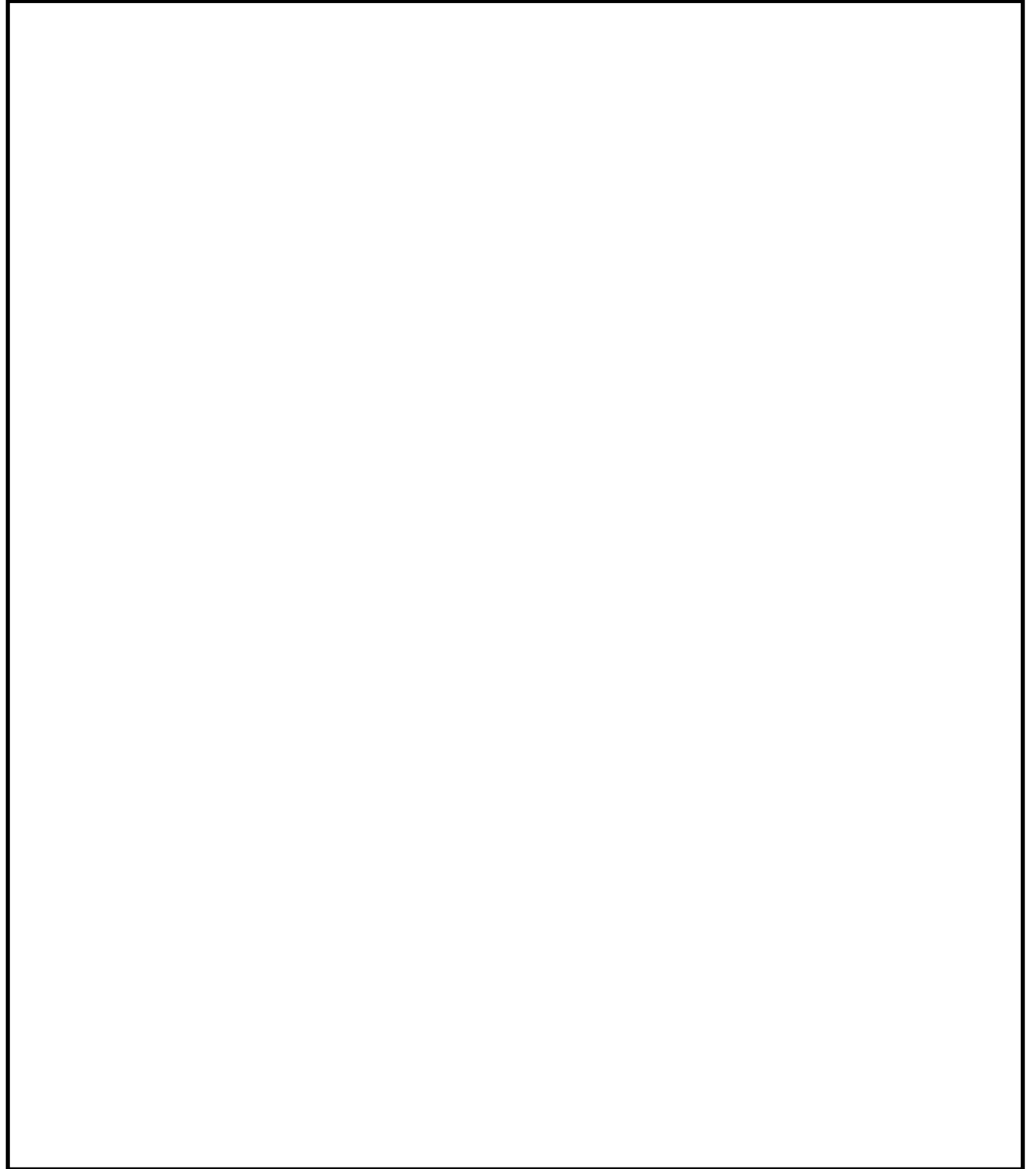


# INDIGENOTES



# THE PLAINS WANDERER

A regular column by botanist Ian Lunt\* on endangered native grasslands and grassy woodlands

## THE METAPHORICAL GRASSLAND - MUSEUM, ARK OR LIFE-BOAT?

*I don't imagine that Jeff Kennett believes one packed conference provides a mandate for action on grassland conservation. Nevertheless, the success of the recent IFFA/VNPA grassland conference clearly signals the emergence of native grasslands and woodlands as an important, but long-forgotten, conservation issue.*

*Everyone at the conference received a copy of DCE's draft FFG and grassland strategies; two invaluable documents which are unlikely to be looked at again, unless we campaign for their implementation. I urge everyone to write to Mark Birrell, requesting that both strategies, but the grassland strategy in particular, be fully implemented immediately. Without community support, our endangered grasslands will receive the same attention they've had for the past 150 years - none. It is vital that the remaining remnants be fully protected and properly managed. (Please write to: The Hon. Mark Birrell MLC, Minister for Conservation, 240-250 Victoria Parade, East Melbourne, 3002).*

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*"If everybody thinks the same", I wrote last year, "then nobody's thinking". The continuing feedback from that article - on saving regional provenances<sup>1</sup> - proved beyond doubt that a lot of people are thinking very seriously about issues such as regional extinctions, local gene pools and species re-introductions.*

*The trouble with private thoughts is that they tend to stagnate, often in best-forgotten backwaters; whereas open discussions with thoughtful colleagues can often uncover the critical issues. In this issue, Neville Scarlett gives another perspective on some of the issues which Jeff Yugovic and I raised in recent Plains Wanderer articles<sup>2</sup>, on "saving regional provenances".*

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Ian's article<sup>1</sup> and Jeff Yugovic's response<sup>2</sup> raise in an acute form the contradiction between (a) the awareness that 'Extinction is usually the end point of a long process of depletion'<sup>3</sup> - the corollary of which is to reverse such depletion, and (b) the perception that the integrity of native ecosystems is reduced by establishing non-local provenances in them<sup>2</sup>.

In my view, this conflict can only be resolved by accepting that the retention of the potential for evolutionary development in the wild<sup>4</sup> is the paramount aim of species' conservation.

I suggest we should see large grassland reserves as evolutionary life-boats rather than arks or museums. Thus the question arises - do we restrict the players in the life-boat game to those species lucky enough to be already on board? My answer is no. I believe, with Ian, that when the dynamic integrity of a regional flora is under severe threat, it is this integrity which should be our primary concern. Accepting that a range of local provenances in situ is the least manipulative starting point for further evolutionary development of a species should not entail the rejection of the introduction of regional provenances into large reserves. This is especially true for species which are threatened with the termination of their regional evolutionary history. Most certainly, the 'natural' presence of even one local provenance in a large secure reserve would have been better, but wishful thinking cannot recreate such provenances.

One related issue which was not raised by Ian is: What about species which were definitely recorded for a region (voucher specimens exist!) and are now extinct (searches have been done!). Do we accept regional extinctions as a fait accompli? Any restoration of such species by definition entails the use of a provenance or provenances which have survived in other regions and which are neither local nor regional. In a few cases, species which are extinct in all Victorian regions may still have populations in other states. As an example, *Stemmacantha australis* (Austral Cornflower) which is now extinct in Victoria, A.C.T. and N.S.W. still survives in southern Queensland. A judicious view, I believe, is to regard any regionally extinct grassland species which is endangered Australia-wide as a legitimate candidate for re-introduction into secure reserves. If any of these species are unreserved and or unmanaged throughout their range, re-introduction should go ahead.

In 1983, our group at LaTrobe University proposed the re-introduction of *Thesium australe*, *Euphorbia scabra*, *Lepidium hyssopifolium* and *Stemmacantha australis* to secure reserves within their former range. Although such work involved extra-regional provenances, permission to go ahead was granted by the management agencies concerned, both government and non-government. This occurred in a context where all of these species were either absent from biological reserves, or were not being either monitored or managed in cases where they were reserved. Much has happened since that time, and *Thesium australe* and *Euphorbia scabra* can now be dealt with at a regional level, as both reservation and management are 'in place', at least in Victoria. We will maintain our program with *Stem-*

*macantha* because it remains unreserved throughout its former range and with *Lepidium hyssopifolium* because of the on-going mismanagement of its only reserved site. To those who are alarmed by such long-distance 'translocations' I would recommend Ian Lunt's 'Eight-fold Path to Species Survival' as an antidote. Saving regional provenances is the only way we can avoid being forced to employ such an imperfect means to save a very much larger number of species, driven to extinction over (almost) all of their historical range<sup>5</sup>. Our work at LaTrobe on *Senecio macrocarpus*, *Rutidosia leptorrhynchoides* and *Lepidium aschersonii* uses the nearest viable regional provenances to the chosen re-establishment sites. Combined with securing the reservation and management of the original relict donor sites, I believe our work has contributed much to securing an evolutionary future in the wild for these species.

Comments by the geneticists, Barrett and Kohn<sup>6</sup>, are in general agreement with my position: 'Genetic manipulations of rare plants will obviously lead to the disruption of locally adapted gene combinations. This may be of concern when local races of a species are morphologically or ecologically distinct and are recognised taxonomically. In some cases, the attempt to preserve population differentiation may conflict with practices aimed at species preservation. Such cases require individual judgement, but we believe that, in the long-term, species conservation is, in general, of greater importance. Attempts to preserve population distinctiveness should be undertaken only when they do not endanger species conservation. Should re-establishment practices be successful at a number of sites, population differentiation will almost inevitably follow.'

Jeff Yugovic's exposition of the threats to the integrity of reserves arising from schemes for 'large scale relocation (or injection)' seems to me to confuse two separate issues. One is the degree of disturbance involved in any restoration work, regardless of the source of the plants. For the recipient sites he mentions weed invasion, and physical damage to intact *Themeda* swards. I would add 'repeated chemical fallowing' as a further possible threat, although Jeff appears to accept such a procedure without question. For donor sites, he mentions the deleterious effects of seed and propagule collection and 'undermining'.

The other issue is the provenance question per se. Jeff believes that the integrity of native ecosystems in a reserve would be reduced unless the species and provenances to be used are highly likely to have occurred in them prior to European settlement. Further problems are the possible interbreeding between planted and indigenous (i.e. within-reserve?) provenances and spread from planted areas.

I certainly agree that any restoration work must minimise mechanical disturbance and prevent weed invasion. I cannot accept that planting seedlings into intact *Themeda* swards is a greater evil than repeated chemical fallowing. By and large most of the concerns raised by Jeff can be dealt with by confining restoration involving mechanical disturbance to small but repre-

sentative sections of reserves, as is current at Laverton North Grassland Reserve. Additional restoration by seed broadcast only could be specified for larger areas, not exceeding 25% of a reserve. Naturally precise documentation is essential. Areas treated with herbicide must be similarly confined, at least until we have some data to assess the impact on bryophytes, soil organisms and invertebrate fauna.

I have already stated my position on the provenance question. However, I would oppose the planting of extra-reserve provenances of species already present in a reserve unless the species is regionally threatened and has a demonstrably non-viable population within the reserve (either from a demographic or genetic viewpoint). Even in these cases, ex-situ propagation and planting back into a reserve would be the first option. Thus I do not believe restoration would normally involve the 'interbreeding' problem. As for a species spreading from planted areas, is not that the aim of restoration work? When (or if?) the regional provenances of *Senecio macrocarpus* and *Rutidosia leptorrhynchoides* we have planted in the Laverton North Grassland Reserve begin to replace *Romulea rosea* and *Vulpia bromoides* as the major associates of *Themeda*, the 'invaded' ecosystem will have shifted towards its pre-European condition. I believe this would represent an increase in the dynamic integrity of the reserve not a decrease.

Finally, I totally agree that we must prevent uncontrolled seed and propagule collection from relict sites which are or soon will be reserved and properly managed. However, if relict sites are to be reserved and then left unburnt for 10 years (e.g. Manor and Little River rail reserves), extraordinary levels of digging or seed collection would be needed to match the species loss resulting from the inevitable deterioration to a *Themeda* 'monoculture'. Neglect of management inevitably breeds contempt for permit-based protection.

- **Neville Scarlett, Botany Department, LaTrobe University, Bundoora 3083**

## References

1. Lunt, I.D. (1992) The Plains Wanderer: Saving Regional Provenances. *Indigenotes* **5(7)** 4-5, 10-11.
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# Bridal Creeper control

by Greg Leaman\*

Bridal Creeper is an introduced garden ornamental which is invading native bushland across southern Australia. In WA's Dept of Conservation and Land Management (CALM) Katanning District, a management programme aims to control the weed on nature reserves.

Bridal Creeper (*Myrsiphyllum asparagoides*) is a perennial herbaceous creeper introduced into Australia from South Africa as a garden ornamental. The species invades undisturbed bushland and the trailing vines compete aggressively with native vegetation and can smother understorey plants. It is considered a major pest species in South Australia and Victoria. The species also occurs in coastal and wetter areas of New South Wales and Western Australia.

Bridal Creeper is a member of the lily family. The plants commence growth during Autumn from a dense mass of root tubers and flower from August to October, depending on locality. They produce abundant small succulent fruits and long-lived seeds which are retained on the plants. During early summer the aerial parts of the plants die off and the underground parts become dormant. Seed dispersal is mainly by birds, although dispersal by water also occurs along creeks and streams. Asexual distribution by spread of rhizomes may also occur.

In Western Australia, Bridal Creeper is known to occur throughout the south west in areas having an annual rainfall over about 300 mm. It is becoming widespread on roadsides and disturbed areas and has invaded forests and conservation reserves. There is no legal requirement to control Bridal Creeper as it is not considered a threat to agriculture and has not been declared a weed under the State's *Agriculture and Related Resources Protection Act*. Bridal Creeper is an 'environmental weed' and control remains an option for land managers.

In CALM's Katanning District, Bridal Creeper is becoming common on roadsides and is invading native bushland. Most introductions can be attributed to garden escapes, dumping of garden refuse and subsequent dispersal of seed by birds of by water along fast flowing annual streams. Land managers and conservation groups are becoming increasingly concerned about the spread and effect of the weed, particularly given the high soil and nature conservation values of remnant vushland in the largely cleared agricultural landscape.

Bridal Creeper was first recognised as a problem on nature reserves in the District in 1987. It currently occurs on 12 nature reserves. The infestations vary in size from just a few plants covering one to two square metres to extensive populations covering several hectares. The weed is most prevalent along watercourses and is destroying native understorey vegetation.

Bridal Creeper may be controlled by biological, manual or chemical methods. It is understood that the CSIRO are currently researching biological control, but a suitable method is not yet available. Manual controls include slashing and grubbing. However slashing is not considered effective in native bushland and grubbing is only practical for small infestations

Chemical control using a mixture of Roundup (360g/l glyphosate) and Glean (750g/kg chlorsulfuron) at 1:100 has been recommended, although a single application is rarely effective. Trials at Katanning have shown that spot spraying using Roundup (360 g/l glyphosate) at 1:50, with a second treatment the following year is more effective. The plants must be sprayed after new annual growth has become established and before seed sets. Repeated inspections and follow-up spraying are required to ensure that new germinations from stored seed are destroyed.

In 1989, a five year programme to control Bridal Creeper on nature reserves in the Katanning District was commenced. The programme is aimed at eradicating minor infestations as quickly as possible and progressively controlling larger infestations. The programme involves spraying the weeds with Roundup at 1:50. Monitoring of the previous year's work and respraying as necessary are also undertaken. New infestations are included into the programme as they are detected.

The Bridal Creeper Control programme is time consuming and labour intensive. The terrain and vegetation where most infestations occur prevent normal vehicle access and necessitates all spraying being done by hand. considerable care is required to ensure that native vegetation is not affected. Limited staff resources and the available time frame for effective spraying mean that only limited areas can be treated each year.

In an effort to improve efficiency and effectiveness, four wheeled motorbikes fitted with motorized spray units will be trialled this year. It is anticipated that the time spent refilling small hand sprayers will be reduced, enabling broader areas

to be treated.

Funds are also being sought to train and employ local Aboriginal people to spray the weeds. If the application is successful, it will not only enable larger areas to be treated, but will provide much needed employment opportunities in nature conservation for local Nyoongars. The project will also provide trained and experienced contractors available to other managers wishing to control Bridal Creeper on lands under their control.

The results of the Bridal Creeper control programme to date have been encouraging. Small infestations have been eradicated from two reserves and control of moderate infestations on another two reserves should be achieved by 1993. Containment of two severe infestations is ongoing.

Our initial aim to eradicate or control Bridal Creeper on nature reserves within 5 years has proven to be somewhat optimistic and a ten year time frame now seems more probable. By that time biological control methods may be available. However the results of our efforts have shown that the problem can be successfully addressed, even with limited resources, provided a planned approach is taken. This is now being recognised by other land managers and efforts to control Bridal Creeper in the southern wheatbelt of WA are being more widely initiated.

**\* Greg Leaman has wide experience in national park and reserve management. After 13 years with the Tasmanian NPWS (come DLPW, come DPWH) as a trainee ranger, Wildlife Ranger, Ranger in Charge and District Land Management Officer, Greg moved to Western Australia in 1989. At the time of writing he was CALM's District Manager at Katanning responsible for the management of about 200 nature reserves in the southern wheatbelt. Greg has now become Regional Manager at CALM's Geraldton Office which covers the Mid-West Region of WA.**

## Review:

### ***Move over Rose here comes the Blue Devil.***

**Bob McDonald , Parrot Natural History Network, 116 p. R.R.P. \$20.**

Bob McDonald has contributed a most useful publication to the small library of books on the Basalt Plains. Always being conscious of not alienating any of the community by information accessible only to boffins, Bob has targeted the novice to the Basalt Plains ,and provides an entertaining read to those already familiar with these rich ecosystems.

The introduction to the Basalt Plains geology, ecology and historical context is spiced by Bob's yarns and childhood reflections. The importance of remnants is emphasized as a source for continued diverse seedstock for a growing revegetation industry, and as reserves for flora and fauna to invade future revegetation sites.

The main body of the text includes sketches of sixty common Basalt Plains grassland species, complete with brief descriptions, Koori uses and growth requirements for the potential indigenous home gardener. Some of the stylized sketches lack detail and could confuse the novice who may be searching these species out in the grasslands, particularly the native grasses highlighted.

Bob suggests practical ways of getting involved in saving the last remaining grasslands through correspondence to politicians, accessing local papers and local education. A further suggestion is ventured towards setting up a Bioregional Advisory Committee to provide a database of consistent biological information and a source of evaluating the economic value of remnant ecosystems. Funding of \$20,000per annum from each of the twenty councils and shires within the Basalt Plains could finance such an organisation.

And for those of you concerned with the continued use of Eucalypt forests for paper pulp, no need to worry, this book is printed on sugar cane fibre.

**From Mick Jeffries**

# Coming events:

## Workshops/Talks

- 18 January, Monday 8pm. **The Victorian Salinity Problem**, an illustrated talk by Phil Dyson. Organised by the Society for Growing Australian Plants - Vic. Herbarium, Birdwood Ave, Sth Yarra. Enid Bowman (03) 882 5297.
- 2 Feb, Tues 8pm. **Fauna Survey Group**. National Herbarium. Felicity Garde 808 2625.
- 8 Feb, Mon 8pm. **The work of ANZSES - the exploring society**, by Roger Pierson. General meeting of the Field Naturalists Club of Victoria (FNCV). National Herbarium. Noel Schleiger (03) 435 8408.
- 11 Feb, Thurs 8pm. **Botany Group** (of FNCV) meeting, by David Cameron. National Herbarium. Win Bennett (03) 435 1921.
- 15 Feb, Monday 8pm. **Australian native herbs and their uses**, an illustrated talk by Ray Boatman. Organised by the Society for Growing Australian Plants - Vic. Herbarium, Birdwood Ave, Sth Yarra. Enid Bowman (03) 882 5297.
- 25 Feb, Thurs. **Computerised Maintenance Scheduling**. A seminar including speakers, demonstrations and debate for Public Open Space Managers, Landscapers, Field Staff and Students. Today's landscape challenges include:
- demand for increasing cost effectiveness,
  - public asset accountability and
  - competitive tendering.
- Make an informed decision - is this for your workplace?  
Royal Botanic Gardens, Melbourne.  
Enquiries: Judy Carrigan: (03) 655 2347,  
Fax: (03) 655 2348. For more information see 'Snippets'.

## Excursions and field trips

- 23-25 Jan, Sat-Mon. **Wilson's Promontory post fire study** with Fauna Survey Group. Anne Casey (03) 379 1611.
- 30 Jan-1 Feb. **IFFA field trip and camp; Cobberas area. See back cover.**
- 31 Jan, Sun. **Spotlight walk with Ian Roche (Head Ranger, Warrandyte State Park)**. Meet at the Folly for a BBQ picnic tea. Margaret Burke (03) 844 1060.
- 6 Feb, Sat. **Walk, Talk & Gawk: Coolart**. This historic and conservation reserve at Somers features a homestead built in 1895 and earlier buildings, graceful gardens, a variety of wetlands with extraordinary birdlife and extensive coastal woodlands. BYO lunch. Leader: Geoff Durham (03) 523 5559.

6-7 Feb, Sat-Sun. **Entomological Society of Vic weekend trip to Licola**. Enquiries Peter Carwardine (03) 571 8958.

- 13 Feb, Sat. **Marine Rock Platforms at Point Roadknight** near Anglesea. Leader Dr Geoff Wescott. General FNCV excursion. Contact Dorothy Mahler (03) 435 8408.
- 14 Feb, Sun. **Walk, Talk & Gawk: Blackburn Lake**. Surrounded by suburbia, Blackburn Lake is a tranquil refuge with native remnant vegetation augmented by plantings. A relaxing and informative half day ramble. Leader: K. Mullet (03) 877 2960.
- 21 Feb, Sun. **Walk, Talk & Gawk: The Pines**. An old sand quarry, a pine plantation and degraded remnant native vegetation are being transformed into a recreation/conservation reserve for the Frankston and broader community. Fascinating insights and easy walking. BYO lunch. Leader: Geoff Durham (03) 523 5559.
- 27 Feb, Sat. **Coastal Peninsula**. Leader Tom Sault. Botany Group excursion of FNCV. Contact Joan Harry (03) 850 1347.
- 28 Feb, Sun. **Walk, Talk & Gawk: Skeleton Creek**. The mysteries of this western wetland will be revealed on this easy half day walk. Extensive salt marshes and intertidal flats with many birds. Bookings: W. Teltscher (03) 481 3882.
- 28 Feb, Sun. **Willows and Watery Things** - a picnic tea sojourn with the Friends of Warrandyte SP at Black Flat. Margaret Burke (03) 844 1060.
- Volcanoes, Aborigines, Birds - South-Western Victoria**. Leader: John Mitchell. The Field Naturalists Club of Victoria is proposing a weekend excursion in late summer to view the various volcanic features in the vicinity of Hamilton. These volcanoes erupted over the last 20,000 years forming an area rich in interesting features of international fame. The group will visit the Byaduc Caves and the Mt Eccles National Park, studying volcanic craters, lava caves and tunnels, volcanic vents, etc. Aboriginal structures such as the Aboriginal stone village and fish traps will be visited. Many other features of interest. Those interested should contact Dorothy Mahler on (03) 435 8408 as soon as possible.

## Restoration Activities

### January

17 Sun 10am. **FO Eltham Copper Butterfly**

- Butterfly count. Meet at Eucalyptus Rd. Elaine Braby (03) 439 9015.
- 23 Sat. **Bushcare (Berwick/Pakenham Group)**. Restoration of John Owens' block followed by third Greening Australia training and demonstration session. After three working bees the blackberries are all but despatched and we are able to think of restoration of the indigenous community. The next most notable weed to be tackled is Sweet Pittosporum, but this will be a less onerous task than the dreaded thorny *Rubus fruticosus*. (059) 42 8375 or (03) 707 5678.
- 23 Sat 2pm. **Friends Of Sherbrooke Forest**. Project afternoon at Ridge Track Site. Meet at entrance gate; Belgrave-Ferny Creek Rd (75 E5). Ivy, oivy, ooivy & more ooovy! Vivien Freshwater (03) 754 3093.
- 24 Sun 10am-1pm. **Nunawading Indigenous Plants Project**. Nunawading Council Horticultural Centre. 82 Jolimont Rd., Forest Hill. Margaret Witherspoon 878 5998.
- 27 Wed, 10am-3pm. **FO the Yarra** Galatea Pt, Mel 2D, D7. Judy (03) 347 2252. Also on Sun, 14 Feb.
- 28 Thurs. **FO Warrandyte SP** propagation day. This event takes place every Thursday. Other revegetation activities on weekends. Ian or Margaret Burke (03) 844 2659.
- 28 Thurs 10am-12noon. **Sandringham Community Nursery** - volunteers propagation activities. Sandringham Council Depot, enter Reserve Rd or Talinga Rd. This is on every Thursday and Saturday.
- 31 Sun 10am. **FO Wildlife Reserves** - La Trobe Uni. George Paras (03)479 2871.
- 7 Sun 1pm. **FO Langwarrin Flora & Fauna Reserve**. Anne Read (03) 787 2034.
- 13 Sat. **FO Dandenong Ranges NP**. Contact Graham Barstow (03) 758 6935.
- 14 Sun 10am. **URAGE** (Upwey Regional Action Group for the Environment). Weeding to restore indigenous vegetation along Ferny Creek. Rob Stevens (03) 754 3792.
- 14 Sun 10am-1pm. **FO Braeside Park** working bee. (Also on Sun 28 Feb.) Ron Pearson (03) 584 7443.
- 14 Sun 3-5pm. **Green Link Camberwell**. Seed collection & weed maintenance. Meet at the corner of Dion St & Welfare Pde; Melways map 60, ref E7. Dianna Burgess (03) 809 2092.
- 20 Sat 9.30am. **FO Werribee Gorge & the Long Forest Mallee**. Judy Douglas (053) 67 2672.
- 21 Sun 10am **Men of the Trees**. Deep Rock, Yarra Bend Park; Melways map 2D, ref D6. Minette Russell Young 898 1364.
- 21 Sun. 10am-12noon. **Brunswick Tree Group** Moonee Ponds Ck. Eric Ward (03) 388 2123.
- 27 Sat. **Bushcare (Berwick/Pakenham Group)**. Restoration of John Owens' block followed by fourth Greening Australia training and demonstration session. (059) 42 8375 or (03) 707 5678.
- 27 **FO French Island**. Survey day/weekend. Contact Fay or Clive Gordes (03) 772 9668 or (059) 80 1254 (they need to know numbers).

The **Australian Trust for Conservation Volunteers** offer a wide variety of restoration activities throughout most of Australia. For further information contact ATCV: National Headquarters in Ballarat: (053) 33 1483.

A large range of activities such as bushwalks and "Friends" activities are published by the **Victorian National Parks Association** in their newsletter. For details contact VNPA on (03) 650 8296.

**Thank you to all the people who contact us regarding on-coming events their groups are organising. If other people wish to have their events covered, please get in touch with Dimi Bouzalas, (03) 386 0264**

**Visitors/participants are welcome to all events listed in Indigenotes.**

## February

- 1 Mon, 10am. **Green Link Box Hill**. Activities day. These events are held every Monday and Tuesday morning, with Monday being Nursery work. Council Nursery in Nelson Street, Box Hill, further details, contact Minette (03) 898 1364.
- 6 Sat. **FO French Island**. Prison Farm area - weeding Blue Scarf Pea and W.A. Orange Pea, also if the weather is fine don't forget your bathers. Fay or Clive Gordes (03) 772 9668 or (059) 80 1254.
- 6 Sat. **FO Gellibrand Hill Park**. Jenny Caddaye (03) 744 6093.
- 7 Sun 9.30am. **FO Buckley Falls**. Tony Woolford (052) 43 6340.
- 7 Sun 12-3pm. **Earthcare StKilda**. Neil or Rob (03) 536 1490 (W).

# Plant remnants of inner Melb.

By Adam Muyt

You know you're in a degraded ecosystem when you get excited at the sight of one indigenous plant surviving amongst scores of exotics. Life can be tough for indigie plant lovers residing in the inner suburbs.

Look beyond the skyscrapers, asphalt, power lines, industry, dense housing, exotic trees & shrubs, lawns & anal retentive parklands of inner Melbourne and what remains of the pre-European vegetation?

Yarra Bend Park is the only large remnant within the region though numerous small remnants remain. All are degraded to some extent, most are less than a couple of hectares in size and often carry an unrepresentative flora when compared to what would have been present 160 years ago. Small remnants include: the Willsmere Billabong, Kew; Royal Park West; Napier Park, Essendon; Union St. Brunswick; Herring Island, Richmond; the lower reaches of the Darebin Creek; along the Merri Creek at Fitzroy & Northcote; the former rifle range at Williamstown.

Beyond these sites are a surprising number of miniscule indigie plant 'islets'. Many of these hang on in what I term 'indifferent landscapes', areas where no one seems to care much about what plants grow there. Usually they occur in or near industrial or publicly owned land. Most would have less than ten species present. Locations of 'islets' include:

Melbourne High, where Lightwoods grow with Spear & Wallaby grasses; at an old railway siding 100 metres south of Sth. Yarra Station, Plume, Spear & Wallaby grasses grow on exposed Tertiary Sands; along the mouth of the Moonee Ponds Creek five species hang on amongst the filthy waters; between Royal Park & Jewell rail stations a couple of grass & saltbush species thrive on the exposed Silurian face of the rail cutting; within Melbourne Cemetery at least 8 species can be found; around the Corroboree Tree environs at Burnley, a Flax Lily & Sedge grow amongst Spear & Wallaby Grass; in Clifton Hill, along the Merri, a couple of indigenous herbs sit amongst 5 grass species; the Tullamarine Freeway embankment below Albion St. contains reasonable populations of Wallaby, Weeping & Spear Grass.

Individual indigie plants pop up in a variety of locations in inner Melbourne. Have a look under a Pine or Cypress tree and there's a reasonable chance a saltbush will be the only plant growing there, thriving in the acidic conditions. Under eucalypts, particularly those like Sugar Gums that suppress the growth of many exotic grasses, you'll

often find a couple of indigenous grasses present. Flax Lilies with their bird dispersed fruit and Bluebells with their very light, wind dispersed seed, appear to be urban survivors. I've found them growing well in a couple of industrial weed-scapes.

Private gardens occasionally turn up a surprise though the 'neatness' mentality of most home gardeners appears to work against the persistence of indigenous plants. I've seen Kangaroo Apples, Kidney Weed, Bluebells, and various grasses growing in inner urban front yards.

In Europe many people achieve some identification with a locality through the surrounding built environment and the social & cultural outgrowths of those urban settings. Nature - beyond climate - is usually highly modified, manipulated to suit human perceptions. Many inner Melbourne locals relate to their surrounds in a similar way. I'd like to think inner urban-ites can go beyond the human defined landscape to create a 'Sense of Place'. Some rural dwellers and many in the outer suburbs look to the natural signage around them when identifying with a locality. Developing such an approach to their surrounds is healthy, often meaning people strive to preserve their areas' natural features against those who'd seek to degrade it. Is it too late for inner city locals to develop a similar relationship? By recognising indigenous plants and natural features left in their area, inner city people could embrace indigenous home gardens in a great way & support broader revegetation projects in the region. There's a visionary, resourceful environmental movement in Australia; much of it's strength emanates from the cities. The potential exists for a reappraisal of what defines locality in the inner urban environment.

I'm working on a booklet documenting indigenous plant remnants and occurrences within a 7 kilometre radius of the Central City. I intend to feature all remnants, islets and revegetation efforts in the region. I'd really appreciate Indigenotes readers passing on information about any indigenous plant occurrence in the inner city. I'm also interested in obtaining historical information about the original flora of the area and the way the vegetation was transformed as the city developed. I can be contacted on (03) 481 4682 or by writing to 13 Slater St. Northcote, 3070. Thanks!

*Acknowledgement: thanks to Peter Tucker for info. on remnants south of the Yarra.*

# Sydney IFFA meeting report:

## Summary of Sydney IFFA meeting of 7 December '92.

*With the end of the year nigh many people took the opportunity to learn about "The health of trees and its significance to our bushland" presented by Judy Fakes lecturer in Arboriculture at Ryde College of TAFE, and it proved to be a subject of interest to many.*

"It is important to put indigenous flora back into gardens and streetscapes so that we can re-establish habitats for our native fauna." All plants can provide habitats and this needs to be considered before wholesale removal of exotic plants from any area. This sums up the key and interdependent function flora and fauna play in the environment. Trees play a vital part in this role.

Trees have a multiplicity of functions. They give shade, act as windbreaks and wildlife corridors for birds and animals. They can also modify the microclimate of an area. For instance, the climatic conditions necessary to restore destroyed habitats and fauna to an area can be achieved by tree revegetation even with the use of exotic species. (However, in the long term, the introduction of European trees may not be suitable habitats for the indigenous fauna).

Trees also play a part in preserving our history by maintaining genetic material and acting as reminders of vegetation now past. Such heritage trees need special care and attention if they are to be preserved.

Rural decline in tree populations is often a result of leaving isolated specimens rather than maintaining a diverse natural community.

However, if trees are dead or declining, the cause needs to be established. It may be a tree has completed its life cycle. In this case, it is important to leave the tree alone. Trees at the end of their life cycle are part of the ecosystem and may be habitats for all manner of insects and animals. Displacing of any trees, even exotics, requires a thorough inspection of hollows and cavities prior to removal, as otherwise this may result in loss of habitat.

Trees may die for other reasons. Dieback, loss of crown cover or dying branches are indicators that a tree is under stress. "Reading" or understanding the symptoms will give clues as to the nature of the stress and the underlying problem.

For instance, if dead wood is on the tree you need to find out how much there is and where it is. If

there is a lot of dead twiggy wood this may indicate insect or root damage. (Some degree of insect attack is natural however.) Insect attack may only be a symptom of the real problem. It may be that the tree is not making sufficient sugars for growth and because of this the tree is more susceptible to insect attack. Insect attack does seem to be more severe in stressed trees.

Where there is an imbalance at any point in the ecosystem this can manifest itself as problems in the tree population. For example the recent large number of bats in the NSW Royal Botanical Gardens which stripped the trees and burnt foliage with their droppings.

Other types of damage are a result of human activity including poisoning, clearing by service departments for fire trails, pipe and electricity lines) and injury from machines or signs. There is little that can be done about poisonings, but the ability of a tree to respond to other sorts of injuries varies. The response depends on the extent and location of the injury. Recovering from damage can take a lot of energy and as a result the tree is more susceptible to pathogens and insect attack, despite the production of a chemical gum to protect it against such attack.

Damage to roots or increase in the soil level are the main ways trees are affected by urban encroachment of bushland. Because tree roots are limited in their growth capacity by the amount of air available, they tend to extend more out than down with many ephemeral roots intertwining. Damage to the roots can easily occur. Moving sediment, or filling areas with soil or rubble, a common feature of urban development, changes soil aeration conditions, having similar catastrophic consequences for the trees. This soil aeration aspect needs to be taken into account when regenerating and revegetating an area.

Human activity can often bring about changes in the environment in a more subtle and long term way. Gradual increases in nutrient levels in urban areas, increases in soil salinity and the water table level in rural landscapes and the general decrease in the number of fires are all phenomena which cause long term decline in the health of our flora and fauna. Trees are no exception.

# Snippets:

## What do flying-foxes eat in your area?

Flying-foxes (fruit bats) are known to feed on nectar, pollen, and the liquid from fruit and leaves.

In March 1991 Brad Law and Merrillyn Lean\* observed Little Red Flying-foxes *Pteropus scapulatus* feeding on lerps on the leaves of a Pink Bloodwood *Eucalyptus intermedia* at Harrington NSW. Lerp is the protective coating secreted by many Australian psyllid insects. The lerp consists predominantly of starch and some sugars. Lerps provide a rich source of energy for pardalotes and honeyeaters.

Do other flying-foxes feed on lerps?  
If you hear the shrieks and squawks at night of flying-foxes feeding please take a careful look. What species of tree and what sort of food are they eating?

Pass your observations on to Nancy Pallin, Kuring-gai Bat Colony Committee Inc, 45 Highfield Road, Lindfield 2070 or phone (02) 416 7334.

The authors of the paper are overseas at present and will be given any information collected on their return.

\* Law and Lean, Observation of *Pteropus scapulatus* feeding on lerps. *Australian Mammalogy* 1992 15:143-145

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**Brown Antechinus (*Antechinus stuartii* ).  
Scraperboard drawing by Lynlee P. Smith.**

## Computerised Maintenance Scheduling - a hot issue in public open space management.

**Thursday 25 February 1993, Royal Botanic Gardens Melbourne.**

Are you one of those people who loves their computer and finds it saves you time and money in scheduling work in your park, municipality or landscaping business? Or are you someone who thinks CMS packages aren't worth the paper they print on? Perhaps you are a little shy of computers? The opinions expressed about the use of computers in landscape maintenance scheduling vary widely. In researching the background for a one day seminar on the topic of CMS I have been surprised at the strong feelings expressed on the subject. Not everyone is convinced of the value of benefits gained in the trade off against the commitment required to implement and maintain CMS systems. On the other hand some local government authorities can cite large cost savings and efficiency improvements.

Today's climate of ever increasing demands for public asset accountability, cost effectiveness and responsiveness to the customer make CMS of prime importance as a tool to improve performance measurably in these areas. The move to reduce costs through competitive tendering of landscape maintenance means CMS will be closely examined by Public Open Space managers and others.

Of course the answer to the question "is CMS worth it?" depends on the specifics of your work situation. The variables to be considered will be uncovered by a range of speakers, demonstrations and panel discussions at the CMS seminar. The aim of the day is for you to be able to answer the question for your workplace.

The seminar will span the historical overview of the ways horticulture has been managed to the present day through to the trends and influences placing demands on CMS in the future. Participants will range widely: Managers and field workers from Local Government, Melbourne Water, private Landscape Maintenance businesses and Contractors. It will be a great opportunity to broaden your network of contacts and knowledge. This seminar is designed to qualify under the Training Guarantee Levy. Registration, including lunch and refreshments, costs \$90, with substantial discounts for RAIPR and AIH members: \$60 and Students \$50.

Registrations close Monday February 22nd. Contact Judy Carrigan for bookings and inquiries. Phone (03) 6552347 or fax (03) 655 2348

## Sharing Needle-grass

At the recent Grasslands conference one speaker made the point bushland field workers help spread their share of weeds through either the soles of footwear or on their lace up boots. Where I work much of the equipment gets shared between the bushland management crew & others employed in maintaining sporting ovals, golf courses, parklands & roadside verges. Recently I was about to use a mower with catcher attached to gather in seed of *Danthonia geniculata*. Before starting I spotted scores of ripe seed of Chilean Needle Grass lying over the plate between the engine and blades. I then took a look under the plate, on the wheels & in the catcher, finding scores of various types of weed seed in each spot. I cleared them away, bagged it up & got on with the Wallaby Grass collection.

The weed seed is mixed in with grass clippings. I later weighed the total mix at 110 grams, about half an A4 envelope's worth. Seed came from *Lolium perenne*, *Plantago lanceolata*, *Nassella neesiana*, *Ehrharta erecta*, *Bromus* spp., a *Brassica* species plus at least 4 other unidentified species.

If you're a 'bushie' sharing equipment like mowers with parks & gardens crews or if part of you're management tasks include maintenance of weed scapes using equipment that may later end up in an indigenous setting, I'd strongly urge introducing a simple maintenance procedure for the equipment - clean down the piece thoroughly before using it!

And if you're equipment gets borrowed by other bushland management crews it may be appropriate to clean the machine if there's the risk of introducing unwanted indig. species to your sites.

- Adam Muyt, Yarra Bend Park.

## Land for Wildlife

Land for Wildlife is a voluntary scheme in Victoria which aims to encourage and assist landholders to provide habitats for wildlife on their property, even though their property may be managed primarily for other purposes.

The Land for Wildlife scheme is administered by the Victorian Department of Conservation and Environment with the assistance of the Bird Observers Club of Australia.

Landholder participation in the scheme is entirely voluntary. The first step is for the landholder to approach the Department of Conservation and Natural Resources, which will then inspect the property to assess its existing and planned suitability and to discuss the landholders proposals for improving/creating wildlife habitats. Acceptance of the property into the scheme is by a Certificate of Registration issued by the Department, and the landholder then receives free of cost, Land for Wildlife Notes and a quarterly issue of Land for Wildlife News prepared by the Department and the Bird Observers Club of Australia.

Registered properties totalled 1172 at June 1991. In 1990, 181 new properties were registered comprising 3060 ha. of "retained wildlife habitat" and 496 ha of "habitat under restoration".

Further information can be obtained from Dept of Conservation and Natural Resources Offices, and in particular from the following Land for Wildlife Extension Officers:

**Bairnsdale** - Robyn Edwards (051) 525280, **Ballarat** - Murray McIntyre (053) 370782, **Benalla** - Liz chambers (057)611611, **Bendigo** - Peter Morrison (054) 446 666, **Central Gippsland** - Andrew Horner (051) 722 142, **Colac** - Bill O'Shea (052)335533, **Dandenong** - Jean Edwards (03) 755 2726, **Geelong** - Carol Green (052) 821584, **Horsham** - Barry Clugston (053) 581588, **Melbourne** - Virginia McCallum (03) 844 2659, **Portland** - Brian Hill (055)723033, **Yarram** - Frankie MacLennan (051) 825155.

Source: Land for Wildlife News, Land for Wildlife Notes.

**Ed: The Land for Wildlife Note and Land or Wildlife News series is a really useful and practical guide for the land manager, and is highly recommended for anyone responsible for conservation management of land, public or private.**

# IFFA activities:

## IFFA (Vic)

### Next meeting:

Tuesday 26 January at 8 pm at the Herbarium Hall, Birdwood Ave, South Yarra (Melways map 2G ref 12A). Speaker to be announced. All welcome.

### IFFA field trip and camp

#### Cobberas area, 30thJan-1stFeb, 1993

This field trip will be in the sub-alps near the Vic.-NSW border, east of Benambra. The area is extremely scenic and home of many rare plants (some of which will be monitored during the trip) and plenty of wildlife. It is also noted for its geology, including block streams. We will be camping on one of the sub-alpine flats (meadows). Those going will need to arrange food, water, equipment and transport themselves or by arrangement with others through the trip organizer. For more details, contact Graeme Lorimer urgently by phoning (03)728-5841.

### Committee meeting:

Weds 3 Feb Dale's place 22 Stortford Ave, Ivanhoe West. 7pm onwards. Bring a plate to share.

### SPIFFA

Mon 1 Feb Waterfall Gully Ctty Centre, Cnr Bayview Rd and Nixon St, Rosebud South at 7.30 pm. David Stewart - Fossils and Nature Museum Contact Mark Adams (059)851122.

### Indigenous Nurseries Network:

Tuesday 26 Jan 6.30pm. (before main IFFA meeting). Priorities for the group in 1993 will be discussed, as well as people's experiences with seed collection and ways to improve communication and coordination. Contact Murray Ralph (03) 419 3040 or Sue Mills (03) 383 2937.

## NSW activities:

### Next meeting:

Monday 1 February, 7.30 - 10.00pm at the Maiden Theatre, Mrs Macquaries Rd, Royal Botanic Gardens Sydney. Professor Andrew Beattie, from the School of Biological Sciences, Macquarie University will speak on "**Exploring the Resources of our Indigenous Flora and Fauna**".

Australia's indigenous flora and fauna is rich in undiscovered biological resources. Humans have many problems in common with other organisms (e.g. contagious disease). by investigating the natural history of particular organisms we can discover the adaptations they have evolved to solve their problems (e.g. ants produce antibiotics). Andrew will describe effective and non-destructive methods of exploring these resources and present applications of this work. Contact Sally Fisher (02)9706486 (work), or Danie Olbrich (02) 953 7461, or write to IFFA (NSW), 90 Benelong Rd, Cremorne NSW.

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**Contributions to Indigenotes should be sent to the editors — the deadline for the next issue will be 29 January.**

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