well as reduce the utility of these populations as seed sources for revegetation (currently common practice). In light of these and other findings, the team is calling for a critical review of current seed sourcing practices and has begun workshopping the issues with practitioners. They suggest the way forward lies in explicitly recognising the trade off between local adaptation and seed quality in degraded landscapes. **MORE INFORMATION:** For further information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

3. CAN BATS HELP COTTON FARMERS? The fact that many bats include moths in their diets has prompted a new study into the possible links between insectivorous bats, irrigated cotton production

and native vegetation remnants. Of Australia's 90 bat species, 87 are small insectivorous bats (microbats). According to PhD Candidate Leah MacKinnon, microbats may be helping to reduce populations of the cotton pest moth *Helicoverpa spp.* As well as directly preying on the moths, the bats might cause interruptions to moth mating and egg-laying activities since moths can hear the bats' ultrasonic echolocation. With support from the Native Vegetation R&D Program, Leah is looking at microbat foraging and roosting activities across three irrigated cotton production properties. This work includes the assessment of remnants for tree hollows. Such hollows can take well over 100 years to develop. **MORE INFORMATION:** For further information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

4. BIG STUDY, BIG INSIGHTS Important new insights have emerged from a large-scale study of 180 sites on 46 farms and 23 landscapes in the New South Wales Riverina. For instance, native remnant vegetation varies in its suitability for different species – old growth woodland has a different faunal complement compared with coppice regrowth compared with natural regeneration. It also supports a significantly different faunal assemblage than replanted areas. Researchers have also identified major interaction effects between plantings and remnant vegetation – at the individual site level; at the farm level and the landscape level. How these manifest varies markedly for different species and between species groups. David Lindenmayer says the new findings have massive implications for farm planning, existing native vegetation management, the design and construction of new plantings, and the temporal patterns of recruitment of new plantings to farms and landscapes. This project is supported by the Native Vegetation R&D Program. **MORE INFORMATION:** For further information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

5. PADDOCK TREES WORTH SAVING A team of South Australian researchers has gathered compelling evidence for the value of paddocks trees to native birds. As part of extensive surveys carried out in the state's South East, Sandy Carruthers and colleagues detected 889 visible hollows in 279 trees. Vital for nesting, these hollows offer a resource otherwise limited in remnant vegetation. All up, two thirds of the bird species recorded in remnants were also recorded in paddock trees. The results suggest that paddock trees help to conserve bird species at the landscape level by providing additional feeding resources and reducing the effects of fragmentation. The study, which is supported by the Native Vegetation R&D Program, predicts that 87% of existing paddock trees in the region will be lost to dieback and authorised clearance over the next 200 years if current rates of loss continue. The team will use its findings to make recommendations to the Native Vegetation Council (NVC) of South Australia regarding paddock trees and clearance approvals. **MORE INFORMATION:** For further

information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

6. MODELS BRING SCHEMES TO LIFE Simple graphical models can effectively illustrate regional management proposals according to researchers studying biodiversity dynamics, habitat loss and disturbance in the New South Wales Wheatbelt. Taking proposals for vegetation offset schemes from policy discussion papers, the team constructed simple simulations of revegetation and set-aside schemes to show how the distribution and type of vegetation changes over several decades under each scheme. As well as exploring biodiversity consequences, the team has modelled simple economic constraints such as the price of offset sites linked to expected local returns from cereal cropping. When presented to policy, planning and departmental executive audiences, these scenario models proved engaging and accessible. Many people reported that it was the first time they had clearly appreciated some of the landscape-level consequences of proposed schemes. This project is supported by the Native Vegetation R&D Program. **MORE INFORMATION:** For further information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

7. NATURAL REGENERATION THE WAY TO GO Promoting natural regeneration may offer the key to increasing tree cover in the landscapes of central Victoria. According to researcher Jim Crosthwaite, this "significant opportunity" offers an alternative and cost-effective method of revegetation to tube-stock and direct seeding. In the state's grassy dry forests and grassy woodlands, eucalypt regeneration was observed in 27% of 519 farmland sites - occurring under intermittent grazing regimes as well as in ungrazed sites. Its likelihood was reduced by cultivation, regular livestock grazing, increasing distance to remnant trees and high cover of exotic annual vegetation. Scenario testing at three farms suggested that under current patterns of tree cover (2.7%), 40% of the total area has a high probability of supporting natural regeneration in the absence of livestock grazing. However, due to paddock tree decline, this could be reduced to 18% of total farm area if no management action is taken in the next 30 years. **MORE INFORMATION:** For further information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

8. FOCAL SPECIES PROVE A CHALLENGE

Identifying species most sensitive to threats ('focal species') is a tough call according to scientists looking at landscape design in cropping lands. As part of a large project funded by the Native Vegetation R&D Program, David Freudenberger and colleagues found that focal birds nominated in past studies were unlikely to be true focal species. Instead, 'rarer' bird species eliminated from past analyses for want of data typically needed larger areas of habitat than any bird previously identified. Furthermore, 'thresholds' derived from bird data were not able to meet the modelled habitat requirements of mammals and reptiles. Hopping mice, for instance, had a 10% chance of occurring in 320 hectares, and the lizard *Delma australis* the same chance in 140 ha (compared with the 40 hectares 10% probability threshold calculated from bird data). Among other things, the team suggests expanding information on other taxa (plants, mammals, reptiles and invertebrates) to complement existing bird data, paying attention to species less mobile than birds for which corridors may provide a vital role in persistence. **MORE INFORMATION:** For further information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

9. WILL REGROWTH SAVE THE DAY? A southern Queensland study has revealed moderate to severe levels of Poplar Box dieback at 95% of sites studied. Although worse in older trees, the phenomenon was observed across all tree age classes. When compared with a 1980's survey, the study area showed an increase in dieback - from patchy, light to moderate dieback in the 1980's to widespread moderate to severe dieback at present. According to the researchers, the capacity of these landscapes to absorb future shocks such as weed invasion, climate change, salinisation, woodland thickening, or thinning will more than likely come through the strategic retention and management of regrowth vegetation. They highlight the need to gain an understanding of the role of regrowth vegetation surrounding remnants, given current regulations neither protect it from clearing, impose minimum management standards, or recognise it in formal mapping. This project is supported by the Native Vegetation R&D Program. **MORE INFORMATION:** For further information on this and other native vegetation projects visit www.lwa.gov.au/nativevegetation.

New Book: Farmers share experiences in 'A Vision Splendid'

Published by Greening Australia, the inspiring new book **A Vision Splendid: Dreams, inspirations and experiences of farm forestry in Australian landscapes** presents the fascinating first-hand accounts of eight Australian farmers who are 'having a go' at something different. This unique compilation glimpses the journeys taken by these remarkable farmers and their families as they strive towards their own evolving visions of enjoyable, profitable, and environmentally sustainable farming and country living.

Cost: \$22. Available from Greening Australia by phoning 02 6281 8585, visiting www.greeningaustralia.org.au or emailing general@greeningaustralia.org.au. Production of this publication is supported by the Natural Heritage Trust.

Greening Australia

Events and Conferences

Date	Title / Details	Venue	Organiser	Contact
12/04/05 1-4 PM	Field Trip Blue Gum High Forest Dalrymple Hay Nature Reserve- meet at the Vista St entrance (off Rosedale Rd.) and Brown's Forest	Dalrymple Hay Nature Reserve- meet at the Vista St entrance (off Rosedale Rd.)	AABR	Bookings preferred aabr@zip.com.au or 0407 002 921
4/5/05 9.30am	DEC Science Seminar Series: Sydneys Future Urban Development	Level 15 Conference Room, Goulburn St Sydney	Department of Environment and Conservation	Maria Doherty 99955626 Maria.Doherty@environment.nsw.gov.au
5/06/05	World Environment Day This years theme is Green Cities: Plan for the Planet			
21/5/05- 22/5/05 9.30am to 4.00	Sedges and Rushes Workshop Identification of the sedges and rushes of the Sydney region lead by Van Klaphake.	Herb Greedy Hall, Petersham Road, Marrickville (close to the Marrickville Road junction).	AABR	For further information and enquiries phone 0438 274 749.
7/6/05 9.30am (TBC)	DEC Science Seminar Series: The Role of Science in Legal Prosecutions	Level 15 Conference Room, Goulburn St Sydney (TBC)	Department of Environment and Conservation	Maria Doherty 99955626 Maria.Doherty@environment.nsw.gov.au
JULY	Save The Koala Month			
31/7/05	National Tree Day Australia's biggest community tree-planting event. (Schools Tree Day is 29/7/05)			
6/08/05	Field Trip Eastern Suburbs Banksia Scrub - Natural Regeneration Methods & Monitoring Meeting Point: York Rd halfway between Queens Park Rd and Baronga Ave.	York Road, Bondi Junction. Jennifer St Little Bay	AABR	Bookings preferred aabr@zip.com.au or 0407 002 921
26/8/05 9.30am (TBC)	DEC Science Seminar Series: Biodiversity	Level 15 Conference Room, Goulburn St Sydney (TBC)	Department of Environment and Conservation	Maria Doherty 99955626 Maria.Doherty@environment.nsw.gov.au
SEPTEMBER	Biodiversity Month			
7/9/05	National Threatened Species Day Australia-wide events are held each year on 7 September to encourage the community to help conserve Australia's unique native fauna and flora.			Visit www.deh.gov.au/tsd
October	Seminar: Endangered Ecological Communities . Speaker: Associate Professor Paul Adam. Plus AABR AGM	Maiden Theatre, Royal Botanic Gardens Sydney (TBC)	AABR	Bookings preferred aabr@zip.com.au or 0407 002 921

AABR

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, and to promote the study and practice of Bush Regeneration.

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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 details

AABR Newsletter Subscription (Open to all interested people) **\$20:00**
AABR Membership (Open to appropriately qualified & experienced bush regenerators) **\$25:00**
AABR Contractors & Consultants List (Open to appropriately qualified & experienced bush regenerators) **\$10.00**

Newsletter contributions are welcome, contact Virginia email: newsletter@aabr.org.au or phone 0408 468 442