INDIGENOTES

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Fossils in conservation and the conservation of fossils

By Paul M.A. Willis

Continued from April Edition of Indigenotes

The Riversleigh deposits in north western Queensland have provided an unparalleled window into life in Australia between 20 and 25 million years ago. At that time Australia was covered in rainforests, a fact confirmed from numerous pollen records from around Australia. Within the Riversleigh rainforests we find the ancestors of most modern vertebrate animals in Australia. Marsupial moles, now specifically adapted to life burrowing through sands in central and western Australia, were originally rooting through the leaf litter of the forest floor. The ancestors of modern, desert adapted kangaroos were in the Riversleigh rainforests as were the ancestors of Australia's alpine adapted marsupials such as the Mountain Pygmy Possum. We can trace the evolution of these and other groups of animals out of the Riversleigh rainforests into the younger open forests of Alcoota (8 million years old) and Bluff Downs (4.5 million years old) and on to the grasslands and deserts of today. The story is reasonably clear; rainforests are the primeval home of Australia's living marsupials and, for most of the last 50 million years, rainforest, not desert, was the typical habitat for Australia. In the long-term, rainforests are the nursery of Australia's fauna. It appears that the high faunal diversity of rainforests provides the broadest range of evolutionary options to solve future problems and crises.

The message for conservation today is simple; if we are able to ensure the long-term survival of marsupials in Australia (by long-term I mean more than a million years) then the best survival strategy is to preserve rainforest habitats. Ideally we should be able to preserve representatives of all habitats but pragmatically this becomes difficult. Choices have to be made and, if you want to offer the future of Australia the best chance of maintaining it's unique marsupial heritage, then you had better choose to protect rainforests over all other habitats.

When it comes to making recommendations about current conservation decisions for the long-term preservation of Australian flora and fauna, palaeontology offers another important bit of advice; reserves and parks have to be kept large if you want to preserve mammals larger than rats. We know that many south Pacific islands have native mammals, usually only rats and mice as well as bats. Even larger islands, such as New Zealand and New Caledonia do not appear to be large enough to support mammals much larger than a rabbit. Why, we don't know, but it is a fact. Despite millions of years of opportunities for island mammals to grow larger, it does not happen. This phenomenon is seen all around the world. At its extreme are cases such as Malta and Cyprus in the Mediterranean both of which inherited elephants before becoming islands and, in both cases, the elephants ended up evolving pygmy forms 3 feet high at the shoulder which eventually went extinct anyway. There seems to be some correlation between the size of a landmass and the size of the largest indigenous mammal. But human activity subtly alters this equation. By creating reserves and parks, often surrounded by completely different habitats such as farmlands, we are effectively creating islands on continents. So what would be the minimum size of such an island/reserve capable of indefinitely supporting koalas or kangaroos? It would appear that such a reserve would need to be larger than New Zealand or New Caledonia.

By now you may have some kind of idea of the relevance of palaeontology to conservation. Palaeontology can offer new perspectives on the patterns and distribution of animals. The history of the evolution of the biota has profound effects on the understanding of its current dilemmas. Animals and plants may have been extinct for thousands of years but their effects may linger on. Palaeontology has some important lessons for the world today and ongoing research in palaeontology will not only refine the phenomena I have already dealt with but, undoubtedly, more important consequences for the world we live in will be discovered by looking into the past. Palaeontological research in Australia must be continued but we need help. Our research base, our very raw data, is endangered.

When we think of endangered species we think of living animals and plants teetering on the brink of extinction. This is how the concept of endangered species was originally framed. I don't know what actual number of individuals classifies a particular species as "endangered" but, from a biological point of view, 40 individuals is usually accepted as the absolute threshold number for most varieties

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of vertebrate; below this number the species is almost certainly condemned to extinction and above it there is a chance of survival if appropriate and careful husbanding is provided. Of course, we should be gravely concerned for a species survival long before its population reaches such critically low numbers and, typically, a species is considered endangered when its living population drop to thousands or hundreds of individuals.

What I would like to turn to now is a whole category of organisms who's known representatives frequently number only one or two and have no powers of regeneration, who's habitats are incredibly restricted and cannot be regenerated, and organisms that are not covered by any form of protection order or preservation action. I am talking about fossils, of course.

Fossils come in all shapes and sizes. Fossils are known for many groups of living organisms and, usually, fossils are all that we know of extinct organisms. Because they were once alive, fossils can be sensitive indicators to conditions and climates of long ago. As representatives of living creatures, they tell the story of life on Earth. But fossils are usually fragile, easily destroyed, and all too often, poorly understood. Let us look at some particular examples of fossils to more fully illustrate their plight at the hands of nature and humanity.

In 1987 two opal miners in Coober Pedy encountered the remains of an animal preserved entirely in opal. Such finds are rare but other opalised skeletons have been recovered from Coober Pedy as well as Andamooka, White Cliffs and Lightning Ridge. The two miners realising they had an important specimen, diligently chipped it out of the mine wall, collecting all the bits in an old ammunition box, and began trying to find a buyer for it. Eventually the smashed-up specimen was sold for $125,000 to a Sydney property developer who thought he would be able to use it later as a feature in some building project. The opal value in the specimen had been assessed at around $25,000 and the 500% increase in value can be attributed solely to the opal being a fossil. A further $30,000 was spent cleaning, reassembling and mounting the specimen for display and purchasing a display case for it. By this time the specimen had acquired a name, "Eric". Eric turned out to be an almost complete skeleton of a previously unknown small marine reptile. Eric is around 110 million years old and is so beautifully preserved, we even retrieved stones in the stomach that Eric had swallowed before he died and on top of these stones, the remains of his last meal, a fish called "Wanda".

Early in 1983 the owner of Eric went bankrupt and the receivers sold off Eric. Thanks to a massive public appeal masterminded by Alex Ritchie and Robert Jones at the Australian Museum and run through the ABC television show *Quantum* enough money was raised to purchase Eric for $320,000.

There are some fundamental challanges and problems raised by the saga of Eric. Firstly; Greed. When a specimen like Eric becomes a commodity to be bought and sold, its real value, it's unique place in the heritage of Australia, is compromised. As a piece of Australia's heritage, as a unique animal that would otherwise be unknown, Eric should belong to all Australians. It should be housed in a state museum where it can be properly looked after for prosperity and displayed to the appreciation of the Australian public and the world. There should never be any question about its fate. Luckily Eric escaped the speculation cycle and is now safely where it belongs but other specimens are not so lucky. We hear numerous stories of opalised specimens of dinosaurs, mammals and other organisms that are cut out up for their opal value. Some opalised specimens are known to have gone overseas and many more are suspected to have gone the same way. Once a specimen reaches the kind of value that Eric obtained, the only people that can afford them are overseas collectors and foreign museums. Although some legislation exists to prevent the export of fossil specimens that are considered to be of heritage value, the enormous value that some fossils have can only encourage unscrupulous individuals to break those laws. Greed removes fossils from where they belong; in the hands of the Australian people.

A second lesson from the saga of Eric is the danger of ignorance. The miners knew they had found something of value and that it was the fossilised remains of an animal but they did not have the technical knowledge of how to remove the specimen from the rock. We now estimate that Eric was originally complete and could have been taken out in one piece. Instead he ended up in 2,000 pieces that had to be reassembled. Despite the best efforts, many of the smaller pieces cannot be reconstructed. In their haste to remove the specimen the miners irreparably damaged it and appear to have lost significant portions. This damage and the incompleteness compromises our understanding of what Eric was actually like.

There is also a positive lesson from Eric's plight. In less than one month $450,000 was generously

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donated to save him and this money was raised in the middle of a recession. This has to be testimony to the support that the Australian public is willing to provide palaeontology and the importance with which they accord the safe keeping of such specimens.

Eric is something of an extreme case, not all fossils will become speculator specimens, but many specimens equally important to the understanding of Australia's history are held by private individuals, deliberately destroyed or otherwise withheld from science and the Australian public. The correct legal ownership of fossils once found, is poorly defined and there is no compulsion, other than civic duty and public conscience, to place important fossils into recognised public collections. The correct, legal ownership of fossils needs to be clearly defined and a system for public access to fossils once found needs to be established.

There is a school of thought that saving a particular animal from extinction actually achieves a much broader objective; the preservation of its habitat. An animal cannot be successfully saved in isolation from its natural environment so preservation of the environment is the most constructive method of conserving the animal. Perhaps this approach is also appropriate for the preservation of our fossil animals if we consider a fossil deposit as a fossil animal's habitat. Fossils tend to be found in discreet, readily identifiable deposits. In a report compiled last year for the National Parks Association, 172 vertebrate fossil sites were identified in NSW alone (these were deposits where tetrapod - i.e.. non-fish - vertebrates were found). Adequate protection measures properly enforced for these deposits would ensure the preservation of 95% of important tetrapod fossils in the state. However, at present, no protection measures are available to a site based solely on its vertebrate palaeontological content (fossil reserves can be declared but are very difficult to police). Of the 172 sites identified in the NPA report only twenty three were covered by adequate measures and, in most cases, these measures had been invoked for other reasons than the sites vertebrate fossils (usually these sites also had aboriginal significance or were parts of protected cave systems). Of particular concern were twenty five sites that had already been destroyed or worked out. Many other sites were beside roads or railways and are in danger of accidental destruction. Clearly a state-wide register of vertebrate palaeontological sites needs to be established clearly identifying the size, importance and location of sites.

There is currently no uniform legislation in Australia for the protection of our fossils or fossil deposits nor are there adequate administrations for the collection and care of fossils. Museum and university interests in palaeontology are stretched to the limit and are completely inadequate for the size of the task set for them. For example, there are three main research groups with an interest in vertebrate palaeontology in NSW (University of NSW, Australian National University and Australian Museum). Each of these groups spends one to two months a year actually in the field all over Australia. The NPA report revealed 172 sites in NSW containing tetrapod fossils. The equation is impossible. Many of these sites are known to amateur collectors, vandals, developers and other would-be despoilers and are unprotected. Even on protected sites there is precious little active enforcement of the law. Careless and thoughtless people have an open hand in the destruction of vertebrate fossil sites in the state. Nature also can be a destructive force through erosion. The physical protection of vertebrate sites in NSW has not been achieved. The research teams, currently the only groups with an active interest in the preservation of sites, cannot act as police and do not have the resources to monitor the condition of all the sites in NSW. Clearly some kind of Government department should be set up to effectively manage and monitor the vertebrate palaeontological resources of this state, and every other site in Australia.

The need for adequate legislation that protects the fossil resources of this country is immense but we must be careful that we do not implement a level of protection that is counter productive. The importance of a fossil deposit is what it can tell us about the history of this country. To fulfil this role requires excavation and study. However, here is a paradox; by excavating and studying a deposit we are destroying it. Can we seriously propose preservation measures for sites so that they can carefully and systematically destroyed? We have to recognise that there is no point in preserving a fossil deposit if the preservation measure is so draconian as to prevent the wise excavation and study of its contents. Fossil deposits are a finite resource, once they are gone they cannot be regenerated or reproduced so their preservation is critical. But this preservation must allow for the ongoing, sensible use of our fossil heritage in a responsible way. Whatever preservation measures are contemplated for fossil deposits, there must be careful consideration of the parameters.

In some ways the conservation of living species is a far easier proposition than the conservation of fossils. As long as a species is extant it has a chance. It can reproduce, multiply and repair. A living species has the potential to be an infinite resource. Fossils can't reproduce and their numbers are finite. Once they have gone they take with them the last record of the species they represent. That is final and everlasting extinction. Surely the destruction of the only remaining fossil of an animal completely unknown to humanity and now

lost forever is to be lamented with equal gravity as the loss of the living Northern Hairy Nosed Wombat. Such precariously placed organisms surely deserve our attention.

From the Editor:

The next two editions of Indigenotes will be edited by Michelle Lauder. All the same addresses will work, she will picking up all the mail from P.O. Box 228, Preston, 3072.
You may ring her at (03) 807 2112, after hours, from May 31 to July 30 to speak with her as "editor". I'll return in late July and will be back as editor for the August issue.

Keep up all those contributions, articles, drawings, newsletters and snippets. We have actually had less coming in lately...

You may have noticed that we had sixteen page issues for quite a few months; our present policy is to print a large issue if it is possible. Only your contributions make it possible. Lately, we have been offering 12 page issues; the material that comes in only fills in this much space. If you want more to read send something in to share with other readers.

Communication through the newsletter is important for IFFA. You may not be able to come to meetings but you can share your news and ideas through Indigenotes.

We also have gotten a new person to compile Coming Events. Elissa Kerassitis has done the column for the first time this month.

She needs your help. If your entry needs corrections or you want your event mentioned, send in your newsletter or calendar or give Elissa a ring. Interstate and country readers are especially invited to tell us of more events to be included.

Lincoln Kern

Coming Events:

For IFFA events see back cover

Conferences/Workshops/ Talks

28 May Saturday 1.30-3.30pm. **Dandenong Ranges National Park - Night Owl seminar**. Discover what those strange bird calls at night are by joining an owl specialist and a ranger in a seminar on Night Owls of the Dandenong Ranges. Cost: Adults $4.00, child/concession $2.00, family $10.00. Contact (03)758 1342 9.00am - 5.00pm Mon-Fri.

7 June Tuesday 8pm. **The Spotted Tree Frog.** Graeme Gillispee will speak as part of a meeting of the Fauna Survey Group of the FNCV. National Herbarium Hall, Birdwood Ave, Sth Yarra.

14 June Tuesday 7.45pm. **Attracting birds to farm dams**. A talk presented by Alan Reid for the Yarra Valley Branch Meeting of the BOCA. Meet Healesville Sanctuary Theatrette. Contact Alma Mitchell (059)62 3601.

16 June Thursday. **Considering the landscape. A seminar organised by GAV**. This session will outline the positive and negative impacts of planting projects on urban landscapes, and how to integrate a vegetation project into a broader landscape plan. Cost:$20.00, Concession$8.00, GAV members$6.00. For further information contact (03)654 1800.

20 June Monday 8.00pm. **Growing Eremophilas in Melbourne**. An illustrated talk by Chris Strachan organised by SGAP. Contact Enid Bowman for details (03)882 5297. Venue: The Herbarium Hall, Birdwood Ave, Sth Yarra.

29 June Wednesday. **Using Brochures and Signs**. A seminar session organised by GAV aimed at community group members and land managers to aid the support of community projects. Program includes identifying the steps, techniques and approaches to effective sign and brochure design, and understanding local and departmental standards for signs. Cost: $20.00, Concession$8.00, GAV members$6.00. For further information contact (03)654 1800.

4,5,6 October. **1994 National Greening Australia Conference. A Vision for a Greener City: The Role of Vegetation in Urban Environments.** Three sub themes: Ecology of Cities and Country Towns, Planning for Conservation and Development and Management of the Environment. Location: Esplanade Hotel, Fremantle, Western Australia. Contact Martine Scheltema (09)481 2144.

Excursions and field trips

28 May Saturday 10.30am. **Fungi at the Kinglake Block - FNCV Botany Group Excursion.** Meet at FNCV property, leader Tom May. Contact Joan Harry (03)850 1347.

28 May Saturday. **Walk, Talk & Gawk - Sherbrooke Forest.** An easy 10km walk through mighty mountain ash forest and beautiful fern gullies with Geoff Durham. Enjoy this beautiful section of the Dandenong Ranges National Park, with the chance of seeing a lyrebird. BYO lunch. Contact Geoff on (03)523 5559.

29 May Sunday. **Walk, Talk and Gawk - Lysterfield Lake Park.** Follow Elizabeth Delaney on an easy 15km walk through this park which is close to Melbourne and provides important refuge for native wildlife and many species of waterbirds. Contact Elizabeth on (03)890 3229.

4 June Saturday. **Spotlight on an endangered species - Leadbeaters Possum.** Gather before dark in the Mountain Ash forests around Marysville for a brief talk on the ecology of the tall mountain forests. This will be followed by spotlighting for species such as Leadbeaters Possum, Greater Gliders, Bobuks, Sugar Gliders and Sooty Owls. For further details contact Mick (03)789 7188.

Sat 4 & Sun 5 June. **Walk, Talk and Gawk - Barmah Forest - Black Box Country.** An easy 25km overnight stroll through this little visited open forest, with great promise for bird life and aboriginal heritage. Early bookings welcome. Contact Terry Cerini on (03)758 4579H, or (03) 881 8260B.

5 June Sunday. **Fungi at Murrindindi Scenic Reserve - FNCV excursion.** Leader Nigel Sinnott. Contact Dorothy Mahler (03)435 8408.

5 June Sunday. **Walk, Talk & Gawk - Westgate Park.** Join Geoff Durham on an easy morning walk under the Westgate Bridge to observe conversion of a tip site to parklands with breeding water birds. Contact Geoff on (03)523 5559.

Sat 11 - Mon 13 June. **Box-Ironbark Forest field survey.** FNCV Fauna Survey Group field survey. Contact Ray Gibson (03)874 4408.

19 June Sunday. 11am. **Walk with Mick Keenan in Yellingbo State Nature Reserve**. A walk organised by the FO the Helmeted Honeyeater, along the Sheep Station Creek arm of the reserve. Meet at Yellingbo Store (Mel ref 119B J8). BYO lunch. Contact Gaye Gadsden on (059)648 350.

25 June Saturday 10.30am. **Mosses and Ferns - FNCV Botany Group Excursion**. Meet at Grant Picnic Ground (Melway 75 K4) for an excursion led by Arthur Thiess. Contact Joan Harry (03)850 1347.

9 & 10 July Sat & Sun. **Friends of the Lyrebird - Kinglake Lyrebird Survey.** Help ensure that our lyrebirds continue to exist for future generation by taking part in the annual Kinglake lyrebird survey. Contact Una Klaver (057) 865 351 or Lawrie Rigg (03) 434 6685.

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Restoration Activities

May

28 Sat. 2.00pm. **FO Sherbrook Forest. Project afternoon at the old Coles Ridge site.** Meet at southern end of Grants Picnic Ground at Coles Ridge Rd. gate, Kallista (Melways 75 K4). Weeding out ivy, holly, pittosporum, sycamore, viburnum.

29 Sun. 10 am. **FO Royal Park West. Project Day.** Planting, direct seeding trials and weed control. Mel ref 29 C12. Contact Mick Arundell (03)380 8075.

June

4 Sat. 9.45 am. **FO Gellibrand Hill. Project day.** Includes homestead works, grant work, tree planting, Greenvale Cubs and MPAW talk. Contact Mark Corr (03)557 2783.

4 Sat. **Green Link Box Hill activity day.** Contact Minette Russell Young (03)898 1364

11 Sat. 10am. **FO The Coastal Reserve Aireys Inlet. Project day at Friends Coastal Reserve.** Weeding and restoration activities. Meet cnr Eaglehawk Pde & Beach Rd, Airey's Inlet. Bring gloves, forks, secateurs, saws and plastic bags. Contact Flora Anderson (03)722 1154.

11 Sat. 10-noon. **Wurundjeri Garden.** This Koori food garden by the Yarra in Hawthorn has been established for three years. Meet Glan Avon Rd. Mel. ref. 45 A11. Planting and weeding. Contact Dorothy Sutherland (03) 818 4706.

12 Sun. 3 - 5pm. **Green Link Camberwell.** Weeding, planting and seed collection in Welfare Pde. Meet cnr Dion st. and Welfare Pde. Mel ref 60 E7. Contact Diana Burgess (03)809 2092.

12 Sun. 10am. **URAGE (Upwey Regional Action Group for the Environment) Project Day**. Weeding of ivy, blackberry, wandering jew. Planting indigenous grasses, and restoration of indigenous vegetation along Ferny creek. Meet cnr Deans and Morris Rd, Upwey. Mel ref 74 K12. Contact Rob Stevens (03)754 3792.

12 Sun. 10am. **FO Yarra project day.** Hand weeding and revegetation activities. Meet at Galatea Point, Mel. ref. 2D D7. Also Wednesdays 10am. Contact Judy Rutherford (03)347 2252 for details.

18 Sat. 10.00 am. **FO Bradshaw Park. Propagation and weeding day.** Contact Dave Bainbridge (03)580 5992.

18 Sat. 9.15am - 1pm. **Planting Day in the Candlebark Grasslands of Yarra Valley Park.** Organised by Melbourne Water and the Doncaster & Templestowe Conservation Society. Plantings go ahead regardless of weather. Bring thermos for morning tea. Meet on the grasslands (Mel ref 21 G12). For more details ring Judy Zimmerman on (03)850 4116.

18 Sat. 9.00 am. **FO the Organ Pipes National Park. Project day.** Meet at Information Centre. Contact Carl Rayner (03)337 4936.

18 Sat. **FO Werribee Gorge & Long Forest Mallee Inc. Project day in Long Forest.** Tree planting near Old House Track. Contact Janet Laversha (053)674 229.

19 Sun. 10am - 12 noon. **Brunswick Tree Group. Working at Union Bush Park.** Moonee Ponds Creek. Contact Eric Ward (03)388 2123.

19 Sun. 10am. **Men of the Trees. Deep Rock, Yarra Bend Park;** Melway ref 2D D6. For furthur details contact Minette Russell Young (03)898 1364.

19 Sun. 10am. Meander...a group caring for the Menzies Creek and Emerald Tourist Track. Weeding, planting and track work in the creek Reserve. Meet at A'Vard Picnic Ground. Melways 125 F12. For further details contact Kate Forster (059)685 828.

26 Sun. 10am. **FO the Helmeted Honeyeater. Revegetation day at Tegals property.** Meet at Yellingbo Store (Mel ref 119B J8). BYO lunch. Contact Gaye Gadsden on (059)648 350.

For Australian Trust for Conservation Volunteers activities, contact ATCV: (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.

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

Thank you to all the people who contact us regarding on-coming events their groups are organising. If you wish to have your events covered, or you can see corrections that need attention, please get in touch with Elissa Kerassitis, (03) 379 1116.

More on Fires in New South Wales and Elsewhere:

Greenies to blame?

There have been some attempts by National Party politicians and the media to blame the notorious 'greenies' for the extent of the fires in NSW. Beneath the beat-up and pften misleading headlines there was little substance to these allegations.

I overheard a pub conversation in the inland northern NSW town of Glenn Innes at the time..."yeah and where all the greenies now...probably off down the beach, not fighting the fires I bet." ...quite a lot of them were, actually.

I spoke to a Sydney 'greenie' who also works part-time for the National Parks and Wildlife Service. According to her National Parks in NSW is in control of 5% of forests and performed 40% of hazard reduction burning that occurred in the State in the past year. "Of 800 full time National Parks staff, 500 were involved in fighting the fires. Every greenie I know, the practical ones anyway, were involved in fire fighting, or they would have been if they had completed their training.

National Parks and WIldlife is trying to downplay concerns that large areas of the Royal National Park, south of Sydney, may have unnecessarily devastated by back burnings aimed at saving a few pockets of houses on the coastal edge of the park. According to my sources there may well have be substance to these allegations but given the attempts to blame National Parks for the fires in general they are reluctant to discuss such issues. She added that according to National Parks estimates, over 80% of the fires were by arsonists.

She said that in the past they were restricted in the amount of routine, controlled hazard burnings they were able to perform in national park areas close to suburban Sydney because of complaints from Councils and residents, primarily on pollution grounds. She also claimed that many National Parks staff spent alot of time engaged in fire hazard reduction measures, rather than the jobs they were paid to do, because they were aware of the danger that existed and that no one else was going to do it.

In the NSW Bush Fire Services 1991/92 Annual Report concern was expressed over "the impact of markedly reduced hazard reduction activity undertaken during the winter months." These same concerns were again expressed last year.

It seems a great deal more likely that government fiscal restraints and lack of political will are at least partly to blame for the extent of the NSW fires. Still, who better to blame than the ever present whipping boys, the 'greenies'?

Source: Network Community Newspaper March 1994

Wild Like the Wind

Editor's Note: Here's a bit of background on the article on fires in southern California in March. It demonstrates how some of the mainstream press report on fire.

Southern California can be seen as a huge fire trap. Every year, for five months, virtually no rain falls. And every year from mid-September to November, the weather system overhead jerks into reverse - instead of blowing from the Pacific inward, it blows westward, from Utah to the sea. The winds superheat in the Mojave desert. Then, in hundreds of canyons leading coastward from the mountains, they can accelerate up to 120 km/h. If California is lucky, the Santa Anas, as they are called, merely annoy. If the state is unlucky, a spark, manmade or natural, will the canyon vegetation, now dried to tinder.

Last Tuesday the first flame was reported 1:19 in the afternoon, north of Malibu; others soon began to spark to life elsewhere, some apparently the result of arson. Within two days, 100 fires raged across the state, 13 of them major. Some 6,000 fire fighters used every method from pumper trucks to 400l buckets carried under helicopters and dunked in the Pacific for refills. Nearly 700 buildings were destroyed; the projected cost: at least $550 millon. By the end of the week, the fires had made 25,000 Californians homeless and injured 84, but no one was dead. "By God," sighed Laguna Beach police Captain Bill Cavenaugh, "we didn't lose anybody."

Source: Time Magazine November 8 1993

Fire Forum in Ku-ring-gai

Editor's Note: Some of the information here is very likely familiar to many readers but this item demonstrates quite well how a well-informed Council is

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trying to turn a "disaster" and fire hazard reduction program to good advantage for the bush.

The bushfires that swept through New South Wales in early January have focused attention on the hazards of living in close proximity to bushland. Control of bushfires is the primary responsibility of the land owner or manager.

Ku-ring-gai Council employs a multi-pronged approach to fire protection and suppression within the Council area. Strategies used include the maintainence of fire breaks in high bushfire hazard areas, maintainence and upgrading of fire trails, planning controls on new developments adjacent to bushland, an annual program of management burns, community education, and financial and administrative support to the Ku-ring-gai Bush Fire Brigade (KBFB).

Sources inform me that Bushcare volunteers take great interest in our annual program of management burns. Management burns, often called hazard reduction burns, are programmed every year in the cooler months (April - September). Properly planned management burns have at least three main benefits (and many more flow on benefits). Firstly, burning reduces the litter accumulated in the bush minimising the risk of wildfires. By making the burns as intense as possible native soil stored seed is stimulated to germinate maintaining or increasing the flora and fauna biodiversity of an area. The third benefit is that fire often kills weeds and restricts the distribution of mesic native species.

This last benefit often requires an input of resources for its full potential to be realised. While fire kills growing weeds, it also stimulates weed seed to germinate. Depending on site conditions, without human intervention, germinating weeds may out compete the native seedlings. The result in some areas, is a greater invasion of weeds than prior to the fire.

Bush regeneration after fire is an exciting and worthwhile experience. Labour requirements are often far less than regenerating without fire. Most of the weed seed germinates at once thus control of the initial flush before the weeds set seed is critical. Removal of the weeds give the multitude of young natives a chance to re-establish and stabilise the area.

Council allocates resources to pre and post-burn weeding, however this doesn't extend to all the areas burnt. Volunteers are thus needed to maximise the benefits to the ecology of areas recently burnt by both wildfires and management burns. Council notifies bushcare groups in areas where management burns are to take place.

The recent bushfires took a great toll on both the community and the local environment. By working together we may be able to derive some benefits from an otherwise disastrous situation. The Council will be organising a fire management workshop covering a broad range of topics.

Rob Mather - Fire and Natural Resources Officer, Ku-ring-gai City Council

Snippets:

Toohey Forest Threatened By University Development

Griffith University's Nathan Campus in Queensland is located adjacent to the Toohey Forest. The

University is has chosen a preferred new Site Plan proposing an expansion of the campus into an area of very considerable ecological significance in Toohey Forest. The area is of great botanical significance, is of considerable scenic value and is also significant as wildlife habitat.

In the recent Environmental Assessment prepared for the University it was predicted that implementation of the current site plan for Nathan Campus was likely to have an unacceptable level on the significant environmental values present in the proposed development site. The area is at present open woodland with one of the very few stands of Planchon's Stringybark found in Queensland and a regionally significant small shrub understory. Plans to further develop the existing Nathan campus will cause significant upset to the remaining bushland system.

A major finding of the field study was the occurrence of two significant skinks. There are also fears that the Powerful Owl, now a regular visitor to Toohey Forest, might have its hunting grounds reduced below the minimum necessary to provide its prey.

The Toohey Forest Protection Society is certain that the local community would be very distressed were this development to proceed and calls on the University to look to other less damaging options.

Further a proposal by Griffith University to build a 90 metre long Environmental Education Centre in Toohey Forest is seen by the Society as showing a woeful lack of environmental sensitivity. They do believe that the south side of Brisbane needs such a facility but a less sensitive site should be selected.

It is very disappointing that there is this woeful lack of environmental sensitivity by the Administration at Griffith University, the same University which prides itself on the innovation and excellence of its environmental education. It is, moreover, moving to be a signatory of an Environmental Charter proposed at an international conference at the end of last year together with 15-20 univerities in Southeast Asia.

It would be much more assuring to have evidence of a real commitment by the university to saving environmentally sensitive areas on its own campus!

Source: Toohey Forest Protection Society Inc. Newsletter - April 1994

Tall Wheat Grass Threat

Tall Wheat Grass (*Lophopyrum elongatum*), a native of Europe is currently being used to provide grazing material on salt affected sites.

Thousands of hectares of Tall Wheat Grass are sown annually in areas affected by salinity, despite the fact that it is rated as a serious environmental weed (eg. Environmental Weed Invasions in Victoria 1992 - Department of Conservation and Natural Resources).

It is of concern that this plant is invading many hectares of Black-seeded Glasswort (*Halosarcia pergranulata*) saltmarsh in the Lake Connewarre system; presumably the seed is washing down stream. Native saltmarsh ecosystems are of the few left that are currently free of environmental weeds and of course they are very valuable communities.

The Tall Wheat Grass obtains a height of 1.5 metres and easily out competes and displaces the lower growing Glasswort. It will quite likely invade other catchments as well, given that it is sown widely and that conditions are similiar. Ironically, landowners are being encouraged to sow the Tall Wheat Grass by State Government authorities in the name of "Landcare" and "total catchment management". I am concerned that landowners are not being told the whole story.

We live in supposedly enlightened times where we scoff at mistakes made in the past with pest plant and animal introductions, problems that cost our community greatly. Readers will be aware of the recent invasion of the lower Barwon by Spartina Grass, for example.

What kind of problem are we creating and what will future generations make of our actions?

Mark Trengove, Clarence Street, Geelong West.

Source: Geelong Advertiser 8 April 1994

Yarra Billabong Study

Yarra Valley Parks has one of Melbourne's best systems of wetlands and billabongs under its environmental management. They form part of the parks system managed by Melbourne Parks and Waterways.

To further the understanding and enhance the management of the Banyule, Bolin Bolin and Annulus Billabongs, Yarra Valley Parks has commissioned an inventory of the biological resources of the billabongs. The objective of the study is to determine how best to manage the billabongs in order to maintain and enhance their environmental quality.

The study will produce two reports - a Resource Document containing all the data collected on each billabong, and a Management Plan describ-

ing the significance of each billabong and providing management recommendations. The study is due for completion in July 1995.

Community involvement is being sought for all components of the study to help develop community understanding and ownership of the billabongs.

Do you have any old photographs or information regarding the billabongs?
Would you like to:

* provide historical records of fauna species in the billabongs,
* observe flora and fauna sampling at selected monitoring sites,
* become a regular bird watcher for future monitoring of the billabongs,
* observe and participate in the frog census or
* monitor water levels and quality?

Please contact Glen Jameson Y.V.P. (03) 846 5540 Yarra Valley Parks, P.O. Box 568, Templestowe 3106 for more information or to get involved.

Clarence City Council, Tasmania

Clarence City Council in Tasmania has produced a well sponsored fold out leaflet entitled 'Garden Plants are Going Bush....and Becoming Environmental Weeds'. This contains great photos of many common garden favorites accompanied by informative interpretive matter. Production of this type of material is always a positive step for environmental education.

This publication is part of comprehensive "Landcare, Coastcare and Parkcare Programme" that they have put together to link the community and the council in becoming "valued custodians" of "the rounded treelined hilltops linked by a series of local area parklands to the foreshore reserves", a total of 500 km2 of remnants and 200 km of coastline. The Programme involves the whole range of management work, revegetation, weed control etc. plus community education and research.

The unique idea that could easily be transferred elsewhere is the "Community Consultative Committee Meeting...for sharing and communicating ideas between community groups and the Clarence City Council" and involves one representative from each of the numerous community groups in the city. The meeting happens once a month and creates a forum for getting information out to the community in an efficient way and provides a venue for discussing any concerns.
Thanks to Phil Watson, Facilitator for Natural Area Management, City of Clarence, P.O. Box 96, Rosny Park Tasmania 7018.

Pennisetum alopecuroides Update

Future investigators might appreciate a more detailed indication of the distribution of Pennisetum alopecuroides along the railway line at East Richmond (A. Muyt, *Indigenotess* 7(2) April 1994). My forays indicate it is almost restricted to the southern side of the railway line from Church Street road brifge, east to Coppin St., Burnley. Between Mary St. and COppin St. the population is much less dense appears to be restricted by dense growth of Kikuyu Grass to a belt close to the railway line. The most outlying plant, at least 3 years old and apparently established by natural means, is about 30 m east of the Mary St. road bridge, close to the edge of the basalt ballast around the railway sleepers. Further to the east along the railway lines, up to the Yarra River at Hawthorn, and to Heyington Station, the appears to be absent. To the west it does not appear to have penetrated past East Richmond station.
Ian Faithfull

I have started to see *Pennisetum alopecuroides* in several more places not mentioned in Adam Muyt's article. These include in the Western District around Port Fairy and at Point Cook Metropolitan Park. I've also seen it several other places around Melbourne, mostly north and west, that have blended together in my mind. It's clear that this plant is rapidly becoming yet another environmental weed of concern.
Lincoln Kern

IFFA activities:

IFFA (Vic)

Next meeting:

Tuesday 31 May at 7:30 pm* at the Herbarium Hall, Birdwood Ave, South Yarra (Melways map 2G ref 12A). **Carol Kunert will speak on "YarraCare: Integrated Catchment Management"**. All welcome.
* NOTE THE EARLIER MEETING TIME. Speakers will still start at 8:00, promptly.

Committee meeting:
Thursday 2 May at Karen Lester's, 64 Moore Street, Coburg. 6.30pm onwards.

SPIFFA
Mon 6 June Waterfall Gully Ctty Centre, Cnr Bayview Rd and Nixon St, Rosebud South at 7.30 pm. Contact Mark Adams (059)851122.

Indigenous Nurseries Network subcommittee:
No meeting this month....
Contact Murray Ralph (03) 419 3040 or Sue Mills (03) 383 2937.

NSW activities:

Next meeting:
Monday 6 May 7.30 - 10.00pm. Subject: **To be confirmed....** In the Maiden Theatre, Mrs Macquaries Rd, Royal Botanic Gardens Sydney. Contact Sally Fisher (02)9706486 (work), Penny Brown or Andrew McGahey (02)9133681 (work)

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.

Memberships should be sent to the Membership Secretary. Include your name, address and phone numbers, and a bit about yourself.

Contents:

Future Speakers:
June Meeting
Bob Parsons on "Victorian Pigfaces (or Aizoaceae)"

July Meeting is the AGM with Ian Hunter of the Wurundjeri speaking.

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Contributions to *Indigenotes* should be sent to the editors — the deadline for the next issue will be June 6.

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

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