

INDIGENOTES

VOLUME 2 NUMBER 2, FEBRUARY 1989.

February Meeting

Tuesday 28 Feb, at 8 p.m. on the third floor at Ross House, 247 Flinders Lane, Melbourne (between Swanston and Elizabeth Streets). To get in, be on time, or yell loudly. Naturalist and owl enthusiast Ed McNabb will talk on "Nocturnal animals of Gembrook Forest". See coming events.

March Meeting

Tuesday 28 March.

March Excursion

Saturday 4 March. Excursion to Gembrook State Forest, led by John Reid. Meet at 9.30 a.m. at the Gembrook Community Centre (Melways map 189 K10), to leave **promptly** at 10. See coming events.

Articles

Contributions to Indigenotes should be sent to the Editor, Tony Faithfull, 10 Alsace Street, Brunswick East 3057 (03) 3860264. The deadline for the March issue is March 3rd.

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CONTENTS:

Vox Bandicoot – a new environmental education experience in schools, by Frank Ryan.	2
Notes on Seed dispersal by Cunninghams Skinks (Egernia cunninghami) at Brimbank Park, Keilor, Victoria, by Geoff Carr.	3
Coming Events	4
Snippets	5

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Vox Bandicoot - a new environmental education experience in schools.

By Frank Ryan*

The Eastern Barred Bandicoot is seriously endangered. Its last remaining modern-day habitat is a tip site in Western Victoria. Here the Bandicoot has found refuge from predators, both natural and feral, among the rusty car bodies and derelict televisions. It is a supreme irony that these symbols of a throwaway society which has put so much pressure on nature, have become the Bandicoot's last chance against extinction.

The problems faced by this animal are symptomatic of an increasing range of crises occurring in the natural environment - forest loss, ozone layer depletion, salinity, the hazards of nuclear materials, species extinction, urban pollution, etc. - have become part of our regular newspaper and television news diet. The impact is often overwhelming for both adults and children alike. People feel powerless and numbed, unable to know quite what to do about it. As we know, one refreshing response over the last decade has been the development and growth of environmental education. Many schools now undertake environmental education programs which seek to create both awareness and action to redress aspects of environmental degradation.

Well, the Bandicoot itself has now been chosen as a symbol for a new touring environmental education experience which will soon be visiting schools all over Victoria. The program is called *Vox Bandicoot*, which means "voice of the bandicoot". It was launched in September 1988 at C.E.R.E.S in Brunswick.

This new mobile environmental education service has been established by Frank Ryan and Stephen Ray who have both long been involved in promoting environmental education. Frank has been a teacher with the Ministry of Education for 16 years, the last six at the Melbourne Zoo School, while Steve was the founder of the Gould League's Urban Studies Centre. Frank and Steve believe that *Vox Bandicoot* has a great deal to offer both schools and community groups.

Essentially there are three main elements to a school visit by *Vox Bandicoot*. To begin with, each individual class will get an opportunity for close, quiet contact with a number of Australian animals (reptiles - definitely not a bandicoot), which aims at encouraging a sense of empathy. Following this a number of classes will be brought together in the school's gym or multi-purpose room for a theatrical education experience which will draw on the previous contact made with the animals and will employ simulation activity and group problem solving techniques while focusing on aspects of conservation education. The third element of the program is curriculum link-up, the provision of curriculum materials - both unit outlines and relevant activity suggestions - which will enable the experience to become a meaningful continuing part of the school program.

Vox Bandicoot is based on the State Conservation Strategy, which, along with the Government's Social Justice and Economic programs, is a major policy objective for Victoria. The State Conservation Strategy deals with such things as protecting flora and fauna, rivers, coasts and wetlands, forests, using resources wisely while also focussing on enhancing our cities, controlling pollution and hazardous chemicals ... all of which is pretty heavy stuff. *Vox Bandicoot's* aim therefore is to present these concepts in a way which is relevant and meaningful for students of all ages.

The project has been endorsed by the Victorian Association for Environmental Education, the Gould League of Victoria and the Centre for Education and Research into Environmental Strategies (C.E.R.E.S). It is being sponsored by the Ministry for Planning and Environment as part of its environment education program to promote the State Conservation Strategy.

Schools or community groups interested in finding out more about *Vox Bandicoot* or booking its services can phone (03) 489 0239.

Reprinted from *Eingana* Aug-Sept 1988 p11.

Notes on seed dispersal by Cunninghams Skinks (*Egernia cunninghami*) at Brimbank Park, Keilor, Victoria.

By G.W. Carr*.

In February 1989, during a study (Carr et al. in prep) of the vegetation and management of the Melbourne and Metropolitan Board of Works, Brimbank Metropolitan Park at Keilor, Victoria (Melways map reference 14, J9) we were fortunate to be able to make some observations on some unreported animal-plant interactions. These concern the role of Cunninghams Skink (** *Egernia cunninghami*) as a seed dispersal agent. Many interesting questions are raised by these observations.

As usual, the vegetation study involved the collection of data from quadrats to document the vegetation communities. Some of the best remnant vegetation in the deeply incised valley of the Maribyrnong River occurs on the basalt scarps high above the river at the edge of the basalt plains. One site - on vertical cliffs five metres high - contained some particularly rare plant species in the region, which for management purposes it is important to document. They included *Cheilanthes distans**** (Bristly Cloak-fern), *Pleurosorus rutifolius* (Woolly Cloak-fern), *Correa glabra* (Rock Correa), *Nicotiana suaveolens* (Austral Tobacco) and *Pelargonium australe* (Austral Stork's-bill). The vegetation in this area, which has had a long history of grazing, is also very weed invaded with abundant exotic grasses and the shrub *Lycium ferocissimum* (Boxthorn).

We saw several specimens of the colonial Cunninghams Skink which I assume is about as regionally rare as some of the plants we were interested in. The lizards scuttled for cover in the rocks or were seen firmly wedged in the narrow fissures which afford this rock-inhabiting specialist such excellent protection. This was not the

only evidence of the skinks. Numerous droppings of the lizards were found on the rocks. These were cylindrical, irregularly cigar shaped and up to 4.5 cm in diameter. Fresh droppings were accompanied by a characteristic white deposit of uric acid - like bird droppings. About 50 were collected for study.

Every turd tells a story and these were no exception. All recent droppings contained abundant seeds in a dark, red-brown matrix, with other material such as the wing-covers of beetles. The seeds (like small tomato seeds) were from the fruits of *L. ferocissimum* (Boxthorn), plants of which were scattered along the cliffs. Boxthorn bushes are extremely abundant in Brimbank Park and at the time they bore a massive crop of ripe fruits - spherical orange-red berries to 15 mm in diameter. Here, it appears, we had found a case of saurochory - seed-dispersal by lizards.

Many academic and practical questions are raised by this observation which bear on the role of lizards as seed dispersal agents, on the role of *Lycium* fruits in the economy of Cunninghams Skink populations, on the indigenous food resources of the species and the management of the site for lizards and weeds.

Lycium fruits conform to a general model of frugivory and internal dispersal by animals - endozoochory (van der Pyl 1972). At Brimbank Park, dispersal agents include Silver-eyes (*Zosterops lateralis*), Blackbirds (*Turdus merula*), and foxes (*Vulpes vulpes*). During field work, abundant evidence of this was found. Numerous fox scats contained only the remains of *Lycium* fruits and seeds.

It is beyond the scope of this article to review the evidence of seed dispersal by lizards in Australia. However, I was particularly pleased about this apparent example because, by imputation, large

* Ecological Horticulture Pty. Ltd., 29 Fenwick Street, Clifton Hill, Victoria 3068.

** Nomenclature of reptiles follows Cogger (1983)

***Taxonomic nomenclature of plants follows Forbes and Ross

Continued on page 6.

Coming Events

FEBRUARY

28 Tuesday, 8 p.m. IFFA meeting. Naturalist and owl enthusiast Ed McNabb will talk on "Nocturnal animals of Gembrook Forest". The talk will feature slides and tapes of the various owls, possums and gliders that occur in the area. On 3rd Floor, Ross House, 247 Flinders Lane, Melbourne (between Swanston and Elizabeth Streets). To get in, press the doorbell.

MARCH

4 IFFA excursion to Gembrook State Forest, led by John Reid. Meet at 9.30 a.m. at the Gembrooke Community Centre (Melways map 189 K10), to leave promptly at 10. You need to join the convoy at the start, or else you won't be able to find us. The area we are to visit has a wide range of vegetation communities - from wet heath and button grass to montane mountain ash forest. We hope to see several of these. This is a great opportunity to learn heaps about the flora and fauna of the area, and to have an enjoyable time in the bush. Bring lunch, walking boots and waterproofs. The forest tracks we will be driving on are okay for 2 wheel drive vehicles, but careful driving is required in some sections. We will definitely be visiting the Seven Acre Rocks area, and for people who are keen, and if track conditions are suitable, we may visit the Seven Acre Creek area to see the *Astelia australiana*. Allow 90 minutes from Melbourne. Please be early. Further details at the 28 Feb meeting. Contact John Reid, tel (03) 729 4863.

5 Sunday 10 a.m. La Trobe University Wildlife Reserves Campus Reserve Project Day. Poa labillardieri community establishment on carpet-mulched areas. Contact George Paras (03) 479 2871.

6-10 Involvement Volunteers Fair. For details see "Snippets".

9 Thursday, 8 p.m. "From the Kimberley to the Cooper - a contrast". FNCV Botany Group meeting. Win Bennet with slides. Meetings held at Astronomers Residence, Birdwood Ave., South Yarra.

11 -13 Saturday - Monday. Imverleigh Common. FNCV Fauna Survey Group, continuing survey of forest isolates on western plains. Contact Lawrie Conole (03) 481 4926.

12 Sunday, 10 a.m. Friends of the Yarra working bee at Galatea Point, Yarra Bend Park, Melways map 2D reference D7. Contact Max Dean (03) 489 2154.

18 Saturday. Leadbeaters Possum stag watch. FNCV Fauna Survey Group. Contact Raymond Gibson (03) 874 4408 (A.H.) (03) 328 2441 (B.H.).

18 Saturday, 10.30 a.m. Weeds Seminar. Speakers will include Geoff Carr, Vivien Freshwater and David Cameron. Horticultural Centre, 82 Jolimont Rd. Forest Hill. Contact Margaret Whitherspoon (03) 878 5998.

24-28 Biological Survey of marine park island. For further details see Snippets.

24-28 Wilderness Society easter mallee camp. Check out the Mallee in time for the LCC final recommendations. \$8 per tent per day. Contact Rod Waterman (03) 650 5229. Booking is essential.

28 Tuesday, 8 p.m. IFFA meeting. On 3rd floor, Ross House, 247 Flinders Lane, Melbourne (between Swanston and Elizabeth Streets). To get in, press the doorbell.

APRIL

2 Sunday, 10 a.m. La Trobe University Wildlife Reserves Gresswell Forest Project Day: Nesting Box Elevation. Contact George Paras (03) 479 2871.

30 Sunday, 10 a.m. La Trobe University Wildlife Reserves Campus Reserve Project Day: Woodland Community Planting. Contact George Paras (03) 479 2871.

Snippets

Tym Barlow has resigned as head ranger of the LaTrobe University Wildlife Reserves. Tym has been on secondment to the Western Region Commission since February 1988.

To our great pleasure one of IFFA's founding members, **Randall Robinson**, is returning to Australia in March from a sojourn in America.

Tremendous changes are taking place at **Galatea Point** in Yarra Bend Park. An area of a quarter acre was cleared of Rambling Dock (*Rumex sagittatus*) and Carpet Weed (*Galenia pubescens*) by nine "Friends of the Yarra" volunteers. Plantings done over the year were inspected and found to be doing very well. Max Dean and the group were even more satisfied with their efforts after the discovery and positive identification of two seedlings of Hazel Pomaderris. These are the first two to have been found at Galatea Point that arose by natural regeneration.

Involvement Volunteers Fair. March 6-10

Victorian Indigenous Nurseries Cooperative is organizing a display at the fair which will be held in the foyer of the A.M.P. building. The display is intended to encourage individuals to volunteer their skills and energy towards reestablishing local vegetation. Incorporated in the display will be information on salinity and land degradation although the main focus will be on current approaches to revegetation and how volunteers can contribute. This is an opportunity for local community groups to gain new members and/or an active workforce for current or future projects. The fair is open to school groups from 9.30 a.m. to 12.30 p.m., and to corporate groups from 12.30 p.m. to 3.30 p.m. People interested in participating should contact Mark Walsh (03)387 4403(B.H.), (03)489 9405(A.H.).

Waterplants in Australia is the title of a new book published by the Australian Water Resources Council. Accompanying the book is an information kit *Australian Water Weeds*. Indigenotes hopes to review these publications soon.

Biological survey of marine park islands

A series of surveys will be conducted on the islands of Nooramunga Marine Park (near Corner Inlet) to investigate their flora and fauna values. The work will contribute to the management plan for the park. The first survey will be conducted during easter - March 24 to 28. People who can offer field skills particularly in areas of botany, ornithology and invertebrate zoology are most welcome to participate in the survey. Boats would also be useful. This project offers a unique opportunity for naturalists to visit and work on these islands. Interested people should contact Julian Grusovin, Flora Survey Group, Field Naturalists Club of Victoria, (03) 543 8627.

Colac Herald 23/12/88

GARDEN WEEK

Victoria's Garden Week is renowned as the most important horticultural expo in the southern hemisphere and it is growing bigger and better every year.

This week comes the announcement that the 1989 Garden Week Expo will extend beyond the boundaries of the beautiful Burnley Gardens where it has been held for the last four years.

For the first time Garden Week will not only take place at Burnley from March 11 to 19, but will overflow into 75 retail nurseries and garden centres where all kinds of special displays, demonstrations, talks and gardening events will take place during that week.

The new scheme is the result of co-operation between the Nurserymen's Association of Victoria and The Nurserymen, the buying group of nurseries more correctly titled the Retail Nurserymen's Products Co-operative Ltd.

By expanding their activities for their annual autumn production and timing this to coincide with Garden Week, the Nurserymen have ensured

that it will truly be Garden Week everywhere.

Their general manager, Leigh Siebler, said this week that the theme of new and innovative ideas planned for Garden Week would be taken up in all the nurseries of the group.

"The emphasis in our promotion is on quality plants and new plants," he said, "and we are putting our energies into demonstrating that we offer quality, variety, good advice and service."

"Of course there will be as usual the autumn sale aspect and there will be a lot of good bargains to be found."

Many local nurseries will combine with local garden clubs for their activities.

Two luxurious Thailand holiday packages, each for two, will be won next Garden Week: one will be offered to Garden Week patrons at Burnley, the other to customers at The Nurserymen outlets.

The winners will enjoy Thai Airways Royal Orchid Holidays with five nights in Bangkok and three at Pattaya Beach as a result of this joint Thai Airways and Nurserymen promotion.

Please ring NAV on (03) 836 9533 for more information.

Seed dispersal by Cunninghams Skinks, (continued)

omnivorous lizards like the Cunninghams Skink seem a good candidate for saurochory. Others in the Victorian skink fauna include the Bluetongue Lizards (*Tiliqua spp*) and the Shingleback (*Trachydosaurus rugosus*). I have long suspected the Shingleback a seed disperser of *Astroloma conostephioides* (Flame Heath) and other succulent fruited epacrids in areas such as the Grampians in western Victoria. It would be a profitable field for investigation.

There can be little doubt that *Lycium* would benefit by ingestion and dispersal by Cunninghams Skink, although experiments would need to be performed to confirm this. Does the ingestion aid the germination of the seeds, as predictable? Are the seeds able to reach more favourable sites for germination because of the lizards? The answer to the last question is probably 'no', given the gigantic rain of *Lycium* seeds in the area from a variety of dispersal agents, notably birds.

Of particular interest are the questions concerning the indigenous flora and lizard dispersal. What, if anything, in the indigenous flora may be lizard dispersed and how has the general demise of the indigenous flora and the ascendancy of *Lycium* affected populations of Cunninghams Skink in this and other areas?

In the indigenous flora of the Brimbank Park area - on the scattered basalt outcrops and cliffs which afford the lizards their key habitat resource - several plants have berries or fleshy fruits which are dispersed by animals which are mainly imputed to be birds. The plant species include *Rubus parvifolius* (Native Raspberry), *Dianella longifolia* (Pale Flax-lily), *Hymenanthera dentata* (Tree Violet), *H. angustifolia* (Shrub Violet), *Einadia nutans* (Nodding Saltbush), *Enchylaena tomentosa* (Barrier Saltbush) and *Atriplex semibaccata* (Berry Saltbush). *Dianella revoluta* (Black-anther Flax-lily) is likely to have occurred there but it is now extinct. Other species may also have been lost. The fruits of these plants range from white, blue, yellow, and orange to red. What appears to be of overriding importance for the plants to select the right seed dispersal agent is its presentation for accessibility to a would-be disperser.

+ The distinctive *H. angustifolia* R.Br. ex D.C. is an apparently rare shrub (on the eastern Volcanic Plains) which has long been overlooked by taxonomists. Dale Tonkinson (pers. comm.) recently found several small populations in the Deer Park and St Albans area. The find will be reported elsewhere.

Notwithstanding the colour of the fruit, two classes are apparent in this plant group: those that retain fruits on the plant long after ripening (*Hymenanthera spp* and *Rubus*) and those that shed their fruit on ripening (the remaining species). Fruits on bushes like *Hymenanthera* would be unavailable to lizards as food; these species are clearly bird-dispersed. *Lycium* fruits drop to the ground where they are available to the skinks - and incidentally to the foxes.

At the study site the small shrubs *Einadia nutans* and *Enchylaena tomentosa* are present, though in small numbers. It would be very interesting to know if Cunninghams Skinks feed on their fruits. The fruits of these species however are very much smaller than those of *Lycium* and energetically they may not be a viable food source. Examination however will reveal if these species are also present in the skink faeces and germination tests will confirm if seeds are viable after ingestion by skinks.

What role does *Lycium* have in the economy of Cunningham Skinks at Brimbank Park? Is the species a strategic resource which the species require, and if so how many bushes are sufficient for the lizard populations?

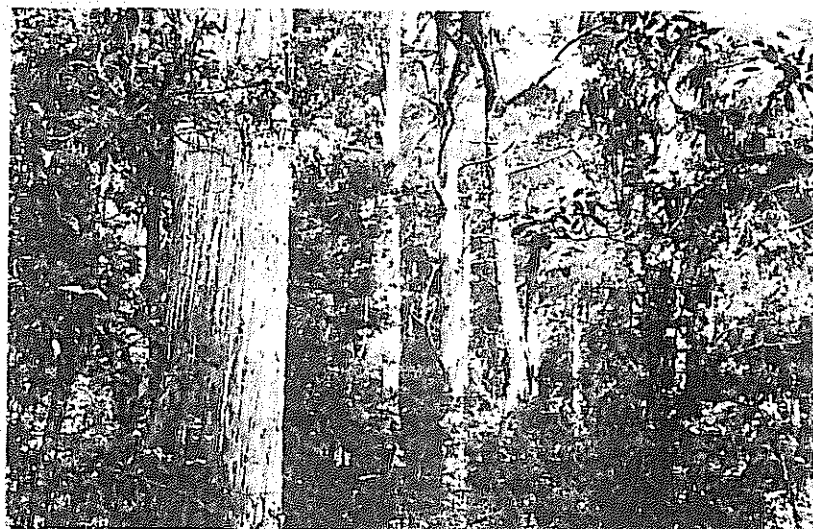
Under any other circumstances, the manager of an area like Brimbank Park would get rid of the *Lycium* because of its disastrous weediness. Perhaps the Cunninghams Skink populations would decline following removal. There seems little to replace this food resource either in quantity or quality. The *Lycium* however may be one of the numerous species which have caused the decline or extinction of populations of indigenous species which formerly provided the lizards with food. It is also likely that exotic plant species other than *Lycium* provide Cunninghams Skinks with food though it may not be as reliable as the long-lived, shrubby *Lycium*. *Solanum nigrum* (Black Nightshade) for example was locally plentiful and carrying abundant fruit. Seeds of exotic grasses were also present in the skink faeces.

Several lessons are apparent in this example of animal-plant interactions beyond the pragmatic considerations of vegetation and fauna management at Brimbank. They concern the interaction of botanists and zoologists in management-related problem solving and the role of exotic plant or animal populations as key food resources for indigenous species. In the case of Cunninghams Skinks we now require a study of *Lycium* utilization by the lizards to determine if the plants have to be retained and if so, how many. Perhaps other lizards in the area e.g. Bluetongues and Whites Skink (*Egernia whitii*) also utilize *Lycium*.

Minister allows logging in National Estate

EGC News February 1989

Minister for Conservation, Forests and Lands, Kay Setches has approved the logging of National Estate forest this summer in the remote Yalmy Valley in East Gippsland.



Threatened Yalmy Valley forest

The Yalmy Valley is adjacent to the Rodger-Bowen Wilderness in the Snowy River National Park and is an important buffer zone for this park.

The Yalmy Valley is to be fully gazetted on the register of the National Estate in April. The area is one of the few habitats for the rare Long-footed Potoroo and also features magnificent mature eucalypt forest with ten significant plant species.

Although there are many other areas currently available for logging the Government is content to see National Estate forests destroyed through clearfelling.

The Australian Heritage Commission has already removed three areas of East Gippsland from

Photo (and cover photos): Stephen Wood

the National Estate following logging over the last two years.

EGC will continue to lobby the State Government and increase pressure on the Federal Government to protect National Estate forests

Chris Wood

Continued from page 6:

And what of the larger question of saurochory in Australia? How widespread might it be in the dispersal of indigenous flora and what species are involved? Are there specific lizard dispersed plants or are both lizards and their plants generalists in such systems. Herpetologists and botanists unite!

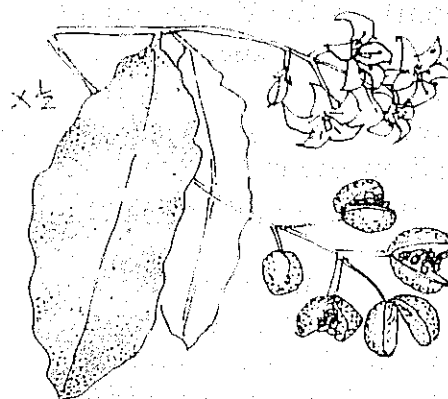
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SWEET PITOSPORUM
Pittosporum undulatum

What is IFFA?

The Indigenous Flora and Fauna Association (IFFA) is a body of professional and amateur biologists actively involved in the conservation of flora and fauna. IFFA provides well considered and qualified comment on issues affecting or involving indigenous biota, its ecology, and the environment.

The Association is committed to the conservation of all indigenous flora and fauna, and the preservation of all remnant and roadside vegetation (not just that contained in National and State Parks, and areas classified for specific significance). Preservation through management and restoration is essential to the well-being of these areas, and the resources of IFFA are available to both public and private sectors of the community to help establish appropriate management and conservation strategies. It is a primary objective of the association to research, collect and disseminate information to relevant groups and individuals.

The Indigenous Flora and Fauna Association meets at 8 p.m. on the last Tuesday of each month at the Environment Centre, First Floor, Ross House, 247 Flinders Lane, Melbourne (between Swanston and Elizabeth Streets). To get in, press the doorbell on the right hand side of the door. New members are welcome.

Details of research, education programs, excursions, restoration projects and other activities are in the association's newsletter 'Indigenotes', or contact IFFA, 10 Alsace Street, East Brunswick, Vic. 3057.

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