ASSOCIATION OF SOCIETIES FOR GROWING AUSTRALIAN PLANTS

Wildlife and Native Plants Study Group Newsletter

SUMMER 2007/2008 **ISSUE 58** ISSN: 1038 7897

Study Group Leader -Chris Jones, PO Box 131, STRATHALBYN, SA 5255
Email: ausbush@internode.on.net

Dear Members,

Well, Christmas is upon us. It seems like yesterday we celebrated the last one, but I know its because we are all so busy today that time seems to go quicker than before.

My apologies to not responding to letters recently as I have been laid up- first with fractured spine, and then I had major surgery, necessitating weeks of bedrest. I did manage to read a little, and watch many movies. My computer had the longest spell it's ever had, as I have only just returned to it, hence the reason why your newsletter is so late. Thankyou to those members who have forwarded their subs. payment, and to those regular writers who have diligently submitted articles by snail mail and email. I hope to use many of them in forthcoming newsletters.

CORRECTION TO ARTICLE: In the last issue the article titled 'Hints for Planting Trees in Rural Areas' referred to granitic soils on iron barks wrongly as the 'Gallangowan 319 million years old deposit'. This should read '307 million year old Claddagh granodiorite' .

IN THIS EDITION

MAILBAG

In a letter from Harry Franz, Kingaroy Qld. he writes that ` we have had wonderful rain in our area- a big help in the drought. We have pale headed Rosellas occupying two of our nest boxes in our yard and at least one magpie's nest again. At least two different Boobook owls were calling this week at the farm during the night.'

Rita Reitano (Weeds CRC) informs us of the latest research on environmental weed management, and how to choose native plants to replace fleshy-fruited weeds. Invasive species are regarded as second only to habitat loss as a threat to birds in Australia. The CRC have produced some new web-based tools to help choose replacement plants for fleshy-fruited weeds.

Weeds greatly modify habitat by changing vegetation structure, availability of food seasonally and fire regimes. The web-based tools will be of value to all working with or on the land , its flora and/or fauna.

Selecting weed replacement plants for use by frugivorous birds -the web based tools includes two plant fact sheets for target weeds - one focussing on northeast NSW and south-east Qld., and the other on Weeds of National Significance; and a how-to guide for plant selection, based on native plant traits such as fruit size and structure, fruit colour and fruiting season. Provided as databases and Excel spreadsheets, lists are provided for NSW, SA, Tas., Vic. and south-western WA. For more information on this go to :

www.weeds.crc.org.au/projects/project_3_2_3_1.html

In another email Rita informs us that there is a new Weeds CRC publication listing *'over 28,000 introduced plant species and their weed status. A total of 29,430 plant species are listed in this publication, including 606 Australian ones that have naturalised (ie. reproducing without human intervention) outside their native range. The introduced flora of Australia and its weed status is an invaluable resource to everyone who cares about the Australian environment and wishes to ensure that the plants chosen for revegetation projects, landscaping and gardens are not likely to become weedy and a threat to our bushland. Every introduced plant species, past and present, in Australia is listed in this publication,with information on its weedy status here and worldwide.*

Humans are by far the most effective and efficient vector of plants around the world. In the 200 years since the arrival of Europeans, over 28,000 foreign plants have been brought to Australia, most deliberately imported for forage, horticulture or as ornamentals.' To view this publication visit: http://www.weeds.crc.org.au/publications/index.html

From our colleagues at the WPSQ, come a few snippets from their on-line newsletter. Here are a couple:

❖ **Stop killing whiptail wallabies**

Did you know the whiptail wallaby is so-called because its extra long tail made it the favourite prey of hunters who sold the tails to be made into whips for export? A full species profile on the whiptail wallaby, also known as the pretty-face wallaby, is on their website. Wildlife Queensland is campaigning to have whiptail wallabies removed from the state's commercial culling register.

❖ **Native Vegetation of the Southern Forests: South-east Highlands Australian Alps, South-west Slopes, and SE Corner bioregions** by Nicholas James Holman Gellie, *Cunninghamia* (2005) 9(2): 219–254

The above paper is well worth a look and is useful for getting a larger regional perspective on the distribution of vegetation communities. It also deals with disturbance histories, including fire and the problems associated with trying to establish a representative reserve system. References to 'Hakea micrantha', are thought to mean Hakea microcarpa

❖ **Quolls in North Beaudesert**

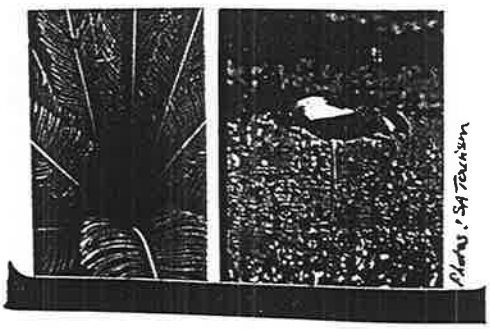
It took a public meeting, 150 local residents, 500 trap nights plus road kills, scats and hair analysis to confirm the existence of spotted-tailed quolls in the north Beaudesert Shire where they were formerly considered extinct. The final report to Beaudesert Shire, is now available on Quoll Seekers Network website.

❖ **Brush-tailed rock wallabies**

The brush-tailed rock wallaby, once found along the Great Dividing Range for 2500 km from the Grampians in western Victoria to Nanango in south-east Queensland, is reduced to hundreds of individuals or fewer in every state but Queensland– where its populations are increasingly isolated.

❖ **North Australia's nature**

Northern Australia is one of our largest natural areas – alongside the Amazon rainforests and the wilderness of Antarctica. Development of the north is on the agenda again, so a report on the ecological values, processes and implications of land use development in our tropical savannas is timely. *The Nature of Australia: natural values, ecological processes and future prospects* (2007) is a report by Woinarski, Mackey, Nix and Traill, available from ANU. Professor Henry Nix, co-author of the report was guest speaker at Wildlife Queensland's 2007 Southern Branches Get-Together. See Wildlife Queensland's Summer 2007 Newsletter.



IN THE MARKET PLACE

Have you heard of Lucinda's Everlastings? Here is a commercial blurb but educational.

You'll love these bold, colourful and easy to grow natives.
Http://www.vision6.com.au/ch/wpj2qd/292267/69364nsck.html'Everlastings' (Rhodanthe Chloreosephala) are the famous and vibrant native wild flower from WA. This stunning flower is the perfect addition for any garden. It is water-wise, easy to grow and self seeding so further plantings are not required once established. Use 'Everlastings' as a garden bed feature, in driveways, pots, on road verges or as cut or dried flowers. Anywhere that needs colour!
'Everlastings' tolerate most conditions such as extremely cold weather, frost, moderate water-logging, heat, coastal, tropical and little sunlight. They flower 12 weeks after planting and remain beautiful for 3 months, depending on when sown and climate. They can be planted all year if irrigated in summer.

A GROWTH RATE STUDY OF NARROW LEAVED IRONBARK

- Eucalyptus crebra *by Harry Franz*

Thirty four narrow leaved ironbark trees were measured, thirty of these were very close to fifty years old and averaged three hundred and seventy five millimetres in diameter at chest height. The four larger trees averaged four hundred and ninety two millimetres at chest height and are likely to be older than the other thirty.

The trees are growing in deep granitic soil with the topsoil measuring up to 600millimetres in depth. The average spacing is ten metres with regrowth being controlled to maintain these selected trees and to allow some grass growth. The trees were selected from natural regeneration at Manumbar where some of the trees grew to a large size. Average rainfall has now reduced from the previous thirty five inches or eight hundred and ninety millimetres per year.

On our property we still have six large healthy green trees with diameters of one thousand four hundred and forty, one thousand and sixty five, one thousand one hundred and ten, nine hundred one thousand and forty and one thousand three hundred and thirty five millimetres. As well there are two suffering trees. In recent years we have lost four other large trees. In the beginning of the dry period of the 1990s to 2007 many narrow leaved ironbarks have died in our area and in other areas. Silver leaved ironbark *Euc. melanophloia* have also died. Caterpillars have attacked trees over three consecutive years up until 2003/04.

From studying localities where trees are dying, I believe that some soil types show the most risk to these trees. They are dying where shallow or stony soil overlays clay subsoil- harder conditions these shallow top soils are only one hundred and fifty to two hundred millimetres in depth.

I can dramatically demonstrate this where a shallow soil over clay type changes to the deep granitic type. We have lost only a couple of trees in the granitic soil, but have lost almost all of our trees in the harder shallow soil types.

I wonder if DPI Forestry have tried *Euc.crebra* as a plantation tree in our local red soils. The first *E. crebra* planted at Redmands Rd. Kingaroy is growing rapidly -two hundred and thirty eight millimetres at chest height in ten years of age. I am watching with anticipation, trees of *E.crebra* that have been planted here in later years.

[FOOTNOTE: Rainfall penetration is probably much better in granitic soils than in the shallow harder soils]

ED.NOTE : The narrow-leaved red ironbark has a wide distribution from near Cairns to south of Sydney. It commonly occurs on undulating plains and low plateaux, and on ridges and higher slopes in higher rainfall areas. Most frequently it grows on acid sandy soil, which may be alkaline in the deeper clay horizons. On dry inland sites it may be the principal species in savannah woodland. *Euc. melanophloia* the silver leaved ironbark is usually a smaller tree growing on poorer soils of the north west slopes and plains.

Ironbark Group

PROBABLY the most distinctive and easily recognized trees of the Australian eucalypt forest are the ironbarks, the source of some of our highest quality hardwoods. The barks of trees in this group is typically very rugged, dark grey, hard, deeply furrowed, and persistent to the small branches. There is some variation, however, broad-leaved red ironbark (*E. siderophloia* Benth.) for example, has flaky and relatively soft bark, particularly in young trees, whilst in other species the bark may be rather corky and the fissures shallow and widely separated. So corky is the bark of grey ironbark (*E. paniculata* Sm.) that it is being examined as a possible substitute for cork.

Gum-top ironbark (*E. decorticans* Maiden) has smooth upper branches and yellow gum (*E. leucoxylon* Domin.) normally has smooth bark right to the ground so that we have the paradox of a smooth-barked "ironbark", resembling in habit members of the red gum group.

The ironbarks are trees of the east and north of Australia, and do not occur in Tasmania or the south-western part of the continent. There is considerable variation in the environments in which the different species grow, from excessively drained sandy or stony soils in a rainfall of 15 inches for red ironbark (*E. sideroxylon* (A. Cunn.) ex Benth.), to deep loams bordering the rain forests in a 60-in. rainfall region, where grey ironbark sometimes occurs. The ironbarks are able to tolerate seasonal droughts and unfavourable sites such as stony ridges, but under these conditions they deteriorate in size and form.

The timbers of the ironbarks are among the most valuable of the Australian hardwoods. They are dark brown with paler sapwood, or dark red with yellow sapwood and are very hard, dense, strong and very durable, with a fine uniform texture and interlocked grain. They are mainly used in the round or hewn for purposes requiring great strength and durability. Ironbark sleepers, both hewn and sawn, are produced in quantity.

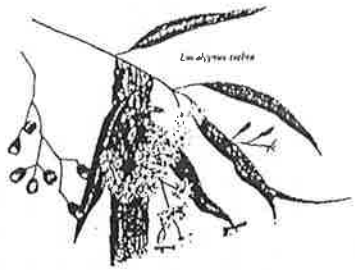
The ironbarks appear to be closely related to the boxes and specimens are frequently seen of apparent hybrids between species in the two groups. These are common enough in some districts to be given local names and several have been treated as distinct species by various authorities.

Of the species with hard, deeply furrowed bark, silver-leaved ironbark (*E. melanophloia* F. Muell.), blue leaf ironbark (*E. nubilis* Maiden and Blakely), and sometimes red ironbark have the leaves, buds and fruits covered with a conspicuous white bloom. Silver-leaved ironbark, however, is distinct in retaining opposite, stalkless leaves on the adult tree. It is usually a small tree of poor form with a short bole and spreading crown, occurring principally on the poorer soils of the north-west slopes and plains of New South Wales and adjacent areas of Queensland.

Ironbarks with hard, deeply furrowed bark, but without a conspicuous bloom on the buds and fruits, may have dull greyish foliage, e.g., narrow-leaved red ironbark (*E. crebra* F. Muell. syn. *E. racemosa* Cav.), lemon-scented ironbark (*E. staigeriana* F. Muell.) and red ironbark. Narrow-leaved red ironbark has very fine foliage, the leaves being narrowly lanceolate or linear. Lemon-scented ironbark has slightly broader leaves, rounded at the tip, and with a distinctive lemon-like smell due to the presence of copious quantities of limonene.

NARROW-LEAVED RED IRONBARK. *Eucalyptus crebra* F. Muell. (syn. *E. racemosa*, Cav.)

Ironbark. Narrow-leaved ironbark.



Info. from Forest Trees of Australia (1957) C.d.A. p. 168-171

Bark: Persistent to the small branches, hard, ridged and furrowed, and densely impregnated with kino. Usually light grey.

Leaves: Juvenile—opposite for 3-4 pairs, then alternate, stalked, narrowly lanceolate or almost linear, dull green. Adult—alternate, stalked, narrowly lanceolate, 2-6 x 0.4-0.6 inches, dull green or grey-green on both surfaces. Venation faint or moderately visible, at 30 to 45° on the midrib; intramarginal vein distinct.

Inflorescence: Terminal panicle of 4 to 9-flowered umbels. Buds club-shaped or diamond-shaped, 0.25-0.30 x 0.1-0.15 inches. Operculum shortly conic, calyx tube tapering into the short stalk.

Fruit: Ovoid or pear-shaped, 0.2-0.25 x 0.15-0.2 inches, thin, shortly stalked. Disc narrow, depressed or more or less flat; valves enclosed or at rim level.

Wood: Dark red, very hard, very strong and very durable; close grained and generally interlocked. Mean density 67 lb./cu. ft. Slow to dry but does not collapse appreciably.

The attributes of great strength and high durability, combined with the dimensions to which the tree grows, results in it being used for poles, bridge and wharf timbers, as well as for general heavy construction. To a limited extent it is sawn for house framing and flooring.

TWO NEW PLANT COMMUNITIES PROTECTED BY LAW

Ann Prescott and Amelia Hurren, Bush Management Advisers - Department for Environment and Heritage

Two plant communities in the Mount Lofty Ranges now have extra protection from clearing, increased intensity of grazing, and other threatening processes under the federal government Environment Protection and Biodiversity Conservation [EPBC] Act 1999.

Peppermint Box Grassy Woodlands and Iron Grass Natural Temperate Grasslands of South Australia are now both now listed as Critically Endangered under the EPBC Act. This has implications for biodiversity priorities and assessments of land for changes of land use.

These ecological communities were listed as critically endangered because of a severe decline in distribution and ongoing loss of integrity.

What is Peppermint Box (Eucalyptus odorata) Grassy Woodland?

Peppermint Box Grassy Woodland extends through the Mount Lofty Ranges (see figure 1). Remaining patches typically occur on gentle to moderate slopes, hilltops and adjacent plains. Soil types range from sandy-loam to clay-loam. Annual rainfall is between 310 and 610 millimetres a year.

Peppermint Box is the dominant canopy tree. The woodland form of the tree (a single main trunk at the base with low branches) of Peppermint Box characterises this ecological community.

What is Iron-grass natural temperate grassland?

The Iron-grass Natural Temperate Grassland occurs on the eastern flanks of the Mount Lofty Ranges (see figure 1).

The ecological community generally occurs on gentle slopes of low hills above 380 metres above sea level. Soils are predominantly loams to clay-loams with an estimated clay content of 30–35 per cent. Surface pebbles are common at some sites and shale or sandstone rocky outcrops may also be present. The mean annual rainfall ranges from 280 to 600 millimetres per year. The structure of the vegetation is of a tussock grassland. Trees and tall shrubs are absent to sparse and tussock-forming perennial grasses and Iron-grasses dominate the ground layer. A range of herbaceous plant species occurs in the inter-tussock spaces.

Threats to the Communities

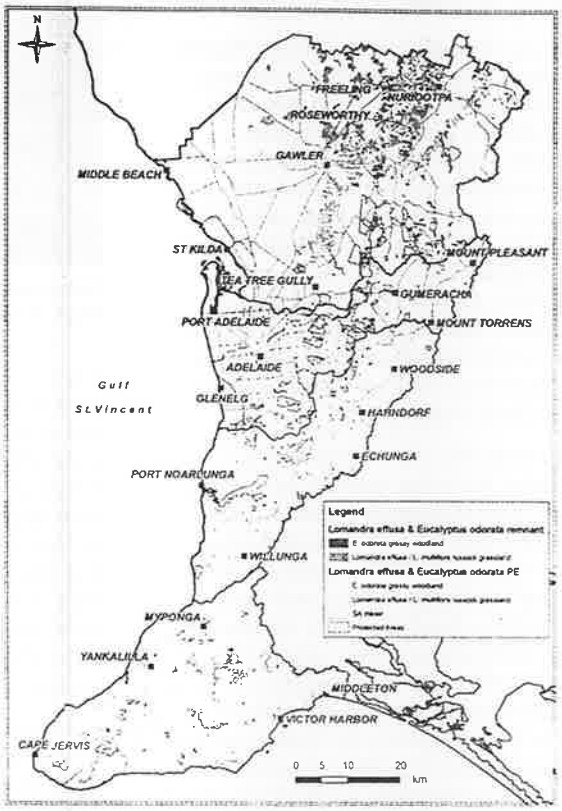
These communities have been heavily cleared and face similar threats. In most remaining areas, grazing and pasture improvement have effectively removed the native tussock grasses, herbs and shrubs. Many areas are now dominated by exotic pasture weeds. Grazing has also prevented the regeneration of the overstorey species in the Peppermint Box Grassy Woodland, to the extent that healthy and regenerating trees are rare.

Information that landholders and advisors will need to know about both critically endangered communities is outlined in the document *EPBC Act policy statement 3.7.*

The report covers such things as:

1. What does the plant community look like?
2. A map of the general location of the community
3. A list of characteristic plants found in the community
4. Why the community is listed as critically endangered

Figure 1: Distribution of Peppermint Box Grassy Woodland & Iron-grass Natural Temperate Grassland in the Mt Lofty Ranges



5. Threats to the community
6. A flow chart of how to assess the condition (health) of the community
7. An explanation of the implications for land managers
8. Priorities for protection of the community

For further details, go to:
http://www.environment.gov.au/epbc

Then click on:
Threatened Species and Communities under the EBPC Act Web Pages Box

Then click on:
Threatened Ecological Communities under the EPBC Act lists Box

Then scan down the list of communities to:
Iron-grass Natural Temperate Grassland of South Australia or Peppermint Box (Eucalyptus odorata) Grassy Woodland of South Australia and click on the Details.

Most of the information is in the PDF called:
Department of the Environment and Water Resources (2007ba). *EPBC Act policy statement 3.7 - Peppermint Box (Eucalyptus odorata) Grassy Woodland of South Australia and Iron-grass Natural Temperate Grassland of South Australia.*

Acknowledgement:
Information in this article is based on the *EPBC Act policy statement 3.7.*

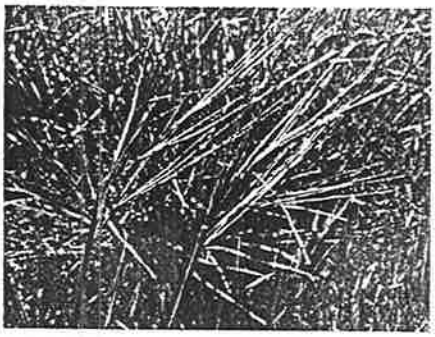
TIME TO LOOK OUT FOR TUSSOCK WEEDS

Jacqui Best, Sustainable Landscapes Officer - Adelaide & Mount Lofty Ranges Natural Resources Management Board

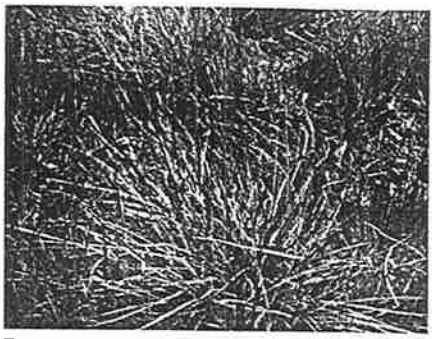
The stipoid grass weeds; Chilean Needle Grass (CNG) *(Nassella neesiana)* and Texas Needle Grass (TNG) *(Nassella leucotricha)*, are perennial tussock grasses which represent a serious threat to pasture and biodiversity in Australia. Due to their potential impact, both CNG and TNG are declared plants under the Natural Resources Management Act 2004. CNG is also one of twenty Weeds of National Significance (WoNS) and is regarded as potentially the worst environmental weed of temperate native grasslands in Australia.

CNG and TNG, both indigenous to America, were first observed in Australia at an outer Melbourne suburb in 1934. These weeds are now well established over large areas of New South Wales, the Australian Capital Territory and Victoria. However, in South Australia, infestations are mostly limited to the Onkaparinga Catchment and Wirrina, therefore containment of needle grass to these areas is a high priority for South Australia. Small, isolated outbreaks have been recorded at the Adelaide Parklands, Belair National Park, Randell Park, Modbury, Lucindale and Jamestown, and these are being closely monitored.

CNG and TNG are difficult to distinguish from each other as well as from other Australian Spear Grasses *(Austrostipa spp.)*. Reliable identification involves examining the seed. Hence, the best time to identify CNG and TNG in South Australia is mid-late spring, during flowering and seed set (see Figure 1 below). Seeds mainly germinate in autumn and spring, but germination can occur at other times of the year given adequate moisture and suitable temperatures. Needle grass seedlings grow quite slowly but have a very high survival rate and can produce flowers in their first season. Adult plants are long-lived and very hardy, with leaves 1–5 mm wide, flat and strongly ribbed on their upper surface, with edges that are rough to touch.



Chilean Needle Grass - flowering panicle
Photo: M. Crawford



Texas Needle Grass - tussock
Photo: J. Best

In a heavy infestation, needle grasses can produce more than 20,000 seeds per square metre. In addition to normal flower seeds, both CNG and TNG produce hidden cleistogene seeds in the nodes and bases of the flowering stems. Cleistogene seeds are self-fertilised and enable the plant to reproduce despite grazing, slashing or fire, as shown in Figure 2 (right).

In native grassland communities CNG and TNG have the ability to invade native vegetation and aggressively out-compete and replace native grasses and wildflowers. In agricultural regions needle grasses can reduce summer pasture productivity by up to 50%, downgrade produce and cause injury to livestock with their long, sharp seeds. The sharp seeds are also well-suited to dispersal through attachment to clothes, machinery, livestock and kangaroos.

Figure 2: Texas Needle Grass Cleistogene Seeds

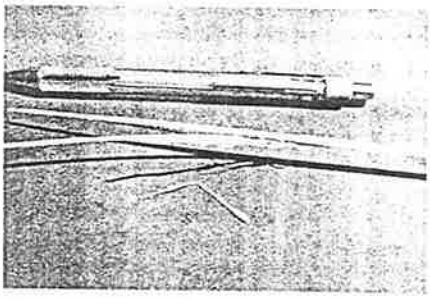


Photo: M. Weidenbach

For more information check out the Stipoid Weed Working Group's webpage at www.amlrnrm.sa.gov.au under *Board Programs of the Adelaide & Mt Lofty Ranges Natural Resources Management Board* or the Weeds of National Significance site at www.weeds.org.au

Most of the areas infested with needle grasses are considered recreational lands where the greatest threat is to local biodiversity and the risk of further dispersal is high. Please be on the lookout for these grasses throughout the coming months and report any suspicious plants to:

Jacqui Best, Sustainable Landscapes Officer - Adelaide & Mt Lofty Ranges Natural Resources Management Board on 8556 4500 or 0439 501 786 email: jacqui.best@adelaide.nrm.sa.gov.au

Acknowledgement: Penhall, L., James, R. and Faithful, I. (2000) *Texas needle-grass*. Information notes. Department of Primary Industries, Victoria.

Figure 1: Identification Diagrams

Chilean Needle Grass	Texas Needle Grass	Native Spear Grass
• Drooping flowerheads up to 40 cms long. • Narrow neck; swollen corona. • Awn 60 - 90mm long, bent twice.	• Drooping flowerheads up to 25cm long. • Narrow neck; swollen corona, with long hairs. • Awn 35 - 60 mm long, twisted and bent	• No corona, but can have ring of hairs. • Hairs all over seed.

Drawings by K. Firth

BURNING ISSUES - GRASSY ECOSYSTEM MANAGEMENT AND FIRE

Bill New - Eastern Flanks Grassy Ecosystems Extension Project, Nature Conservation Society of South Australia Inc.

Australia's vegetation has evolved with fire over recent and geological time where the combination of fire interval, intensity, timing and species response has created the grassy ecosystems of the Eastern Mount Lofty Ranges. These ecosystems are characterized by an understorey dominated by grasses, seasonal herbaceous species and few woody shrubs and trees.

Species found in grassy ecosystems have survived and thrived with fire through a number of mechanisms that either protect the core of the plant from the heat of the fire, allowing it to re-shoot or through having a positive regeneration response from seed. The following are some examples of how particular types of plants survive fire:

- Native grasses re-grow from root stock that is protected below soil.
- Lilies, orchids and other bulbs generally grow in spring, and will re-grow from bulbs protected below the soil.
- Tussocks such as iron grass, grass trees and sedges can re-shoot from the base of the plant and root stock.
- Wattles and other pea species have a hard seed coat that can be cracked by the heat of the fire, promoting germination with the next occurrence of suitable conditions.
- Species such as sheoak, banksia and hakea have seed encapsulated in woody pods that protect seeds from fire and release the seed following a fire.
- Eucalyptus and Melaleuca species regenerate from epicormic buds protected under the bark and in the lignotuber at the base of the tree, and seed is released from woody capsules following a fire.

The seed of many species can be stimulated out of dormancy by chemicals leached into the soil seed bank following fire and rains, and sites that have a base of native vegetation will successfully regenerate. Indeed grassy ecosystems need some disturbance to refresh the system and to allow all species to regenerate every now and then. Fire has historically provided such disturbance, however, burning regularly and/or too often can be counter-productive and can promote weed invasion, which will select for species that favor the timing and conditions of the event.

Weed invasion and vermin pose threats to the success of regeneration and in turn the long term health of grassy ecosystem vegetation. Weeds can take hold in burnt and disturbed areas where the soil is laid bare by the burning of the vegetation and surface humus. Rabbits, hares and kangaroos will impact on regeneration by browsing the green pick available from re-shooting plants and germinating seedlings. Stock accessing remnant vegetation through damaged fences will also disturb the soil and stock may browse on regenerating plants.

Burning of a grassy remnant area provides an opportunity to assist the regeneration of native plant species through weed and vermin control. Fire will open up the area and perhaps make it easier to see weeds and also to access them. Spot spraying the fresh growth of perennial weed grasses such as phalaris, perennial veldt grass and pentaschistis can reduce the dominance of these species and allow native species to regenerate. Briar rose and other woody weeds will re-shoot following fire and can be managed by spraying the re-growth or through cut and swab control technique.

Newly germinating woody weeds such as African daisy are relatively easy to hand pull and cotton bush can be grubbed, and seed removed from the site when mature seed pods are present.

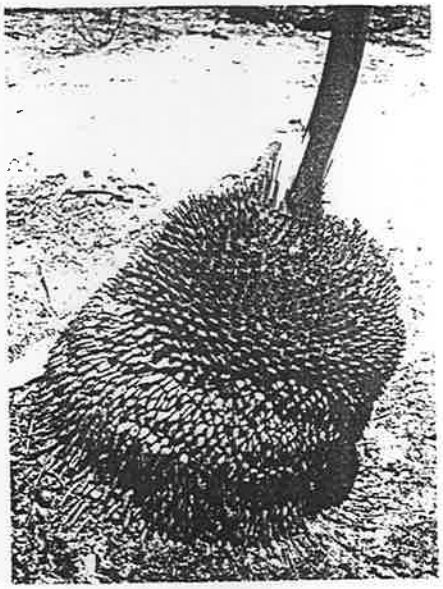
The reduced vegetation cover provided by the burn can also be used in controlling vermin. Vermin may be easier to see; with shooting providing effective removal of hares, cats and foxes. The location of warrens and access for destruction may be made easier through the opening up of the vegetation directly following a fire.

Planned and controlled burning is the preferred mechanism for using fire to manage grassy ecosystems. Deliberately lit fires are dangerous to the community and risk life and assets including remnant grass lands, however, these unfortunate occurrences of burning should still be utilised to carry out weed and vermin control where required.

Burning of grasslands is considered as vegetation clearance under the Native Vegetation Act, however, the use of burning as a management tool can be permitted where the burning activity is part of a well developed vegetation management plan and prior approval is given by the Native Vegetation Council.

For further information on grassy ecosystem management please contact Bill New at the Mt Barker Natural Resources Centre, on 8391 7500 or 0427 236 306.

Cotton Bush
Photos: Bill New NCSSA 2007



Grass Tree re-shooting after fire

MESS MAKES FOR BETTER BIRD HABITAT

Amelia Hurren & Ann Prescott - Bush Management Advisers, Department for Environment and Heritage

Being neat and tidy is seen as a virtue, but "cleaning up" in the bush may do more harm than good. Much of our native wildlife relies on "mess" on the ground - especially leaf litter, twigs, logs and fallen trees. In fact, a survey of bird activity observed 9 times more birds in patches of woodland with "mess" on the ground than without[1].

Some the rarest woodland birds in the Mount Lofty Ranges, such as the Brown Treecreeper, Diamond Firetail, Restless Flycatcher and Hooded Robin all hunt for food on the ground. The key to providing habitat for woodland birds and other animals is to encourage a mix of groundcovers. A patchwork with lots of leaf litter, fallen logs, clumps of grass and herbs and some bare ground will ensure food for all.

A recent study of ground-foraging woodland birds found that leaf litter is far more important than expected[2]. Leaf litter provides a smorgasbord for those birds which use their beaks to probe around for insects. Also very important are fallen logs which are vital feeding sites for woodland birds and insect-eating mammals, frogs and reptiles. Although old decaying logs are preferred habitat, logs placed on the ground as artificial shelter are quickly inhabited by a range of different animals[3]. Fallen logs are home to many animals and are a critical part of a healthy natural system. Removal of logs for firewood is a well recognised threat to biodiversity[4].

Dead horizontal branches within 2m of the ground are perfect habitat for Robins and Flycatchers which use them as perches to scan for insects on the ground beneath. Also important for ground feeding birds are patches of bare ground between clumps of grass and small shrubs. Insects are exposed in these bare patches, making them easy pickings for birds.

Does your patch of bush have ground habitat features like logs, twigs and leaf litter? If not, placing some old fence posts or other logs around will help to encourage fauna. And remember to leave dead branches for perch sites. Obviously there are areas, such as near houses or other buildings, where some "cleaning up" is needed to reduce the risk of fire. But in other areas, being messy will help woodland animals to survive.

[1] Laven N.H. & Mac Nally R. 1998. Association of birds with fallen timber in box-ironbark forest of central Victoria. Corella 22 (2) pp56-60.

[2] Antos M.J. & Bennett A.F. 2006. Foraging ecology of ground-feeding woodland birds in temperate woodlands of southern Australia. Emu 106 pp29-40.

[3] Michael D.R., Lunt I.D. & Robinson W.A. 2004. Enhancing fauna habitat in grazed native grasslands and woodlands: use of artificially place log refuges by fauna. Wildlife Research 31(4) pp65-72.

[4] A National Approach to Firewood Collection and Use in Australia. 2001. Australian and New Zealand Environmen and Conservation Council.

Natural, uncleared bushland

COUNTING THE COST by Emma Rush

This article describes the cost of commercialism. I'd like to share part of the article written by Dr. Emma Rush, Visiting Fellow at the University of Melbourne's School of Philosophy with you. The article appeared in Adelaide's Child, Vol.7.No.1 November 2007.

'We need to move beyond consumerism primarily because of its effects on the environment, of families, and on our happiness. Consumerism as a way of life is now heavily marketed....The trouble is that there is a worrying gap between rampant consumerism and our hopes and dreams for the future of our children. Consumerism encourages us to know the price of everything and the value of nothing.

...Little wonder that disquiet about the way the world is heading tends to lurk quietly in the background of family life.

But there are alternatives, and it is time we started to discuss them.

The pace of human consumption in industrialised countries like Australia is fast ripping holes in the beautiful, delicate web of life that makes human existence not just possible, but delightful. Climate change is the most dramatic manifestation of the high environmental costs of consumerism, but excessive consumption leads to many other environmental costs as well.

The wealth that we enjoy is in various ways dependent on others living in poverty. Much of what we consume daily - food, clothes, electrical items, toys - is grown or made by people who are very poorly paid and who suffer dangerous working conditions. An alternative worth considering is fair trade.

Although our levels of consumption are at an all time high, this contributes relatively little to our happiness. In Australia and many other Western countries, greatly increased wealth since the 1950s has produced only very small increases in happiness....

As a society, how might we begin to address the problem of consumerism?

Better technology and design will enable us to reduce consumption and its associated environmental costs by using fewer resources to produce the goods and services we currently enjoy...[but this]... may not be sufficient to pull back consumption levels enough to avoid further, perhaps critical, environmental damage. According to Ecological Footprint Analysis, we would need almost four planet earths if everyone in the world were to consume as much as the average Australian consumes. We're using far more than our fair share. We must start to use less, for even basic levels of material development in poorer countries, where people consume very little, will be difficult without causing further environmental problems.

Will technological and design innovation be shared with less wealthy nations? Innovations are usually sold, and sharing them will require unprecedented international c-ooperation.....so important...[in]...a world of increased tension over resource availability.

Finally are all the products and services we currently consume really important to our genuine happiness?

This brings us back to the Christmas issue. Most of what is really important involves each of us being more of who we inherently are and less of a consumer.

One of the greatest obstacles to moving beyond consumerism is that of consumerism promoting economic growth.

There are three broad approaches to overcoming the obstacle that the current economy's need for growth poses to moving beyond consumerism.

The first approach is to try and make standard economics take greater account of what is really important: the protection of the earth's complex ecosystems, fulfillment of basic needs for all people, and human happiness. This approach accepts that economic growth is necessary and claims that it can be more intelligently achieved by modifying current regulations and financial incentives. For example, polluters could be made to pay for their carbon emissions via a carbon tax or carbon trading scheme.

...the other two broad approaches to moving beyond consumerism - ecological economics and local economic alternatives- involve designing economies that are based on what is genuinely important....they begin from some of the things that are most important- the protection of the Earth's complex ecosystems and the fostering of human relationships within the broader community...an economy that puts human happiness and environmental sustainability first, rather than economic growth.

SO what do you think? Climate change and drought are inevitable affecting many communities. Australia's and the world's food bowl is decreasing, our natural areas are shrinking, our flora and fauna moving towards extinction, yet the world's population is increasing rapidly. What can you do?

3CCS Vol 16 No 138 10/95

BACKYARD WILDERNESS: Condensed from an article by John Dengate in `*Simply Living*'

How to transform the humble suburban garden into a mini-national park.

For the past 200 years we've shot them, flattened their habitat, poisoned them, eaten them and even stuffed them. Now we're realising it's time to start making amends for the way we've treated the fellow species travelling on planet earth.

If you want to do something for our wildlife, there are lots of possibilities.

Turning your backyard into a mini-national park might sound like a drop in the bucket, but if everyone in Australia did something, the 21 million drops would make quite an environmental splash. There's also something in it for you. The more wild creatures in your backyard, the more interesting your life can be - and the less insect pests you are likely to have.

For most of us suburban dwellers, birds are the main animals we can help. It's easy enough to attract birds into your garden, provided it contains food, water and shelter, and doesn't contain too many harmful factors like cats and pesticides.

Most birds eat nectar, insects, seeds or berries and the kind of birds you get depends on which food you have available. Aussie birds and plants have been helping each other for millions of years, so if you want the birds, grow the plants!

Banksias, bottlebrushes, grevilleas and some eucalypts are among the best nectar producers. As a general rule, any red, tube-shaped native flowers are likely to be good for honeyeaters.

Although natural foods are best for wildlife (and people) you can also attract birds and other animals by putting out some artificial food. You need to clean the feeding area daily, or the birds can get sick, and use the right kind of food or young birds won't grow normal feathers. Don't put out so much food that the birds become dependent on you and remember to keep cats at bay - birds get so involved with squabbling over food, they are easy targets for a prowling feline.

What's the right kind of food? A reasonable nectar mix for lorikeets and honeyeaters is one part sugar (any kind) , three parts high protein baby cereal, ten parts water (to make it nice and gooey) and some bird vitamins (from the pet shop).

For lorikeets, you need to also put out seeds, greens and fruits. Put out as many seeds, fruits and greens as the birds will eat in an hour or so, but only a teaspoon of the nectar mix for each lorikeet per day. Seeds are the staple diet of many of our parrots, so a few seed producing plants can add a lot to a garden. Wattles and casuarinas are good seed producers.

The nicest fruit-eating birds are probably silver-eyes - dapper little characters with grey overcoats, fawn waistcoats and a taste for insect pests. The crummiest are the currawongs. These delinquents are too smart for their own good. Although their antics are often entertaining, their nest-robbing make sure you have lots of low, dense bushes for little birds to hide in when hungry currawongs are looking for dinner.

This is one of the secrets of attracting birds - they need shelter as well as food. There are lots of great shelter plants - like spikey wattles, grevilleas and hakeas.

One point to remember is that for every layer of plants in a forest, there is a different group of birds. So is you can recreate the layers of shelter provided by your local forests, you can increase the number of birds turning up. Birds that nest in hollows often find things difficult in the suburbs. Many old hollow trees threaten houses and get the chop. In some areas, rosellas, kingfishers and little pardalotes can find homemaking impossible. The solution to this nest boxes. The things that make a nest box are great thick walls, being weatherproof, having an entrance just big enough to admit the intended occupant and a solid attachment to the tree (so the box doesn't fall on passers-by).

Finally, there's the one thing that birds love that is good for them, won't make them dependent and won't cause any environmental problems - water. It comes out of the hose, and all you have to do is provide some sort of container. A bird bath or outdoor fish pond will do very well and even a sprinkler amongst the trees can be a bird's delight. If the water is moving, the pretty sparkles attract birds.

Pesticides are not great for birds - or the other living things in the backyard. Most times, it makes sense to tolerate a few pests. If you spray every time you see a pest, not only will you be wiping out a lot of harmless, interesting insects, you will also be destroying any insect predators present.

So if you run your garden using natural principles, plant a few food plants and keep harmful influences away, you can enjoy a beautiful natural area, and the fascination that comes with the wild creatures it attracts.

CHRISTMAS WITH BIRDCARE

On the 12th day of Christmas the public gave to me:
12 Rainbows squawking
11 Ducks a'quacking
10 Magpies pecking
9 Kookaburras laughing
8 Turkeys wandering
7 Galahs a'talking
6 Mudlarks sitting
5 Cockatoos
4 Noisy miners
3 Moorhens
2 Turtle doves
and a Heron up a gum tree

BIODIVERSITY
AUSTRALIA

Animal Rights, Editorials & commentaries

EDITORIALS
COMMENTARIES

The Australian, 24/10/2007

Conservation has to be our nature

Biologists should stand up for species' rights, argues Allan Greer

FEW scientists work with as much underlying anxiety about the state of the world as do field biologists. This is because botanists, zoologists and ecologists study species and their habitats, and these are being destroyed rapidly by human activity.

The childhood creek where they roamed like indigenes is now a stormwater channel through a McMansionville; the habitats where they did their PhD research have been cleared or filled, and the ecosystems that they have known all their professional careers continue to be degraded by both accident and design.

Other scientists, such as astronomers, chemists, physicists and even cell biologists are luckier. The things they study are beyond the destructive reach of humans, at least for the present.

As a consequence of the inexorable decline of the natural world, many biologists work with a sense of urgency and despair: urgency to understand and record before it all disappears and despair of their work making even the slightest bit of difference. They put on a brave face and try to meet society's pollyanna-ish expectation to be positive. They write grant proposals promising results that will directly or indirectly contribute to the amelioration, rehabilitation or reconstruction of this or that species, habitat or ecosystem.

Dressed in field gear, standing in an exotic location and holding a specimen of the endangered species they are trying to save, they smile happily out of the pages of popular nature magazines, which describe their heroic work. But they know that their efforts will come to little, and that the childhoods they had searching for the plants and animals in their neighbourhood bush will soon cease to be a part of human experience, and with it the most common basis for a lifelong interest in nature.

When biologists do give a public reason for preserving species, it is usually how this or that species or association of species does or could contribute to a better life for humans. The tiny snail living in only one small spring in the arid zone may be discovered one day to produce a compound that cures cancer; a beachside plant might have a gene that could be put into wheat to help it resist salinity; a rare cockatoo could be managed to produce extra eggs and young for sale to wealthy fanciers by an indigenous community, and corals forming the great reefs must be kept in good health in order to continue attracting millions of tourist dollars.

Biologists are always reminding us that species aggregated into habitats

and ecosystems provide essential services such as breeding grounds for commercial fish species (estuaries), carbon sequestration (forests), soil stabilisation (grasslands) and water purification (wetlands), all of which we take for granted because we are never invoiced for them. In other words, biologists today have taken up wholeheartedly the utilitarian argument for preserving nature.

Biologists feel comfortable making the utility argument, because it is both rational and quantifiable, the essence of the way science looks at the world. It is rational, because anything that helps humans is by most people's definition rational. And it is quantifiable, because its actual or potential value can be measured, or at least estimated, in dollars, a currency everyone understands.

But utility will never save nature, because saving it for its usefulness will change it. As soon as an aspect of nature is valued for its usefulness, it becomes subject to pressure to make it even better or more efficient. If nature contained a species of goose that laid golden eggs, imagine what would happen to that goose when the patent lawyers, genetic engineers, merchant bankers, venture capitalists and agribusiness executives got their hands on it. No doubt more gold, but also over time a much modified natural goose.

In any event, biologists' public acknowledgement of utility as the reason to value species and hence nature sits oddly with their obvious passion for nature and their distress at what is happening to it. For example, it's hard to believe that a biologist who has dedicated his or her life to studying a group of marine invertebrates can hardly wait to get to the lab each morning because they believe their work will lead to a better sun screen or even a cure for childhood leukemia, as pleasing as those serendipitous outcomes may be.

There has to be some other motivation. One that is more powerful than dollars. But what could it be?

One obvious reason that biologists value species is that, as a result of their childhood encounters with plants and animals in nature, they continue to find them endlessly fascinating in the myriad details that characterise every species and the subtle differences that separate them. And ever since evolution through natural selection became the unifying theory explaining the similarities and differences among species, biologists have also sought to explain the details of species according to this theory.

Under this view, species have value as a source of endless stimulation for the human mind. And when species become extinct or lose their connection with their natural context, this loss of biological diversity has the same effect as does a loss of cultural diversity: it impoverishes human experience. However, even this value is utilitarian, albeit in the least commercial sense, because it is still based on the premise that species have value for what they can do for humans.

But there may be a deeper value running through the sub-consciences of at least some biologists. That value arises from the remarkable circumstances of the origin and diversification of species. As far as is known, life evolved only once in the history of the universe, and the place where it evolved was Earth. Starting with the first life form more than 3.5 billion years ago, evolution through natural selection has led to the origin of millions of species, each of which has, or did have in its time, some element of uniqueness.

Many of those species have gone extinct naturally, but anywhere between two and 50 million are alive today.

Under this distinctly biological view of the world, all species, including our own, are equal in a number of regards. All species share their ultimate existence to one remarkably improbable event, the origin of life. They all share a kin relationship with every other species through evolution from a single common ancestor. They are all equal in being unique in some way. They all share the experience of having survived for long periods (although no species lasts forever) in a universe that is fundamentally inhospitable to life. And all living species, at least, share an open evolutionary future.

From these observations, a disinterested observer, and perhaps biologists more so than any others among our own definitely less than disinterested species, might conclude that all living species, sharing as they do a common unique origin, a kin relationship, an improbable heritage, their own special features and their own evolutionary future, have a right to a continued existence in their natural circumstances. This view or value might be called species rights. And importantly, it is a view based on a strictly scientific understanding of the world. It has nothing to do with either a religious or even a spiritual view.

Now most biologists would probably feel affronted to have such a value attributed to them. They would not appreciate being accused of holding an irrational motive ahead of a rational one. And most would sooner die of a slow, painful, disfiguring disease than be associated with a belief that might, at first glance, be confused with what is currently known as animal rights.

However, there should be little that's controversial about biologists holding an irrational motive for what they do. After all, every scientist, much to the chagrin of managers and politicians everywhere, does it for the sheer, knee-trembling fun of it, no matter how he or she tries to tart it up by paying lip service to whatever higher motive may be currently fashionable, such as utility is today.

The addictive high of the "Ah ha!" moment is, in fact, the force behind all human creativity, and it is only begrudged by those who lack a capacity for it.

But more to the point, a belief that a species has a right to exist is no odder than many other beliefs that are expressed as rights, such as, for example, the curious assertion of one short but influential text that every person has the self-evident right to the pursuit of happiness.

Rights are based initially on such self-evident beliefs and not reason, although a good deal of reason may go subsequently into justifying rights. All that is really needed for a particular right to gain currency in human affairs is for enough people to agree that it is a right. To be sure, potentially conflicting rights have to be arranged in a hierarchy, but this is very different from not admitting to a right at all when in fact it is felt to exist.

The right of a species to continue to exist might be subservient to the right of even one individual human to continue to exist (a person on a deserted island with nothing to eat but an endangered species). But a species' right to exist might have precedent over the right of an economic development,

no matter how urgently it is desired by some people, or the right of a couple to bring more than their replacements into the world. Indeed, the case of the snail darter fish that stopped a dam being built in the US in the 1970s and more recently, a handful of crevice-dwelling invertebrates that were accorded an exclusion zone in a mining area of the Pilbara, show that Western thought, even in its current hyper-commercial phase, is sympathetic with species' right to exist in nature.

As to the abhorrence most biologists would feel at being bedfellows with animal rightists: given the frequency with which biologists point to the necessity for profound attitudinal change if the destruction of nature is to be arrested, it is salutary to reflect on the fact that the animal rights movement and its less extreme cousin, animal welfare, embodies one of the most successful attitudinal changes towards at least some part of nature in modern times. Once a right gains even partial acceptance, it can have pronounced flow-on effects.

There is, nonetheless, a significant difference between animal rights and species rights. Animal rights generally focuses on the right of individual organisms to live out their lives free of human interference, whereas species rights is concerned with the right of individual species to live out their evolutionary lives free of human interference.

Animal rightists are concerned about those individual koalas that might be shot in a cull, but would not be too concerned about the consequences of spreading urbanisation on the continued existence of a local population of the species. In contrast, species rights would not be too concerned about killing a few individual animals for the purposes of research or management, but it would be concerned about the consequences for a natural local population created by some human activity.

If biologists think that a right of a species to continued existence under natural conditions is not the fundamental underlying reason they themselves value species and hence nature, then they should ask themselves exactly why they do value species. Is their appeal to utility really the deepest value they feel, or is it simply a strategy for our times? Surely biologists' deepest personal values about species must count for something when people, especially young people who are still forming their views, come to consider their own relationship with nature.

Even if biologists were clearer in their own minds about their deepest feelings about species, would they articulate them? Biologists, like other scientists, strive to keep values out of their professional work, to make their work appear objective, that is, bias free. But scientists, like everyone else, have values, and to imply that they don't is self-deluding or misleading.

To be sure, scientists should publish their results and offer their professional advice without extraneous attachments, but there is no reason why scientists could not be more candid about their values in other contexts, such as books, articles and public comments. To take an example from another area of biology, human stem cell research, would it not be fascinating, as well as informative, to know what each scientific proponent in the discussion of this topic thinks about the value question of when human life begins? Could any view not be interesting? Could anyone not have a view?

Beliefs are important in thinking about the relationship between humans and nature, because it is unlikely that nature will be saved by the

application of ever more science and technology or even by the widespread acceptance of the utilitarian view.

Instead, nature is likely to be saved by the belief that all species have an intrinsic right to continued existence under natural conditions. And if biologists, the people most interested in and impassioned by species, don't believe that species have such a right, or if they believe they do but are afraid to say so, then, really, one has to ask if we are not just contributors to our own despondency.

Allen Greer is a biologist.

CONSERVATION NEWS AND HOT TOPICS

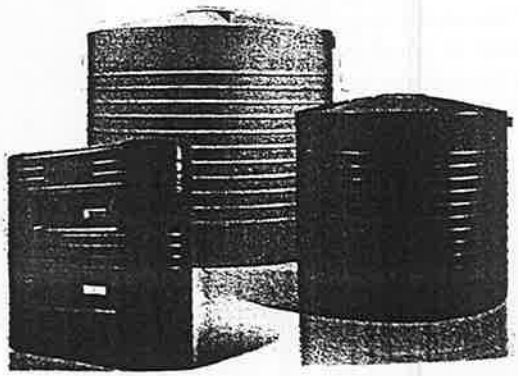
Fire & Native Vegetation - A Personal View

by Fraser Vickery, *a resident of KI, with a Masters degree in Terrestrial Ecology and is undertaking a PhD in Fire Ecology.*

The fires on Kangaroo Island have again seen calls emerging for more burning of our native vegetation - ostensibly to reduce the threat of wildfire. Proponents of increased burning however miss the point. Fire is a natural process that is ongoing; lightning strikes provide regular sources for ignition that do create a mosaic of fire ages in the large areas of remnant native veg. on western KI and elsewhere.

Prior to the regulation of native vegetation clearance in 1983 some landholders did burn remnant native vegetation effectively to modify it and eventually to clear the landscape. Many of those spring burns escaped, posing risk to the broader community and causing great damage including burning into National Parks. Many fuel reduction burns within protected areas also escaped and impacted severely on the ecology of the wider landscape the 1986 Gosse Lands fire for example. The Department for Environment and Heritage (DEH) is using hazard reduction burns as a means of reducing the risk to life and property but unfortunately some of these burns become wildfires one of the risks associated with adaptive fire management and a real issues for threatened wildlife populations and the wider community.

This situation is partly due to the unique human history of the Island no Aboriginal burning for at least 2,300 years and limited clearance since settlement, relative to mainland SA. The disappearance of the Kartan culture from Kangaroo Island some 2,330 years ago, can partly be attributed to the impact of the very large, hot fires that burned across the island (and might have burned the whole island regularly) and may also explain why no skeletal remains are found. Programs are being developed for areas on the Island where, because of fragmentation, fire may have been precluded for too long- the narrow leaved mallee communities for example. Landholders have always had the ability to burn native vegetation however, by developing plans in consultation with the relevant local agencies for submission to the Native Vegetation Council for approval. The ad-hoc calls now emerging from some landholders for widespread regular burning is however a recipe for both ecological and human disaster.



THE ORIGIN OF THE WINDMILL -An old idea and a new technology- an icon of the Australian landscape

In the mid 1850s windmills with slow turning, multiple blades made of wood or galvanised iron were developed. These new mills performed admirably, and thousands of them were erected on homesteads and stations. The first Australian-built mill of this type was erected in Queensland in 1876.

The Australian version was typically much bigger and with fewer but larger blades than the original American model, having been designed to lift water from great depths, even from the artesian basin, in places where hand pumps would have been impractical.

The main use for these machines was for stock watering, but they were later adapted for providing domestic water supplies, raising water from dams and creeks (as well as groundwater) into elevated storage tanks. Gravity did the rest. But the high cost of pipe-work and digging deep wells or bores meant that the pump tended to be located close to the water source, rather than where wind was good and strong.

The classic configuration for the galvanised steel 'fan' blades to be mounted on the end of a crankshaft which is bathed in oil inside a weatherproof crankcase. A tail vane extends from the far side to steer the fan into wind, the whole of the fan, crankcase and tail vane being pivoted on a turntable at the top of the mounting tower. The tail vane is 'furled' to turn the fan out of the wind to protect it from storm damage.

The crankshaft converts the rotary motion of the fan into reciprocating up-and-down motion of the connecting rod that extends all the way down to the pump itself. Here, every stroke lifts water past a non return (reflux) valve and, as the action is repeated every few seconds, gives the desired pumping effect.

In low applications, where the tank is not much higher than the water source, double-acting pumps can be used; these pump on the down stroke as well as the up. But selection of the machine for your job is largely that of matching fan size and crank travel length. You want a long crank travel to pump as much water as possible on each stroke, but if too long the fan will not be strong enough to get started in light winds.

Another important aspect in the selection of a wind pump is the height of the tower. The wind is stronger when clear of the ground (about 20 % faster and 70% more powerful at 30 metres than it is at 10metres), so a taller tower can mean a smaller fan for the same job- or more water from the same fan.

Wind powered electricity

Generating electricity from the wind did not become a commercial proposition until the 1930's, when two-three- and four bladed wind generators were sold for use on remote homesteads. They produced 12V, 24V or 32V direct current (DC) which was stored in batteries until needed for lighting or other low-power applications. The smaller sized 12V and 24V versions were generally cheaper.

Since a source of water did not restrict the siting of the tower (as for a wind pump), a windy hilltop was often used. All that was needed then was an electric cable running from the tower to the batteries. But even this was an expense that had to be avoided if possible. The higher the voltage, the smaller is the cable required for a given power delivery, so the 32V systems had a certain advantage and were also widely used. A full range of household appliances were available in these DC voltages and many of them still are.