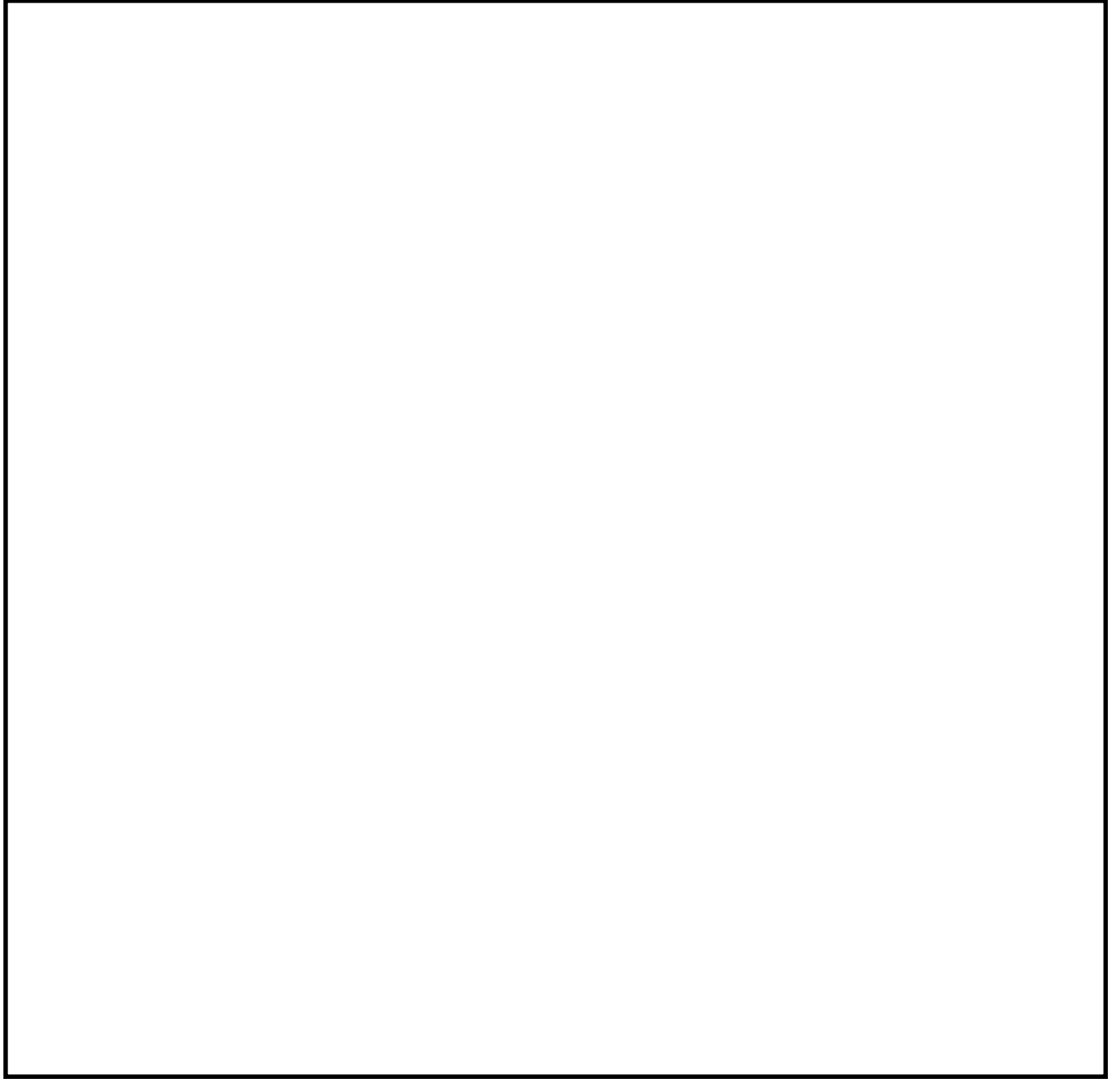


INDIGENOTES



Seed Smoking of Selected Victorian Species

Mark Coffey
Manager - Business Development
Greening Australia Victoria
(Phone 03 9457 3024)

Smoke applied to seed either in aerosol form (whole smoke) or particulate form (smoke particles dissolved into water from various media) is a practice gaining wider use as a means of breaking dormancy, leading to germination of seed and increasing the uniformity of germination. The application of various "smoking" methods has proven to be particularly significant in the treatment of numerous Australia native plants, having brought with it the capability to propagate species previously thought impossible.

Further, the application of whole smoke or smoke products in-situ, is providing bushland regenerators and land rehabilitation practitioners with a potent tool. It is now routine practice in minesite rehabilitation to smoke treat seed prior to direct sowing or to use dissolved particulate smoke in the treatment of overburden replaced following stripping from mine sites.

Much of the detailed research into the effect of smoke on germination has come from California, South Africa and more recently Australia through Kings Park Botanic Gardens, Perth where a research team has had considerable success in isolating the chemicals thought responsible for processes leading to the breaking of dormancy.

Greening Australia's - Melbourne Indigenous Seedbank with the assistance of community groups and indigenous nurseries undertook to "screen" a cross section of Victorian species to determine their response to various smoke products. Many practitioners gathered for "smoking days" bringing seed for testing and reported their results and observations.

Whilst far from exhaustive in terms of range the of species trialled, or in exploring variables affecting individual species and seedlots, the following results provide an indication of candidates for smoking treatments and further experimentation.

Readers should be aware that there are limitations to the conclusions that may be drawn from these trials due to the potential for variation between seedlots, provenance's and the influence of various growing environments. These limitations are discussed below.

The Theory of Seed

Smoking

Fire ecology is a well recognised field of study and has been with us for some decades. Fire is a natural occurrence and adaptive responses to fire are evident in many Australian species. Furthermore, controlled burning is a common tool in natural resource management.

A logical assumption about the effect of fire on germination of native species has been the effects of direct heat, nutrient recycling from ash deposition, the effect on competing plants and other physical aspects of the fire event. Plant propagators recognise the role of heat through routinely applying heat scolding to "hard" seeded species such as Acacias and many Peas, in effect, replicating the passing of a fire. Seed held in capsules such as Banksia normally require a burst of heat to release seed which drop once the fire has passed which can similarly be replicated by placing them in an oven for a period or setting alight paper or other dry material under them.

The role of the other elements of fire, e.g. chemicals, are now being examined and applied for their influence in the stimulation of germination. The reason for the effect is not entirely understood, but some theories are beginning to emerge.

Many gases are produced as a result of combustion, including carbon monoxide and ethylene. Ethylene is known to have properties responsible for ripening fruit (for example, you can ripen banana's more rapidly by closing them in a bag than if left in the open). These same properties may play a part in stimulating a maturing processes in the seed leading to germination, or by breaking dormancy, particularly where the embryo is involved. The role of chemicals within the solid and liquid residues of smoke is recognised, but as yet not well understood.

Methods of Applying Smoke

An infusion of smoke particles is made by forcing smoke through water making a weak tea. Pre-smoked paper disks can be dissolved in water for the same effect. The seed can then be treated with the solution in-situ, in the nursery or by treating seed for later use. Surprisingly low concentrations of smoke particles are sufficient to treat the seed.

Whole smoke is generated either in, or directed into a chamber where the smoke residues settle on the seed. Seed can be prepared either by it being laid out on seed raising media, dry on a rack or on a testing media such as a petri dish. Gases created by the fire would also come into contact with the seed

during this type of smoking.

Generally, seed is exposed to smoke for 1 hour, but this may not be optimum for all species. Optimum germination of Old-man Saltbush occurred after 30 minutes smoking, whereas longer exposure resulted in reducing germination.

When seed is sown to a seed raising tray and smoked, it is important not to water the trays too heavily over the first weeks or until germination is evident. Too much watering would have the effect of rinsing the smoke particles away from direct contact with seed.

Whole smoke may also be applied in-situ to increase the recruitment of fire adapted species on bushland or revegetation sites. The method consists of "blanketing in" or creating a "tent" over an area and pumping in smoke generated in a chamber.

Methods Used in the Following Results

As stated, there are qualifications and limitation to interpreting all of the results of this screening process. Results could only be described as conclusive if many replicates, controls or tests between provenance's were done. Further work is being undertaken at the Melbourne Indigenous Seedbank (MIS) to determine the consistency of the reaction in these

crease Method

Species	Control germ/g	Smoke treated	%Germ increase	Smoke Method	Source of seed
Acacia mearnsii	42	55	31	Smoked	Portland Alcoa Seedbank
A. melanoxylon	51	76	49	Smoked	Portland Alcoa Seedbank
Allocasuarina verticillata	93	101	9	Smoked	Portland Alcoa Seedbank
Amperea xiphoclada	0	0	0	Smoked 1 hour	Greenlink Oakleigh
Atriplex nummularia	0	1		Smoked 1 hour	MIS
A. nummularia	0	3		Smoked 45 mins	MIS
A. nummularia	0	10		Smoked 30 mins	MIS
A. nummularia	3	11	267	Smoked 15 mins	MIS
Banksia marginata ³²	37	16		Smoked 1 hour	MIS
B. marginata	0.9	2.2	144	Smoked 1 hour	F.O Helmeted Honeyeater
B. spinulosa	0	0	0	Smoked 1 hour	F.O Helmeted Honeyeater
Baumea juncea	0	0	0	Smoked 1 hour	Greenlink Oakleigh
Billadiera cymosa	0	4		Smoked 1 hour	Ron Pearson
B. scandens	12	126	950	Smoked 1 hour	Ron Pearson
Bothriocloa macra ²⁷	154	470		Smoked 1 hour	MIS
Bulbine bulbosa	309	299	-3	Smoked 1 hour	MIS
Burchardia umbellata	138	172	25	Smoked 1 hour	MIS
Caesia parviflora	0	0	0	Smoked 1 hour	Greenlink Oakleigh
Callistemon rugulosa	1640	1492	-9	Smoked	Portland Alcoa Seedbank

Results of Smoking Trials (Cont.)

Species	Control germ/g	Smoke treated	%Germ increase	Smoke Method	Source of seed
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and other species.

Tests at the MIS were done using a controlled germination cabinet and sowing seed to a petri dish. Temperature and light settings were 14hrs light at 24 C, 10hrs darkness at 14 C. Other results (provided by the listed individuals and nurseries) were done primarily by seed being sown to seed raising media and then placed in standard nursery conditions.

Germination is expressed as number of germinants for a control and smoke treated trials. In some cases it is suspected that the seedlot may have not been viable, but this is often difficult to determine in the absence of detailed examination of the seed using chemical stains.

Variation in the seed counts due to sampling methods account for an approximate 5% discrepancy.

Results of Smoking Trials

Species	%Germ	Smoke	Control germ/g	Smoke Source of seed treated	in-
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		germ/g			
<i>Callitris glaucophylla</i>	56	55	-2	Smoked 1 hour	MIS
<i>Chionochloa pallida</i>	9	32	256	Smoked 1 hour	MIS
<i>C. pallida</i>	81	71	-12	Smoked 1 hour	MIS
<i>C. pallida*</i>	99	174	76	GAV smoked filter paper	MIS
<i>C. pallida*</i>	38	130	242	GAV smoked filter paper	MIS
<i>C. pallida*</i>	3	8	167	GAV smoked filter paper	MIS
<i>C. pallida*</i>	70	117	67	GAV smoked filter paper	MIS
<i>C. pallida*</i>	67	209	212	GAV smoked filter paper	MIS
<i>C. pallida*</i>	28	126	350	GAV smoked filter paper	MIS
<i>C. pallida*</i>	41	90	120	GAV smoked filter paper	MIS
<i>C. pallida*</i>	52	51	-2	GAV smoked filter paper	MIS
<i>Comosperma volubile</i>	0	76		Smoked 1 hour	Greenlink Oakleigh
<i>Danthonia setacea</i> 466	416		-11	Smoked 1 hour	MIS
<i>Deyeuxia quadriseta</i>	2673	2568	-4	Smoked 1 hour	MIS
<i>Dianella longifolia</i> 105	110	5		Smoked 1 hour	MIS
<i>D. revoluta</i>	23	66	187	Smoked 1 hour	MIS
<i>D. tasmanica</i>	74	90	22	Smoked 1 hour	MIS
<i>D. tasmanica</i>	134	132	-1	Smoked 1 hour	MIS
<i>Dicanthium sericeum</i>	415	384	-7	Smoked 1 hour	MIS
<i>Dichelachne crinita</i>	1046	1067	2	Smoked 1 hour	MIS
<i>Einadia nutans</i>	209	193	-8	Smoked 1 hour	MIS
<i>Enchylaena tomentosa</i> 51		96	88	Smoked 1 hour	MIS
<i>Enneapogon nigricans</i>	490	475	-3	Smoked 1 hour	MIS
<i>Epacris impressa</i>	0	79		Smoked 1 hour	Greenlink Oakleigh
<i>Eucalyptus camaldulensis</i>	689	830	120	Smoked 1 hour	MIS
<i>E. camaldulensis</i>	235	230	-2	Smoked	Portland Alcoa Seedbank
<i>E. cephalocarpa</i>	147	247	68	Smoked 1 hour	MIS
<i>E. goniocalyx</i>	411	471	15	Smoked 1 hour	MIS
<i>E. melliodora</i>	212	295	39	Smoked 1 hour	Lenister Farm
<i>E. obliqua</i>	19	32	68	Smoked	Portland Alcoa Seedbank
<i>E. polybractea</i>	862	980	14	Smoked 1 hour	MIS
<i>E. radiata</i>	679	619	-9	Smoked 1 hour	MIS
<i>Gahnia sieberiana</i> 0	24			Smoked 1 hour	Murray Ralph
<i>Goodenia geniculata</i>	0	0	0	Smoked 1 hour	Greenlink Oakleigh
<i>G. ovata</i>	28	27	-4	Smoked 1 hour	MIS
<i>G. ovata</i>	383	344	-10	Smoked 1 hour	MIS
<i>Gynatrix pulchella</i> 125	126	1		Smoked 1 hour	MIS
<i>Helipterum albicans</i>	0	19		Smoked 1 hour	Bev Hanson
<i>Hibbertia prostrata</i> 0	0	0		Smoked 1 hour	Greenlink Oakleigh
<i>Imperata cylindrica</i> 0	0	0		Smoked 1 hour	MIS
<i>Isopogon ceratophyllus</i> ?			0	Smoked 1 hour	City of Bayside

Results of Smoking Trials (Cont.)

Species	Control germ/g	Smoke treated	%Germ increase	Smoke Method	Source of seed
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		germ/g			
Lepidosperma concauum	0	0	0	Smoked 1 hour	Oakleigh Greenlink
L. concauum	0	0	0	Smoked 1 hour	MIS
L. laterale	0	0	0	Smoked 1 hour	MIS
L. longitudinale	0	1		Smoked 1 hour	Greenlink Oakleigh
Leptospermum continentale	938	1393	49	Smoked	Portland Alcoa Seedbank
L. lanigerum	947	1666	76	Smoked 1 hour	MIS
L. lanigerum	555	561	1	Smoked	Portland Alcoa Seedbank
L. myrsinoides	881	1495	70	Smoked 1 hour	MIS
L. scoparium	109	504	362	Smoked	Portland Alcoa Seedbank
Melaleuca ericifolia	1084	2154	99	Smoked 1 hour	MIS
M. lanceolata	562	775	38	Smoked	Portland Alcoa Seedbank
Microlaena stipoides	108	133	23	Smoked 1 hour	MIS
Olearia lirata	169	197	17	Smoked 1 hour	Lenister Farm
Opercularia varia	0	235		Smoked 1 hour	Greenlink Oakleigh
Pandorea pandorana	0	0	0	Smoked 1 hour	Bev Hanson
Patersonia occidentalis	38	69	82	Smoked 1 hour	MIS
Pimelea glauca	0	0	0	Smoked 1 hour	VINC
P. humilis	0	0	0	Smoked 1 hour	Oakleigh Greenlink
Poa sieberiana	2475	2438	-1	Smoked 1 hour	MIS
Pomaderris aspera	0	0	0	Smoked 1 hour	MIS
P. aspera	29	31	7	Smoked 1 hour	F.O. Warrandyte State Park
P. prunifolia	35	39	11	Smoked 1 hour	F.O. Warrandyte State Park
Prostanthera lasianthos	0	0	0	Smoked 1 hour	MIS
P. lasianthos	0	0	0	Smoked 1 hour	F.O. Helmeted Honeyeater
P. lasianthos	56	43	-23	Smoked 1 hour	MIS
Ricinocarpus pinifolius	0	2.16		Smoked 1 hour	Greenlink Oakleigh
Rubus parviflorus	0	0	0	Smoked	Maria Belvedere
Spyridium parvifolium	0	0	0	Smoked 1 hour	MIS
Stipa rudis	21	5	-76	Smoked 1 hour	MIS
S. rudis	21	16	-24	Smoked 1 hour	MIS
S. rudis	7	15	114	Smoked water	MIS
Thelionema caespitosa	0	0	0	Smoked 1 hour	Greenlink Oakleigh
Themeda triandra	81	76	-6	Smoked 1 hour	MIS
Trachymene anisocarpa66		112	70	Smoked 1 hour	MIS

* Denotes different seedlots used.

Readers who wish to discuss or contribute their own results or share observations of smoke or other treatment methods are welcome to contact Greening Australia on (03) 9457 3024.

Acknowledgments

Greening Australia gratefully acknowledges the contributions of the above listed groups and others who assisted in the smoking sessions, contributed seed and provided reports on the progress of nursery trials. Greg Bain, David Lockwood and Dale Tonkinson of Greening Australia provided technical support for trials undertaken at the MIS and guidance in the preparation of this report.

Regional Vegetation Plans

In February 1997 the Department of Natural Resources and Environment, DNRE, let a tender for the preparation of regional vegetation plans. One plan for each Catchment and Land Protection Board Region. Catchment Management Authorities replaced 9 of the 10 regional CALP Boards on 1/7/97. The Port Phillip region is the exception.

As IFFA understands several consultants were successful and were asked to produce plans for either one or more regions. According to the tender documentation draft plans will be available for a two month period of public comment. These draft plans may soon be available for comment

The purpose of these plans is to provide a regional interpretation of the Native Vegetation Retention Controls (NVR), to use in the assesment of applications and granting of permits under the Planning Scheme process. NVR were introduced as an amendment to the State Section of the Planning Scheme in

1989. The controls have been successful in reducing the level of clearing across Victoria from 10,700 ha per year between 1972 and 1987 to 1,500 ha per year between 1990 and 1993 (Gilbee in press) Source:Tender Documentation DNRE.

While the controls provide guidance at a statewide level through the "Statewide Planning Policy Framework" and "Particular Provisions" of the "Victoria Planning Provisions", they do not allow for regional variations to be used in the application of the controls. The preparation of these Regional Vegetation plans will be used to address this issue. Source: Tender Documentation DNRE.

There are concerns that the State may end up with weakened controls over the clearing of native vegetation. The Land and Water Working Group of Environment Victoria in conjunction with other groups, including IFFA is attempting to co-ordinate a response to these draft plans as they are released.

If members have any information on significant issues in their region or the process of the preparation of the plans and or would like to be involved in helping to respond to the plans please contact Andrew Booth at Environment Victoria Ph 93489044 or Peter Tucker BH 94399599, AH 98181537. More information will be in the next newsletter.

The boundaries of the Catchment Regions, each one is having a Regional Vegetation Plan prepared for it.

Loss of Yellow Gum Grassy Woodlands in the Geelong Region

Mark Trengove*, July 1997.

The remnant Yellow Gum (*Eucalyptus leucoxylon* ssp. *connata*) Grassy Woodlands of the Geelong region are in trouble at the moment. Of greatest concern is a proposal by Barwon Water to locate a sewerage treatment works in an wonderful area of old growth Woodland at Bannockburn. Other pressures include rural tree decline, clearing for suburban expansion (such as at Ingamells in Ocean Grove which involves the newly described ssp. *bellarinensis*) and clearing under Powerlines (which has been devastating in some areas where the roadside remnants were all that remained). The Yellow Gums occur as an open grassy woodland in discontinuous sections from Bacchus Marsh to Geelong and west to Bannockburn. Like most grassy ecosystems, not much is left.

Bannockburn sewerage proposal

This involves the removal of 12 ha of woodland (for a land based sewerage treatment plant) out of an 80 ha of privately owned property called Harveys Block. It is adjacent to the Bannockburn Flora and Fauna Reserve. The site is rated (by consultants to Barwon Water) as being of State Significance for fauna conservation and high regional significance for flora conservation. The proposal necessitates the removal of approximately 300 mature Yellow Gums, most of which contain "a high abundance of hollows". Unfortunately this represents about half of the mature hollow bearing trees on the site. There are no comparable trees in the Bannockburn Reserve as that area is all younger regeneration. There are no other Yellow Gums (or many other old trees) nearby, the surrounding area was mostly treeless plains and is now extensively modified.

Fauna recorded on the site includes 99 indigenous birds, 17 indigenous mammals, 9 reptiles and 9 amphibians. Flora includes 49 regionally significant species (the site has a substantially intact Kangaroo Grass dominated understorey). Contemporary sightings include the Swift Parrot, Common Dunnart, Painted Honey-eater and Grey Goshawk. All of these species are rare now due to clearing of suitable habitat. The site is 'protected' by four instances of the Flora and Fauna Guarantee Act including the removal of hollow bearing trees (a threatening process).

Consider just one of these significant species, the Common Dunnart, now rare in Victoria. Bannockburn is the southern limit of the distribution of the species. The consultants report states that Harveys Block represents the best habitat as it contains the most intact vegetation and an abundance of fallen timber. They recommend that a trapping program be carried out in Spring to determine the status of the species. No survey has been carried out.

No consideration has been given to the "edge effect" (other indirect pressures associated with removal and disturbance that decrease the size and value of adjoining remnants) the proposal would cause, this is in spite of consultants recommendations. This is particularly relevant as the proposal is located close to the centre of the remnant.

We estimate that at least 15 faunal species are threatened with local extinction. This proposal represents exactly the type of extinction scenarios that are well documented in numerous reports such as "Conserving Woodland Birds in the Wheat and Sheep Belts of Southern Australia - ROAU 1996" and "Draft Conservation Program for Native Grasslands and Grassy Woodlands in Victoria - DCE 1992".

If we are to get serious about conserving what is left of biodiversity of grassy woodlands then we can no longer subscribe to the notion that it is OK to carve out bits as we need them, there just isn't enough left anymore.

The Planning Minister, Rob McClellan has given the go ahead for this proposal without even requiring an Environmental Effects Statement.

Mark Stone, the Executive Director of Parks, Flora and Fauna, DNRE, has even gone so far as to suggest that the proposal will "represent a net gain in terms of protecting local biodiversity values".

Letters of protest to Ministers McClellan and Tehan would probably help, any support is appreciated. The Bannockburn Yellow Gum Action Group has been formed to help preserve this area. The group supports the sewerage lagoon concept, they just believe there are other more appropriate sites. The contact person is Stuart McCallum, Ph 03 5281 1601.

*PO BOX 1502 Geelong 3220.

Eucalyptus leucoxylon ssp. *connata* from Costermans, L., *Trees of Victoria and Adjoining Areas*

Coming Events:

For IFFA events see back cover

Talks/Conferences/Workshops

Sundays - "Radio Marinara", 9 - 10:00am. A RRR FM radio programme on marine issues with talk back, guests and music - channel 102.7 Mhz.

Also on Sundays - "The Environment Show", 3.30 - 4.30pm. A RAM FM radio programme presented by Aart Hoebee, on local ecological issues, with guests and music. Channel 95.1 mHz - Community Radio in the Central Highlands. Contact Joff Allan: 03 54222711 (W), 03 54226892 (H).

July 27, Sun. "Environment Weeds Debate" presented by the Creswick Landcare Centre, (03) 53 452 200. See ad, this issue of Indigenotes for more details.

July 31, Thursday. "Vision for the Bays" a conference for managers and users of Victoria's Central Coast and its bays. Contact 131963. (See ad in this issue of Indigenotes for more information).

August, Fri 1. 8pm. æInsects of Southern Queensland RainforestÆ - an evening slide/video show presented by the Macedon Range Conservation Society. Venue: Old Kerrie School, Kerri (eastern end of the Macedon Range). Contact Harry (03) 54 261 201.

August, Sun 3. "Interpreting the presence of fauna". Training day presented by Greening Australia Victoria. Develop skills in monitoring for fauna, discuss techniques, plus demonstration of various equipment. BYO lunch. Cost \$30/ \$10 member or Community Group. For bookings contact Gerard Clark (03) 9457 3024.

August, Wed 13 "Alternative uses for farm trees". - Part of a series of one day workshops held at Alcoa's Warrambien Landcare Education Centre, well known and historic merino sheep property on the western plains of Victoria. Cost \$45.00. For bookings contact Trish Taylor on (03) 5281 3250. Other workshops this year at Warrambien: "Water Quality & blue green algae" on Wed 15/9, "Importance of birds on farms" on Wed 15/10, and two Indigenous Grass Identification workshops to be held on the Sun 30/11 & Sun 7/12.

August, Thu 14 "Powerful Owls" 8pm - Ed McNabb will be presenting owl research to the Birds Australia Vicgroup. Sales office usually open before the meeting and tea and coffee after. Venue: RAOU Head Office, 415 Riversdale Rd, East Hawthorn 3123. Contact Sue Robinson (03) 9882 2622.

August, Mon 18. "Special Soils for Special Plants". Topic presented by guest speaker to the meeting of the Society for Growing Australian Plants. 8pm. Venue: Birds Australia Building, 415 Riversdale Rd, Hawthorn East. Contact Hazel Blackney (03) 9457 1917.

August, Thu 21. "Monitoring your revegetation project". Training day presented by Greening Australia Victoria. Develop skills in assessing a site's ecological indicators; mapping a site, features and management activities. BYO lunch. Cost \$30/ \$10 GAV member or Community Group. Contact Gerard

Clark (03) 9457 3024.

September, Sun 14. "Wetlands - conservation and management". 2pm - 5pm. Location: Clunes Swamps and "The Common". A workshop presented by the Creswick Landcare Centre. Land management consultant, Gavin Cerini, will discuss the value of wetlands and techniques for conserving, managing and creating wetland ecosystems. BYO lunch. Afternoon refreshments provided. Cost \$20/\$10 concession. Contact the Centre on (03) 5345 2200 for bookings.

October 4 to 7, 1997. Birds Australia 1997 Congress and Campout "Birds & Woodlands". The Congress will be held from the 4th - 5th at the Charles Sturt University campus in Albury, NSW. The major theme is woodland birds. The Campout runs from the 6th - 10th at Cornishtown, just outside the Chiltern box-ironbark forest park. Contact the Congress Convenor, Margaret Cameron (03) 5229 9792.

October, Fri 24 & Sat 25. "Victoria's National Parks - the next century". A crucial conference presented by the Victorian National Parks Association. Contact (03) 9816 9111. For more details see ad.

October 24 - November 7, 1997. Platypus Fieldwork Training - an intensive practical course and research expedition. This two-week training course will provide a "hands-on" introduction to platypus research, practical biology study skills and other key aspects of wildlife research techniques. Gain valuable fieldwork skills and experience. Course & expedition fee: \$1500 which covers all accommodation, food, tuition and use of specialist equipment. Places limited to eight participants - so apply immediately. Contact Australian Platypus Conservancy on (03) 9716 1626.

November 28 - 29, 1997. "Sustainability & Local Environments; Myths, Models & Milestones", University of Sydney, NSW. This is Environs Australia's second National Conference and it will explore the cutting edge of sustainability practice in local communities, and contribute to the development of achievable goals and solutions for the 21st Century. Contact Peter Lyons, Executive Officer, Environs Australia, 2nd floor, Ross House, 247 Flinders Lane, Melbourne, Vic 3000. Phone (03) 9654 1322, fax (03) 9654 1625 or email <mcavic@peg.apc.org>.

December 6 to 9, 1997. "The 3rd International Megapode Symposium" - for science and Conservation. In Victoria's Little Desert National Park, this conference emphasises the personal experiences of those studying this unique family of birds in some of the most remote regions of the world. Speakers include academics and professional ornithologists as well as field ecologists, wildlife managers and naturalists from around the world. Enjoy the mallee environment - home to one of the most unusual megapodes, the malleefowl. Accommodation is Whimpey's Little Desert Lodge, Nhill. Contact Dr. Darryl Jones, Faculty of Environmental Sciences, Griffith University, Nathan Qld 4111, Australia, Phone 61 7 3875 7451, Fax 61 7 3875 7459, E-mail: D. Jones@ens.gu.edu.au

9 - 12 December "The Other 99% - The Conservation and Biodiversity of Invertebrates". Sydney, NSW.

The objective of this meeting is to demonstrate the importance of invertebrates in biodiversity research and in nature conservation. Contact the Australian Museum, Invertebrate Biodiversity Conference, 6 College St, Sydney NSW 2000, Fax (02) 9320 600, E-mail: invert@amsg.Austmus.oz.au

Excursions and Field Trips

Every Sunday, 7pm sharp. Sunday Morning Walks in Queensland's Toohey Forest. Meet at the Toohey Road carpark. Contact Chris Stokan (06) 3343 2943.

Platypus "Behind the Scenes" Tours, presented by the Australian Platypus Conservancy. The tour includes: illustrated talk on platypus by Conservancy researchers, learn about platypus research techniques, then try spotting platypus in the wild. Dates: Sun 27 July, Sat 2 August, Sun 17 August, Sun 31 August. Each tour lasts about 2 hours. Tours commence 3.00pm at Toorourrong Reservoir Park, near Whittlesea. Bookings essential. Contact (03) 9716 1626.

July, Thu 31, Mullum Mullum Creek Revegetation Walk. Join Jane Pammer and the FO Warrandyte State Park on an afternoon stroll. The revegetation of this linear strip of bushland is a wonderful example of what can be done to "bring back the bush". Meet cnr Deep Creek Drive and Warrandyte Rd, Warrandyte at 1:15pm. Melways 34 F3. Contact Mike Coupar (03) 9903 9567 or Ron Taylor (03) 9844 4285.

August 9 - 10 and 23 - 24 - VicGroup Banding Project at Rushworth. Co-ordinated by Charles and Joan Sandbrink. A Birds Australia research project carried out at several sites. Help would very much be appreciated. At this stage weekends are also planned for 6 - 7 and 20 - 21 September, 18 - 19 October, 8 - 9 and 22 - 23 November, and 6 - 7 December. Ring Joan or Charles on (03) 9401 2832 after hours, or Charles at Head Office on (03) 9882 2622.

Sat 17 - Sun 24 August. The 1997 Annual exhibition of the Wildlife Art Society of Australasia. Held at the Historic Building of the Victorian Artists Society, Albert Street, East Melbourne. Sat to Wed 11am - 4:30pm. Thur to Fri 11am - 8pm. Contact Krystii Melaine (059) 629 224.

September - "Bird Weeks with Graham Pizzey at Gipsy Point Lodge". Gipsy Point Lodge is a small guest house situated on the Genoa River at the head of Mallacoota inlet in Victoria. Surrounded by Croajingolong National Park and the waterways, the lodge has a feeling of remoteness that belies its proximity to Melbourne, Canberra and Sydney. Graham is well known for his ability to locate and identify birds both by sight and call and for his knowledge of bird behaviour. As well as bird watching during the day, Graham will present illustrated talks in the evenings. Dates: Sun 7 to Sat 13, Sun 14 to Sat 20. Tariff is \$950 for the week, including accommodation and meals. Contact Alan and Susan Robertson, Gipsy Point Lodge 1800 063 556.

July 26 - 27 and later in the year. Orange-bellied parrot counts on French Island. FO French Island carry out the parrot counts as part of the Birds Australia survey. Our intention on these trips is to combine monitoring with weed and rubbish removal. We usually depart from Stony Point on the 9.00 or 10.00am ferry. Project days may be postponed because of tidal or other factors. For this reason, and to enable transport to be arranged on the island, please contact Des Quinn (03) 9543 7315, Francis Garner (03) 9783 4213 or Geoff Lacey (03) 9578 2873 at least three days before scheduled project day.

July, Sun 27, Sunday Family Day "Frogland" - Friends of Warrandyte State Park. "Frogland" is an exciting ongoing project involving the creation of wetland habitat for aquatic flora and fauna. The rabbit proof fenced area is also a haven for rare and endangered plants. A variety of activities including dip netting in the pond and have a hunt for frogs. Bring a plate to share for afternoon tea. Time 1 - 4pm. Meet: "Frogland" Warrandyte State Park Depot, Pound Bend Rd, Warrandyte, Melways 23 C10. Contact Mike Coupar (03) 9903 9567.

August, Sun 3. Hochkins Ridge Flora Reserve - creekside planting day with the Friends of Hochkins Ridge. Bring your gloves and enthusiasm and help restore the creek and this significant, beautiful bushland reserve. Contact: Laurie Black (03) 9726 0714 or Tony Meeuwesen (03) 9726 9530 for times and site details.

August, Sun 3. Greenlink Oakleigh 10am. - Pricking out and BBQ. The nursery is located at the southern end of the Senior campus of South Oakleigh Secondary College, Bakers Rd, South Oakleigh (enter via the carpark nearest centre Rd). Contact Doug Evans (03) 9568 4090 AH.

August, Sun 3. Friends of Merri Creek - Coburg Lake Litter Removal morning. 9:30am. Downstream from Coburg Lake (near Murray Rd Bridge). Contact (03) 9480 5492.

August, Thu 7. FO Warrandyte State Park morning activity. 10 am. Normans Reserve Fern Gully was once choked by ivy, pittosporum and cotoneaster. After several working days almost all weeds have been removed. We will do a check for any regrowth and plant some of our rare ferns and other plants into the site. Meet at the car park, end of Bradleys Lane, North Warrandyte, Melways 23 B12. Contact Joan McMahon (03) 9844 3213.

August, Sat 9. FO French Island - project day. Weeding and preparation of breeding sites for Fairy Terns on Rams Island. We usually depart from Stony Point on the 9.00 or 10.00am ferry. Contact Des Quinn (03) 9543 7315, Francis Garner (03) 9783 4213 or Geoff Lacey (03) 9578 2873 at least three days before scheduled project day.

August, Sun 10. FO Yandell Reserve - Planting day. 10am. Meet near the scout hall off St. Helena Rd, Greensborough (Melways 21 B1). Contact Graham Patterson AH (03) 9432 0163.

August, Wed 13. FO Sherbrooke Forest - project morn-

Restoration Activities

ing. 9:30am. Welch Plateau No 3. Meet at Nation Road entrance (Melways 75 K10). Mainly ground ivy, cestrum and holly control. BYO gloves, secateurs, cup and warm clothing. Contact Vivien Freshwater (03) 9754 3093.

August, Sun 18. Greenlink Oakleigh 10am. - Project morning. Weeding at Alex Wilkie Reserve, McKay St, Springvale. Contact Doug Evans (03) 9568 4090 AH.

August, Sat 23. Friends of Sherbrooke Forest - project afternoon. 1pm. Monument Track site. Meet at the corner of Mt Dandenong Tourist Road and Sherbrooke Road (Melways 75 D1). Ivy and holly control. BYO gloves, secateurs, cup and warm clothing. Contact Vivien Freshwater (03) 9754 3093.

August, Thu 28. FO Warrandyte State Park morning activity - Scotchman's Hill. 10am. Come and visit one of Warrandyte State Park's newest additions. First, a wander over the reserve and then remove a patch of broom from the best orchid area. Meet at the top of Scotchman's Hill off Magpie Lane, Warrandyte, Melways 23 G11. Contact Joan McMahon (03) 9844 3213.

Visitors/participant are welcome to all events listed in Indigenotes.

Thank you to all the people who have contacted us regarding on-coming events their groups are organising. Elissa Kerassitis (03) 9486 6768.

Special Events:

Creswick Landcare Centre 1997 workshop series presents an Environmental Weeds Debate

Sunday 27 July 1997

2 - 5 pm at Daylesford Town Hall, Main St, Daylesford.

In a lively thought provoking debate David Holmgren, Permaculture Design Consultant and Geoff Carr, Environmental Management Consultant, will argue their case for and against exotic plants in the natural environment.

Among other things the protagonists will give their views on management of a local, weed invaded gully.

Cost: \$6 full, \$4 concession, include afternoon tea and notes. For bookings, ring Creswick Landcare Centre on (03) 53 452 200

Orange-bellied Parrot Update

The first Orange-bellied Parrot count for 1997 was held on 18 May. A total of 45 Orange-bellied Parrots was recorded: 22 at Point Wilson/Werribee Sewage Farm, 15 at Lake Connewarre, two on French Island and six on King Island.

The next count is the national count, to be held on 26 - 27 July. If you are interested in assisting in the count, please contact Jonathan Starks at Birds Australia National Office on (03)98822622.

Vision for the Bays -

Developing opportunities for Victoria's Central Coast: A conference for Managers and Users of Victoria's Central Coast and its bays

Thursday 31 July 1997

Melbourne Convention Centre

It is the beginning of a new era. There is a resurgence of community, environmental, commercial and Government interest in the coast. With this has come new management systems and the opportunity to enhance and develop exciting marine and coastal activities while sustaining the natural and cultural values of the region.

This conference provides the opportunity for managers and users to learn of the recent work of key players, and to raise and debate the issues. This is your chance to contribute to the achievement of a shared Vision for this region.

Conference Program includes:

- Welcome and Opening by Hon Marie Tehan, M. P., Minister for Conservation and Land Management
- "The Central Coast Board: its role & vision", Speaker: Campbell Rose, Chairman, Central Coast Board
- "Port Phillip Bay: Managing the future." Speaker: Geoff Bray, General Manager - Planning and Development, Parks Victoria
- "Parks Victoria's Environmental Management System." Speaker: David Young, Director, Conservation and Environment, Parks Victoria.
- "Regional Tourism Development; The plan for the island, Bays and Peninsulas." Speaker: Wayne Kayler-Thomson, General Manager - Industry Development, Tourism Victoria.
- "The Value of the Bays: the Bays Asset Management Study." Speaker: John Russell, Director, KPMG
- "The Statewide Context: the Bays in Perspective." Speaker: Diane James, Chairman, Victorian Coastal Council.
- "The Central Coast: Environment & Activity baseline." Speaker: Brad Miles, Executive Officer, Central Coastal Board.

For more information and to register contact: Visions for the Bays Conference, Parks Victoria Information Centre, Vault 11, 383 - 385 Flinders Street, Melbourne 3000, Phone 131963.

Green Wedge Environment Seminar Series: Wildlife

<u>Date</u>	<u>Topic</u>	<u>Speaker</u>
7 August	Platypus	Melody Serena
4 September	Bats	Lindy Lumsden
2 October	Native fish of the Yarra	George Paras
6 November	Wildlife Corridors	Andrew Bennett
4 December	Foxes	Linton Staples

The seminar program is held on the first Thursday of every month at 7:30pm in the **Warrandyte Community Centre**, Yarra Street, Warrandyte. For more information contact Bill

The Victorian National Parks Association Inc announces a crucial conference
Victoria's National Parks - The Next Century

Friday 24th (evening) and Saturday 25th October 1997 (9:00am - 5:00pm)

Victoria has led the way in the development of a comprehensive conservation reserve system. As Victoria's National Parks prepare to celebrate their centenary in 1998, government reforms herald fundamental changes to the ways in which parks are established and managed:

- The Land Conservation Council is being replaced
- Parks Victoria has been created to take over management of the Victorian conservation system
- Changes to the National Parks Legislation are imminent

These changes will create new park structures and management regimes. BUT will these changes provide the opportunities to enhance the management of our unique natural and cultural assets while providing for the needs of people through the next century?

Through plenary sessions and workshops, this conference will consider such timely issues as:

- Pressures on parks in the next century including global changes in park management
- Who should pay for park management?
- Tourism: opportunities and challenges
- Neglected areas - marine, woodlands and grasslands
- Marketing, education and interpretation
- Aboriginal communities and park management
- Park Rangers: an endangered species?
- Friends: supporters or supplanters?
- Management issues: wildlife, invasive pathogens, pests and weeds
- Understanding fire and Greenhouse implications

Who should attend? Anyone involved or interested in the future of Victoria's national parks - policy makers and managers, Rangers, Friends Groups, park neighbours, tourism and recreation industries, concession operators, scientists, environmentalists, and park users.

To receive details and Registration Form, contact PR Conference Consultants Pty Ltd, 113 Whitehorse Road, Balwyn, 3103, Fax (03) 9816 9287, Phone (03) 9816 9111.

Platypus Fieldwork Training

An intensive practical course and research expedition

24th October to 7th November 1997

This two week training course will provide a "hands-on" introduction to platypus research and a range of other practical biology study skills. It is ideally suited for tertiary students and recent graduates, who are specialising in zoology, environmental management or related disciplines. Applications will also be considered from other persons with a general interest in ecological studies.

It will cover key aspects of wildlife research techniques, with particular emphasis on platypus trapping, perhaps one of the most challenging of fieldwork experiences because of its predominantly nocturnal and aquatic nature. The culmination of the course will involve organising an all night platypus trapping survey in a remote creek.

Places are limited to eight participants so applications should be submitted immediately. Course/expedition fee: \$1500, covers all accommodation, food and tuition, including use of specialist equipment. Contact Australian Platypus Conservancy, PO Box 84, Whittlesea 3757, Ph. (03) 9716 1626, Fax (03) 9716 1664.

A Field Skills Workshop

29 September to 5 October 1997

The Victorian Field Naturalists Clubs Association will be running their second Skills Workshop at Lady Northcote Recreation Camp, Rowsley. Led by some well-known naturalists, including Malcolm Calder, Ken Simpson and Leon Costermans, the workshop will provide skill training and field application projects such as observation skills, plant and animal identification, geological and ecological interpretation, project design and team involvement, mapping and recording, use of references, and report presentation.

Friends of Parks and Reserves are invited to apply. Contact Dick Southcombe GFNC/VFNCA Rowsley, PO Box 1047, Geelong 3213; Phone (03) 5243 3916.

Snippets:

Mount Lofty: Park at Last

By Mike Coupar,

The Bill officially incorporating 88 hectares of Mount Lofty into the Warrandyte State Park was passed by the Upper House of Parliament recently. Congratulations to the many people who worked hard to ensure the protection of this special area.

Mt Lofty is truly a special part of the Warrandyte region for it offers the opportunity for passive recreation and relaxation. One can experience a feeling of remoteness during the five kilometre river walk from Lower Homestead Rd. to Witton's Reserve, or while canoeing the rapids of the gorge.

Mt Lofty, being the start of the gorge, has special geological significance for the Melbourne region, since it is the eastern most part of the uplifting which formed the Warrandyte hills some five to eight million years ago. The ancestral Yarra river maintained its meandering course during this era by incising its bed to keep pace with the uplift. In the process, river and uplift have created slopes, cliffs, undercut bends, rapids and river flats.

In the 1960's the Melbourne and Metropolitan Board of Works (MMBW) acquired Mt Lofty as part of the now thankfully defunct Yarra Brae Reservoir project. Imagine a dam wall holding the Yarra back along Yarra Brae, Mt Lofty and out into much of the Yarra Valley! In the interim Mt Lofty has been leased for grazing by the MMBW - now Melbourne Water. Much has been done over the years to get Mt Lofty formally included in the State Park. However a constant obstacle has been the cost of acquisition or finding a suitable swap of land. It would seem that the recent amalgamation of Melbourne Parks and Waterways with the Department of Natural Resources & Environment into Parks Victoria has overcome this problem.

The Warrandyte State Park Management Plan released in 1990 describes Mt Lofty as follows: "It features steep-sided slopes and magnificent panoramic views of the Yarra valley. Most of the block is cleared and has been extensively grazed, however, natural regeneration is occurring along the gullies, with a narrow fringe of remnant riparian vegetation providing refuge for wildlife".

Scott Seymour of Melbourne Water, who recently visited the area with Friends of Warrandyte State Park representative Flora Anderson, is of the opinion that "a significant amount of work needs to be done to control weeds, particularly water iris and to control bank erosion". It is obvious that restoration and vegetation works need to be undertaken along the river and up the slopes. Thankfully some of this has already started with fences to protect the wetland close to the Lower Homestead Road car park and other fragile remnant patches of vegetation along the river and on the slopes. With the help of Melbourne Water, the allocated money from the State Government and an enthusiastic Friends group, Mt Lofty at last will be getting some much needed attention.

Source: FO Warrandyte State Park Newsletter, June 1997

Organ Pipes National Park Extended: April 1997

A National Parks Amendment Bill has added 32,000 hectares to the state's park system in several ways: creating new coastal parks at Cape Liptrap, Bay of Islands and Cape Conran, upgraded regional parks to National Park status, as at Chiltern and Eildon, and added various properties around the edges of existing parks as has at last happened at Organ Pipes.

The Bill's reference to Organ Pipes is brief, merely stating that its areas is now 121 hectares instead of 85 hectares and referring to a map held by the Natural Resources and Environment department. It got through the Legislative Assembly in March, the Legislative Council on 12 April, and now only awaits proclamation.

The properties being added to the park were acquired in 1989 by VicRoads as part of their project to duplicate Calder Freeway. One of them was subject to a long-running dispute over the amount of compensation to the previous owner, which was settled in May 1995. So eight years later, the properties have the same protection as the older parts of the park, which is very welcome. The other addition is the "25 acres" block, which was acquired in 1979, and took 18 years to be given National Park protection.

The remaining problem is the Keilor block which is still owned by the City of Brimbank, although it has been managed as part of the park since 1986. Things move even more slowly in dealings with municipal councils than with freeway projects.

Source: F. O. Organ Pipes National Park Newsletter, No 72, June 1997

Restoring Native Grasslands: 1992-6

By Carl Rayner and John Morgan

In its first decades, restoration of the Organ Pipes National Park flora concentrated on the tree and shrub species, but effort has now shifted to grassland plants, which are harder to establish.

Keith McDougall experimented in the late 1980s with Kangaroo Grass on the "25 acres" by the freeway, an old farm paddock used for growing oats. This was fenced and rabbit-proofed in 1991 and experiments conducted on the best ways to establish a few rare species of flowering herbs, with initial help from several FOOP members.

Experiment 1 involved burning a plot of 10 x 10 m in April 1992 and staking out within this area squares of 1.5 x 1.5 m. In these squares four different ways of treating some plant species were tried: seedlings grown in clay soil with or without mulch, in potting mix, or planted with bare roots. This was done with two species - Showy Podolepis (*Podolepis jaceoides*) and Chocolate Lily (*Arthropodium strictum*). The Podolepis was very successful in 2 plots, flowering in 3 of the 4 years since and producing many new plants. Some plots, invaded by an exotic Vetch were sprayed which killed native grasses. Nevertheless, some native grass tussocks replaced a

few of the experimental herbs. The different treatments showed results that were very similar. The first Chocolate Lilies flowered in their first year, then no more and all were eventually supplanted by grass tussocks and weeds. In the first year, the different treatments were about equally successful.

Experiment 2 involved burning the 12 acre site in April 1993 and establishing eight plots of 5 x 2 metre in a patch of Kangaroo grass. A mix of 65 plants of 7 rare species were planted in each rectangle, some with potting soil, some with bare roots. Survival of all species was disappointing, but a drought from March 1994 to January 1995 did not help.

The results show the difficulty in re-establishing native species into grasslands with many weeds. More experiments are needed, but meanwhile it seems likely that scarce resources would be better invested in managing good quality sites.

Source: F. O. Organ Pipes National Park Newsletter, No 72, June 1997

Native Grassland News

Merri Creek Management Committee is currently working on a report documenting management guidelines for the grasslands of the Merri Creek. The report is written for field technicians with specific details about techniques for weed control, biomass reduction, and some discussion of rare species management. The report, as well an accompanying brochure and poster, will be available from MCMC in early July (03) 9380 8199.

Parks Victoria have taken over management of the Cooper St. grasslands. They are planning to appoint a Grasslands Ranger, who would be responsible for Cooper St., Derrimut and Laverton Nth grasslands. To date, most of the management at Cooper St. has been carried out by the MCMC Parklands Management Team, with funding from grants programs, and there has been little regular management work at the site. Hopefully with the appointment of a Grasslands Ranger, with specific responsibility for and expertise in grassland management, regular weed control works at Cooper St. will occur, to protect and enhance its important conservation values. For more information about Cooper St., ring Organ Pipes National Park, Brimbank Park or the Merri Creek Management Committee.

From Judy Bush, MCMC, 2 Lee St., East Brunswick, 3057. Ph. (03) 0380 8199

Garden Success Story

Fiona Brockhoff Garden designer

Building a home and establishing a garden amongst the tertiary dunes of Sorrento's Koonya beach was initially a challenging task. Working with indigenous flora and other plants tolerant of a hydrophobic sandy soil and strong winds we designed a garden which was site suited.

After retaining, leveling and topping with granite dust from the nearby Dromana quarry, the areas around the house were planted with, amongst other things, a metre long piece of pigface (*Carpobrotus rossii*) donated by a local grower, which I divided into small pieces and tucked into the gravel along the top of the main terrace retaining wall. Within weeks the vigorous growth of the pigface was evident.

Soon after we left the cool Australian summer for a holiday overseas. On our return, three months later, an invasion of significant proportion had occurred and our thoughts turned to warfare and discipline. Initially, we placed barrow-loads of juicy prunings in the chickens coop as forage. Alas, the girls were not truly interested.

Eighteen months later, after taking eight utility loads to the tip and donating all we could to our neighbours, we have a severely disciplined border of pigface. Over summer we enjoyed, as the local Koori tribe once did, cherry-sized fruits full of a jelly tasting of pineapple and feijoa - a textural oddity, but a taste sensation, not to mention a lush green curtain with divine fringed magenta blooms.

Source: Saturday Extra, The Age 7 June 1997

From the Editor: Help!

Editing Indigenotes is a big job most months and only a few people do the work once contributions are made by individuals and all the newsletters we have exchanges with.

Elissa Kerassitis has done Coming Events, and helped a great deal with typing other material, for at least two years (?) now and she wants a break because of increased work commitments. We need someone to work with her and take over the job at some point in the near future. You'll need a long evening or day a month to contribute and access to a computer, although that can be arranged if need be. It's an interesting and rewarding task.

I also need someone to help type and edit articles as well. Please give as a ring if you want to help... And please keep contributing, it is the only the newsletter works. Thanks, Lincoln

Weed Issues:

An Australian Abroad and the Threat to Native Vegetation

At the Trondheim Conference on alien vegetation, in Norway, it emerged that..."exotic species are now an even greater threat to biodiversity than development". This quotation is from an article by Linda Pithers in "Veldt and Flora" in the *Journal of the Botanical Society of South Africa*, Vol. 82 (4) December 1996.

If this statement is correct it behooves us to redouble our efforts to control, and if possible eliminate the many aliens that threaten the native species on the Peninsula. But for the efforts of Betty Clift, the Reserve that bears her name would assuredly by now have been developed, and the great variety of indigenous plants that grow there would have been wiped out, as they have been in equally rich areas in the neighbourhood. The reserves being handed over by the Shire Council to Friends Groups for maintenance might yet be sold off to developers if they are neglected.

The article referred to above, "Wattles and Water Affairs", was specifically concerned with the spread in South Africa of the Black Wattle (*Acacia mearnsii*) into the waterways and catchment areas. Since its introduction from Australia last century, this plant has become a most aggressive alien.

It was a chance introduction by one John Vanderplank who came to Australia intending to settle, but having stoppe in Natal on his outward journey, and been impressed by the farming potential of the land, decided to settle there. He took with him from Australia a matchbox full of seed from trees that had attracted his attention. These he planted around his farmhouse. Their rapid growth and beauty impressed his visitors to whom he gave seeds.

In a few years it was found that they flourished under a wide diversity of conditions from the coast to the interior. An enterprising chemist investigated the moisture he noticed under the bark. This proved to be tannic acid, and very soon plantations were established, the bark harvested and a promising industry developed. By 1898 there were 22,000 acres under wattle, and a trial shipment of 900 tons of bark was sent to Australia. Coal to Newcastle? It would seem not, since it could be more cheaply produced in South Africa. The climate suited the trees so well that they grew, on average, to 24 feet in height in 18 months to 2 years.

In the Republic of South Africa today there is a desperate need for industries such as this to boost their economy. It yields pre-tax profits of R750 million, A\$211 million, and provides work for 1400 persons directly, and another 6000 in ancillary jobs. Hence the dilemma has arisen between the conservationists and farmers anxious to eradicate the wattle, on one hand, and the industrialists on the other. There is at least one biological control that has been tried successfully in

one area; a seed-eating weevil. However, if it was to be released more widely, it would threaten a very valuable financial asset.

I suspect that most of the troublesome weeds here are garden escapes, or chance introductions which have eluded quarantine searches. As far as I know, they do not as yet threaten industry, but there could be a threat to our diverse indigenous flora, in the future, should it be discovered that these introduced weeds have medicinal or other properties. Their commercial development could follow as for the wattle in South Africa.

The by-products of the Tea-tree and Eucalyptus are well known, but there is much to be learned about the medicinal properties of plants, in the light of modern research, that may be of great value to the well-being of society.

Frances Isaac

Source: SPIFFA Newsletter June/July 1997

New weeds threaten pastures: exotic tussock grasses.

**Nassella hyalina*

New South Wales and Victoria both have reported infestations of *N. hyalina*. It has become common over many hectares on the proposed site of the Fairlea Female Prison at Ravenhall and has also been found at Deer Park, in the Organ Pipes National Park, at Turpins Falls between Metcalfe and Barfold, at Woodstock and at Lollypop Creek, north west of Werribee. There are hundreds of hectares of infestations in the western suburbs of Melbourne.

Native to Argentina and Uruguay, it is a perennial, possibly introduced when trialing new pasture grasses. It has high seed production but the seed is small and unlikely to cause damage to animals. However the plant sometimes produces underground/stem seeds (cleistogenes). In Argentina it is common but quite sparse, has only intermediate feed value and also occurs in woodlands. Its weed potential in Victoria is considered moderate.

Texas Needle Grass (**Nassella leucotricha*)

Native to Texas and other areas of southern North America. It has been identified at Brighton, Pascoe Vale, Campbellfield, La Trobe University and Rosanna in Melbourne and at Sunbury, Mt Ridley near Craigieburn, Taradale and near Clunes. It is a perennial plant providing winter feed in Texas, common in overgrazed pastures. Texas needle grass produces cleistogenes and has seed similar to Chilean needle grass. Its weed potential is unknown (possibly medium to high).

Uruguay Needle Grass (**Nassella charruana*)

This species was first found at Thomastown in 1990 in a study commissioned by Vic Roads and carried out by Ecology Australia. A contractor was hired to clean up the infestation but control was not effective. Another infestation has been found at the southern Plenty Gorge at Janefield reserve. It is thought that this grass could be invading

surrounding pasture properties but no surveys have been conducted to date.

Uruguay needle grass is a South American perennial with a very distinctive seed with large lemma lobes. It forms dense competitive infestations in Australia and in Argentina, where it is invasive and locally common. Uruguay needle grass is very poor stock feed, with high seed production and very high weed potential.

Mark Gardener, a PhD student working on Chilean needle grass, recently spent two months in Argentina where he found that serrated tussock and Chilean needle grass were not considered important weeds, whereas Uruguay needle grass was an extremely noxious weed due to its very sharp and clinging seeds, invasiveness, competitiveness and unpalatability.

**Nassella megapotamia*

This species is a native to South America and only known in Australia from the Canberra region. It is apparently an escape from plant introduction plants.

**Piptochaetium montevidense*

This small perennial grass is uncommon in Argentina. It was first recorded in Victoria by Geoff Carr in the late 1980's and was found at Cherry Lake, Altona. It produces many seeds that cause no problems to livestock, has unknown stock food value and low weed potential.

**Achnatherum caudata*

This species also known as *Stipa caudatum* comes from South America. It is now found in New South Wales, Tasmania and Victoria where it is known from Simpson, Maryborough, Bromley south of Dunolly and Campbells Creek near Castlemaine. It is a perennial, with poor stock feed quality. Cleistogenes are common at the base and nodes seed production is high but the seed does not affect the stock. It has high weed potential.

**Achnatherum papposum*

This species, also known as *Stipa papposa*, is found in southern Brazil, Uruguay, Argentina and Chile. It has been identified in South Australia, where it was recorded as naturalised periodically between 1968 and 1995. Little is known about the weed potential of this grass.

**Achnatherum brachychaetum*

Also known as *Stipa brachychaetum*, this grass is native to Uruguay and Central Argentina. It is an uncommon weed of pasture, found on the north western and central western slopes of NSW.

Thanks to Val Stasjic, Mark Gardener, Geoff Carr and Cam Beardsell for information on these new weeds.

David McLaren and Ian Faithfull

Phone (03) 9785 0101

Source: Under Control, Number 2 May 1997, newsletter of the Keith Turnbull Research Institute. To get on the mailing list contact the editor Ian Faithfull: KTRI PO Box 48, Frankston, Vic, 3199 or phone (03) 97850111 or fax (03) 97852007. Email is I. Faithfull@nre.vic.gov.au

Book: **Field Guide to the Orchids of New South Wales and Victoria**

**By Tony Bishop, University of NSW
Press**

This book instantly attracted my attention because of the beautiful photographs of orchids on the cover showing their subtle shades of pink, purple and yellow. It reminded me of the subtle beauty of many indigenous plants that people miss even in their own back yards and in our National Parks. Hopefully books like this will encourage people to take a closer look and be rewarded by the treasures that nature conceals for those that take the time to look more carefully. This book is a true field guide and is small enough to be comfortably carried. All the photographic plates have been put into a single section of the book, where species are arranged according to similarity of appearance. This makes it very easy to see the slight differences between some species, for example while comparing the 18 colour plates that are arranged side by side showing some of the greenhouse orchids. At the back of the book there are also keys provided for each genus containing more than one species.

The author, Tony Bishop, said that he tried to use as much everyday language for the non-botanist. However, he realised later that this could have cumbersome imprecise results so a glossary is provided at the back of the book. A helpful addition here would have been the inclusion of some floral diagrams showing the different parts of particular orchid flowers.

The book says that the first important step is to recognise if your specimen is an orchid, so how do you tell? In Victoria and NSW, orchids can be distinguished by the fact that rather than having separate pistil (female parts: ovary, style and stigma) and stamens (male parts: anther in orchids), they have a single structure - the column - that combines both. They have three sepals and three petals; one of the petals is generally very different from the others (except in sun orchids) and is known as the labellum (lip) and can be elaborately developed.

A good diagrammatic comparison of three different groups of common orchids (*Caladenia*, *Thelymitra* and *Pterostylis*) can be found in the Flora of Melbourne (page 210).

Happy orchid hunting!

**Review by Angelique Stephanatos in Friends of
Warrandyte State Park Newsletter, July 1997.**

IFFA activities:

IFFA (Vic) Meeting

**Tuesday, 29 July 1997,
7:30 PM**

**Astronomer's Residence, Birdwood
Avenue, South Yarra**

Subject:

National Weedbuster Week

October 12-19 1997

**What should IFFA do during this
event to help highlight the weed
issue as we see it?**

**Please come along to discuss
IFFA action during this national
week of action.**

SPIFFA

Public meetings are on the first Monday of every month at 7:30 pm at the Waterfall Gully Community Centre, corner of Bayview Rd. and Nixon St., Rosebud.
Contact Jon Greening (03) 5985 5561.

Membership

IFFA membership costs
\$40 for non-profit organizations,
\$50 for corporations,
\$25 for individuals and families,
or \$20 concession.

Membership includes
11 issues of *Indigenotes* per year.

Members should check the mailing label to ascertain the status of their membership. If people require and invoice, please send a purchase order and we will oblige accordingly.

Otherwise we do not issue reminders to members.

Cheques can be remitted to the Membership Secretary's P.O. Box as listed. A receipt will be attached to the front page of the following issue.

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Contributions to *Indigenotes* should be sent to the editors — the deadline for the next issue will be August 11th. Contributions can be typed or hand written but computer disk copies on IBM-compatible format is preferred.

*The views expressed in *Indigenotes* are not necessarily those of the Indigenous Flora and Fauna Association.*