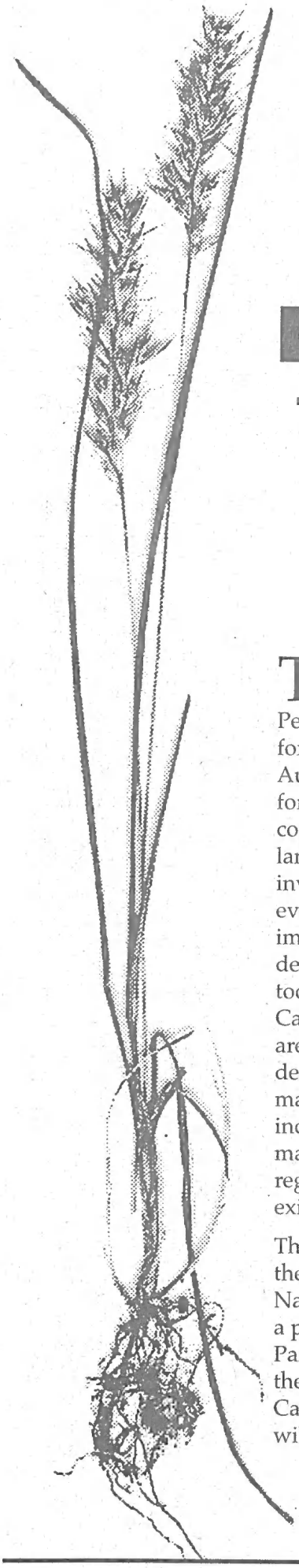

Danthonia

Volume 9 Number 1
June 2000

NEWSLETTER OF THE AUSTRALIAN NETWORK FOR PLANT CONSERVATION INC.

Threatened Plant Conservation in Cape York Forges Ahead

John Clarkson
Principal Botanist, Queensland Parks and Wildlife Service
Mareeba

Those involved in nature conservation on Cape York Peninsula find themselves in a very fortunate position. Over so much of Australia, conservationists are forced to play 'catch up conservation'. Disturbances such as land clearing, salination and weed invasion are often so pervasive that every vegetation remnant is important and the challenge is to demonstrate their value before they too are lost. This is not the case on Cape York Peninsula. Whilst there are certainly examples of species in decline or in need of active management, the opportunity to incorporate sound conservation management into planning at a regional and property scale still exists.

The situation is further improved by the recent announcement that the Natural Heritage Trust will support a project, run by the Queensland Parks and Wildlife Service, to secure the rare and threatened plants of Cape York Peninsula. The project will run for at least 12 months, during which time a botanist will systematically review the data on rare or threatened plants from the Cape York Peninsula bioregion, and conduct an intensive field survey. Known populations of rare or threatened plants and their potential habitats will be visited to (1) obtain information on population structure, size and habitat requirements and (2) identify possible threats to long term viability in the wild. This information has been largely lacking to date. Then, in close co-operation with land managers and indigenous traditional owners, management strategies will be planned and implemented for key species.

The Queensland Herbarium has had botanists based in far north Queensland since 1979 and much of their survey work was focused on Cape York Peninsula. The status of a number of rare plants was reviewed in light of plant inventory and vegetation mapping data collected during this time (Neldner 1993). Data sets gathered during this

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ANPC Inc. Mission Statement

"To promote and develop plant conservation in Australia."

Danthonia

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Contributing to *Danthonia*

Danthonia is a forum for information exchange for all those involved in plant conservation: please use it to share your work with others. Articles, information snippets, details of new publications and diary dates are all welcome. The deadline for the September 2000 issue is Friday 28th July.

Please send typed or handwritten articles, no more than 2 A4 pages, to Fiona Hall by fax, mail, e-mail, or diskette. If sending by e-mail, please send in the body of the text or as an attachment in Word or Rich Text Format (rtf) to: anpc@anbg.gov.au

Illustrations or logos are always needed too, in the form of clear prints, slides or drawings.

National Coordinator's Report

Jeanette Mill

Regional Groups have been as busy as ever with a range of local activities. Tracey Armstrong, the Sydney Region coordinator, made some very fruitful contacts with NSW National Parks and Wildlife Service staff at the ANPC conference, and subsequently ANPC volunteers have been helping conduct rare plant surveys. I joined the survey for *Allocasuarina portuensis*, although unfortunately no new plants were found, and it remains a desperately endangered species. However, the next survey involving ANPC members found a new subpopulation of *Persoonia mollis* subsp. *maxima* – very exciting news!! See the report from Chris Lacey in this issue. Chris has notified us of further endangered plant surveys later in the year – see page 16.

Wildcare in Tasmania, of which the ANPC's Botanical Guardians form a subgroup, has been nominated for a Banksia Award for Environmental Excellence. The Regional Coordinator, Andrew Smith, will be attending the award ceremony in a few weeks – good luck Andrew. Andrew has a huge volunteer program operating in Tasmania, and the list of their achievements is staggering. Don't hesitate to contact Andrew if you would like to volunteer, or if you have a project you would like some assistance with.

New and old members alike are encouraged to contact your regional coordinator (see pages 17 and 18) and join in survey days, weed pulling, and organising local events, perhaps focused on significant 'days' like National Threatened Species Day (7th September). Remember, this is a network, so if you've got an idea or something you would like to be involved in, make it happen. It's at the regional level that networking and action for plant conservation can be most vital.

In Far North Queensland John Clarkson of the Queensland Parks and Wildlife Service, and graduate of the ANPC Plant Conservation Techniques Course, has secured NHT funding to review and develop management strategies for the rare and/or threatened plants on Cape York Peninsula. This is an exciting new project, and you can read all about it in this issue. We hope to keep you informed of how the project develops.

Back in March I attended an Oceania Regional Meeting of 42 IUCN (the World Conservation Union) members, conveniently held near Canberra. The draft IUCN Programme for 2001-2004 and draft membership policy were considered from a regional perspective as a lead-up to the 2nd IUCN World Conservation Congress, to be held in Amman, Jordan, in October. The IUCN draft programme draws partially on the strategic plans of the six IUCN Commissions (see ANPC Vice-President David Given's update on page 9 on the Global Plant Strategy of the Species Survival Commission Plants Programme). The two goals of the IUCN Programme are "Facing the extinction crisis" and "Restoring and maintaining ecosystem integrity". Deadline for comments on the drafts by IUCN members is July 4. If you would like to see the drafts visit the IUCN website http://www.iucn.org/.

Topics of special interest were also considered at the meeting, including World Heritage, Invasives and Marine Biodiversity. This meeting was an excellent opportunity to contribute ANPC's expertise to this international conservation network, as ANPC acts as the Australasian Plant Specialist Group of the IUCN Species Survival Commission. We also gained a new member – the South Pacific Regional Herbarium – welcome!

Keeping you Informed

Many other significant strategic initiatives are occurring on the international conservation front, and we are creating an email mailing list in order to bring you developments, both national and international, as we hear of them. This has already enabled the draft Botanic Gardens Conservation International (BGCI) *International Agenda for Botanic Gardens in Conservation* to be emailed to many members for comment, as the deadline did not fit with the *Danthonia* publication schedule. As a result several members have commented on the Agenda, and I submitted comments from the National Office. If you would like more information about this guiding document for botanic gardens in conservation, contact Dr Peter S. Wyse Jackson, email: pwj@bgci.rbgkew.org.uk. It is planned that the new Agenda will be launched at the World

(Continued next page)

Botanic Gardens Congress in Asheville, North Carolina, in late June.

The email list is still developing, and we hope that eventually all members with access to email will be added to it. If you would like to broadcast items to members, please send me an email at jeanette.mill@ea.gov.au.

ANPC has acquired an Australian Business Number and registered for GST. **PLEASE note** that GST is payable on ALL 2000 memberships on a *pro rata* basis, as the membership year spans the introduction of the GST. **So please be kind to us and pay the GST amount shown on the membership form, otherwise ANPC will be out of pocket.** The membership and publications order forms have been modified to act as a Tax Invoice, which will enable registered businesses to claim back the GST paid.

Good News for an Endangered *Persoonia* Species

Chris Lacey
Threatened Species Officer
NSW National Parks and Wildlife Service

Persoonia mollis subsp. *maxima* is an endangered plant species known from three catchments in the Hornsby Heights-Mt Colah area of north-metropolitan Sydney. The *Persoonia mollis* subsp. *maxima* Recovery Plan is soon to be released and already the recovery team, with the support of ANPC members, is implementing priority actions identified in the plan. One such action was to look for new populatins in the steep sandstone gullies of Ku-ring-gai Chase National Park and Berowra Valley Regional Park.

The first of what is hoped to be an annual survey occurred in March 2000, and despite the torrential rain and innumerable leeches, the recovery team and ANPC members donned their wellies, descended the broken escarpments, waded through a supersaturated understorey, and more than once questioned the sanity of the endeavour to locate Hornsby's endangered Geebung.

Our efforts and persistence were rewarded with the discovery of a new subpopulation in Ku-ring-gai Chase National Park, increasing the total adult population by approximately 10%. Amazingly the plants occur adjacent to one of the park's most popular walking trails and, growing up to six metres high, it's not as though *P. mollis* subsp. *maxima* is difficult to find! Whether the park's visitors have assumed that the subpopulation was known or whether it has simply gone unnoticed is not clear. Whilst the newly discovered plants are under no immediate threat, the recovery plan will establish a monitoring program so that remedial action can be taken if the need arises.

The discovery is also exciting news for two PhD candidates at the University of Wollongong - David McKenna and Paul Rymer - looking into the demography and population genetics of rare and threatened *Persoonia* species, including *P. mollis* subsp. *maxima*. Both candidates are looking for volunteers to assist with surveys, fieldwork and data collection and invite ANPC members to become involved. If you're interested, contact Chris as follows, and see page 16 for details of other surveys:

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Persoonia mollis *subsp.* maxima. *Illustration: Gavin Gatenby*

(Continued from page 1)

survey work will be drawn upon heavily in the NHT funded project.

The following examples illustrate some of the work to be done, as well as the importance of understanding the biology and habitat of species in order to establish their real threat status and their management requirements.

Coix gasteenii is a tall, robust, perennial grass still known only from the type locality (see Ian Fox's article, this issue). The project will conduct intensive searches for other populations.

Jedda multicaulis *Photo:John Clarkson*

Jedda multicaulis was first found in 1980 and described in 1986 (Clarkson 1986). This multistemmed shrub belongs to the subtribe *Linostomatinae* of the family Thymelaeaceae. Its discovery in tropical grassy woodlands on Cape York Peninsula was intriguing. Three other genera, all rainforest climbers, make up the subtribe. One is a South American genus restricted to the Amazon drainage system. The other two are Asian. *Jedda* has unusual germination behaviour. Perhaps as an adaptation to fire, the plant's plumule is carried several centimetres beneath the soil surface by the fused petioles of the cotyledons. This was the first report of this germination behaviour, known as cryptogeal, for the Australian flora (Clarkson and Clifford 1987). Although locally abundant, until recently *Jedda* was known only from the type locality in an area totalling no more than 5km^2. A second population of unknown extent was located about 50km northwest of the original locality in 1999. If land use remains unchanged, the plant should be secure, but we will try to negotiate a conservation agreement over one or both of the populations as part of property management planning.

The grass *Eremochloa muricata* was collected from a rocky headland just south of Cape Flattery in 1976, but searches on similar headlands along the east coast of Cape York Peninsula over the past 20 years have failed to find it. This remains the only collection of this plant from Australia, although the species also occurs in India and Sri Lanka. Recent taxonomic studies have confirmed the identity of the Australian collection (J. Veldkamp pers. comm.). Two other species of *Eremochloa* occur on Cape York Peninsula, including *E. ciliaris* which is also listed as rare. We plan further searches for this and *E. muricata*.

In 1972 John Wrigley collected a new species of *Macarthuria*. The plant is still undescribed and listed by Henderson (1997) as *Macarthuria* sp. (McIvor River *J.R.Clarkson 5447*). It was not relocated until 1984, and in 1985 a single plant was found in a dunefield north of Cooktown. A visit to the silica sand mine at Cape Flattery revealed that the plant is a pioneer species which appears in the dunes following heavy disturbance such as fire or, in this case, revegetation following sand mining. Armed with this information the plant has been successfully located in several dunefields as far north as the Jardine River and its long term outlook is secure.

The NHT project should refocus conservation efforts onto those plants that are genuinely rare or threatened. It is hoped the results will be used in bioregional planning for threatened species and communities on Cape York Peninsula and for planning at the property level.

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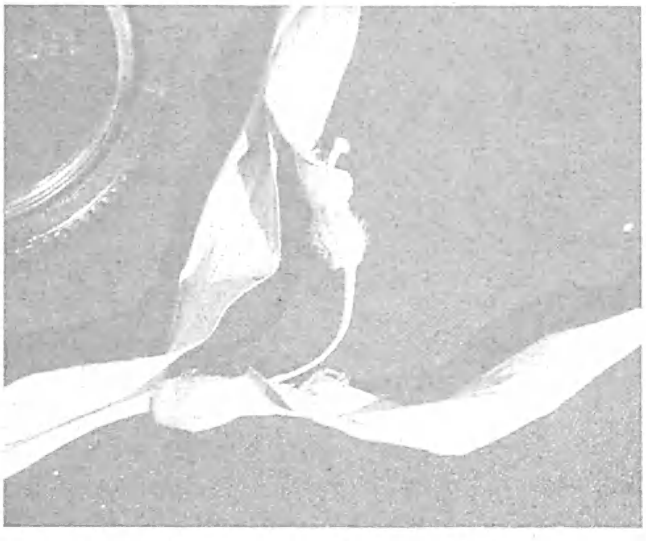
Conserving *Coix gasteenii*, A Rare Grass From Cape York Peninsula

Ian Fox
Queensland Herbarium

Coix gasteenii is a rare grass species from southern Cape York Peninsula (CYP) described in 1989 by Bryan Simon from the Queensland Herbarium. It was first found by Jim Gasteen during fieldwork prior to the gazetting of Lakefield National Park. The genus *Coix* is a tropical Asian grass, with the Malesian Archipelago being suggested as a centre of origin. *Coix* as a genus is quite well known through the tropics, with *Coix lacryma-jobi* (Job's tears) sometimes grown as an ornamental plant. *C. gasteenii* is a robust, rhizatomous grass which grows to nearly two metres. The cane-like stems arise from a large tussock and have broad leaf blades. A unique feature of *C. gasteenii* is the extension of the female inflorescence into a small leaf-like structure. These large inflorescences hang like short strings of beads.

Little is known about *Coix gasteenii* or its management requirements apart from the fact that it is rare. It is known only from one location, where the number of individual plants is small, certainly less than ten. To date no new populations have been found even though Queensland Herbarium botanists John Clarkson, John Neldner and others traversed much of Cape York Peninsula, including the area around the known *C. gasteenii* location, during vegetation mapping fieldwork. This does not discount the fact that other populations may exist; however, the failure to discover more individual plants to date indicates that it should indeed be regarded as rare. This is somewhat surprising given the apparently robust nature of its habit.



Inflorescence of Coix gasteenii *showing leaf-like structure. Photo: Ian Fox*

To a large extent, CYP has not been subjected to the same level of human impacts that have accompanied species declines in areas further south, so why then do we have such a rare plant on the Cape? The possible causes are unknown at present. Maybe the plant is so specific in its habitat requirements that it can only occur as small, scattered populations where the combination of environmental factors is exactly right. Perhaps what we are seeing is a relic of a previously more extensive population that has declined for any one of a number of reasons such as increased grazing pressure or changed fire regimes. It may even be that this is a single population that has opportunistically grown from the seed of an unknown population from, say, Papua New Guinea or Indonesia excreted at the site by a migrating pigeon. Until sound information is available causes for the plant's rarity are open to speculation.

In 1995 a Queensland Herbarium committee responsible for reviewing the status of plants recommended *C. gasteenii* as an endangered plant as it met the criteria for listing as endangered under the World Conservation Union (IUCN) categories. The plant is yet to be included on the revised Schedules of the Queensland *Nature Conservation Act 1992*.

With so little known about *C. gasteenii* and with such a small population, there are some clear imperatives for management. Firstly, it is necessary to secure the site from the impacts of grazing, weeds and fire until more is known about its requirements. Secondly, *ex situ* populations need to be established as a safeguard against loss of the wild population and to provide material for further study. Finally, further studies into the ecology and morphology of the plant will provide information essential for management and for predictive modelling of potential habitat

to assist searches for further populations.

As one of the species included in the Queensland Parks and Wildlife Service project to develop and implement management strategies for the endangered plants of CYP (see John Clarkson's article, this issue) *C. gasteenii* will be the subject of a targeted search.

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Buffel Grass (*Cenchrus ciliaris*) Control in Central Australia

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The perennial grass *Cenchrus ciliaris* (Buffel Grass) is now recognised as one of Australia's top environmental weeds. It was introduced to Australia from the Middle East and was established in Central Australia and elsewhere in the 1950s and 1960s for soil stabilisation and as a pasture species. Along with *Cynodon dactylon* (Couch Grass), Buffel Grass is recognised by botanists as the most problematic environmental weed within Central Australia. The negative environmental impacts of *C. ciliaris* in Central Australia have gained greater attention recently as a result of its marked range expansion and increase in density following several good summer rains.

Buffel Grass is changing the composition, structure and function of some diverse ecosystems in Central Australia. It seems capable of invading most habitats in southern NT south of Elliot, however as yet it does not appear to establish well in the nutrient-poor desert sands, and in undisturbed Mulga shrublands. It is particularly troublesome in the MacDonnell Ranges Bioregion, which supports the highest number of rare, threatened and relict plant species and is the most floristically diverse of all the bioregions in southern NT. This bioregion is also the most comprehensively reserved, including the West MacDonnells, Finke Gorge and Watarrka National Parks. Of particular concern is the encroachment of Buffel Grass into areas supporting populations of rare plants and animals, relict plant species and rare plant communities. Not only does it grow prodigiously after good rains, competing aggressively with indigenous species, but it also produces high fuel loads. The combination of high fuel loads and rapid regrowth following burning leads to an increased incidence of fire that threatens fire-sensitive species and communities. It also suppresses the germination of native plant species, resulting in reduced diversity and abundance of these species (Pitts, Albrecht & Randall, in prep.). Vegetation dominated by Buffel Grass also has reduced invertebrate fauna diversity (Best, 1998).

Controlling Buffel Grass

The continual spread of Buffel Grass is of great concern on land managed for conservation, though its occurrence on pastoral land is generally viewed favourably by that industry. Buffel Grass occurs in all conservation reserves in the southern NT and we urgently need effective control strategies that have minimal impact on the environment. We must also be aware of what replaces Buffel Grass when it is successfully removed, particularly where the infestation is dense and long established.

A successful control method must encourage regrowth of native species, as well as destroying Buffel Grass seedlings and preventing established plants from regrowing. A variety of methods have been tried, including burning, the use of herbicides, and hand removal. Hand removal and follow-up spraying with glyphosate has been used successfully by the Alice Springs Desert Park for the last three years. Recommendations for the effective removal of Buffel Grass have also been developed in Western Australia (Dixon *et al*, in prep.).

Field trials were established at the Desert Park to assess the effectiveness of each of the control methods. All treatments are timed to give a clear indication of cost relative to benefit so that their practicality can be assessed. Fortunately the above average rainfall during the trials has meant

that responses to the various treatments have been rapid. Interim results suggest that hand removal with follow-up spot spraying of regrowth with glyphosate gives the best results. It allows the permanent replacement of Buffel Grass with native species, with the least environmental impact. There is a highly significant increased number and abundance of native species germinating in the plots where Buffel Grass is hand removed relative to any other treatment, even in those plots where non-selective herbicide was used to spot spray any regrowth.

Anecdotal evidence suggests that Buffel Grass seedlings are encouraged to germinate by any form of soil disturbance. The trials have shown that the hand removal of large Buffel Grass plants creates a disturbance that may encourage Buffel Grass seeds to germinate, but that it also encourages an equal or greater germination response in native species. Additional subsequent spot spraying with a grass seedling selective herbicide such as Fusilade has been shown to be effective when applied at the right time. More trials are now being undertaken to investigate this further.

Burning is one of the most widely used control methods, but the trials show it to be the least effective long-term solution. Buffel Grass recovers rapidly and completely after burning and suppresses the germination of native species as effectively as in the untreated plots. Burnt plots where regrowth is subsequently treated with herbicide do show a significant increased germination of native species. However, there is a significant reduction in number and abundance of native species germinating after the burn, relative to the unburnt hand removed plots, probably due to the destruction of viable seed by heat.

Monitoring and retreatment of many of the trial plots will continue for a number of years to provide information on the successional changes of native species, and the influence of rainfall and temperature etc. A number of plots will have no further treatment but will continue to be monitored to indicate rates of reestablishment of Buffel Grass. Currently we know very little about the nature of the seed store in soil and the environmental circumstances that encourage seed germination, so this will be investigated through seed bank studies and nursery trials.

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Buffel Grass (Cenchrusciliaris)*: Illustration by Gillian Scott, in* Western Grasses: A grazier's guide to the grasses of southwest Queensland. *BR Roberts and RG Silcock. Darling Downs Institute Press. 1982. Reproduced with kind permission of the authors.*

Global Plant Diversity – Time to move

Associate Professor David R. Given
International Centre for Nature Conservation
Lincoln University, New Zealand

We may well be facing an extinction crisis that threatens the stability of the Earth as we know it. There are strong indications that the survival of about a quarter of the world's flora may be threatened over the next few decades by population growth, deforestation, habitat loss, destructive development, the spread of alien invasive species and agricultural expansion. The loss of such vital and massive amounts of biodiversity provides one of the greatest challenges currently facing the world community.

It is not only at the species level that plant diversity is under siege. At the landscape level, this century has seen the loss of tropical rain forests, many other habitat types, and large-scale desertification. The removal of plant cover often means loss of soil, lessened water quality and irreversible changes in ecosystem function. At the other end of the scale, we cannot even start to estimate the loss of plant genetic variation, nor the foreclosure on options for crop-breeding and biotechnology which have resulted.

In August last year the botanists of the world, convened at the XVI International Botanical Congress in St Louis, Missouri, USA, noted that this loss threatens our expectation of using plant diversity to build sustainable, healthy and better lives for the future. The Congress called for plant conservation to be recognised as an outstanding global priority in biodiversity conservation.

Responding to the Congress resolution, a small *ad hoc* group from 14 countries came together in Gran Canaria, Spain in April 2000 to consider a global initiative for plant conservation. This group concluded that the creation of a Global Strategy for Plant Conservation and its implementation should be urgently undertaken, within the context of the United Nations Convention on Biological Diversity. The aim would be to support and facilitate appropriate plant conservation initiatives at all levels, halting the current and continuing unacceptable loss of plant diversity.

Such a Strategy should effectively enhance collaboration and networking that will strengthen and support plant conservation locally, regionally, and internationally. This must link various partners - government ministries, institutions, NGOs, and local communities. It must also link programmes such as Diversitas, the UNESCO Man and Biosphere, the Millennium Assessment of the World's Ecosystems, the International Agenda for Botanic Gardens in Conservation and the IUCN Species Survival Commission's Plants Programme (described below), and should draw on the experience and resources of bodies undertaking the implementation of other appropriate international mechanisms and instruments, including the UN's Food and Agriculture Organisation (FAO) Global Plan of Action.

Such a Strategy must integrate social, economic, and biological approaches to plant conservation so that all appropriate and available resources, technologies, techniques and sectors are brought together in support of plant conservation. This would see a practical outcome for the massive *Global Biodiversity Assessment*, published by the United Nations Environment Programme 1995, which built on the expertise of over 1200 of the world's scientists as a summary of the science of biodiversity generally. The Global Strategy is on the agenda of the Fifth Meeting of the Conference of Parties to the Convention on Biological Diversity (at the time of writing being held in Nairobi). Its main elements are:

- Integrated *ex situ* and *in situ* conservation.
- Promotion and coordination of research, monitoring, and information management.
- Identification of social and economic benefits of plant diversity: its products and services.
- Articulation and development of widespread education and public awareness, using 'shop windows' to promote conservation and create awareness.

St Louis also saw the launch of a Global Plant Strategy for the IUCN Species Survival Commission. The Plant Conservation Subcommittee of the Species Survival

Commission *(Editor's note: of which David Given is currently Chair)* coordinates and links the plant conservation programme of the Commission. We see five fundamental objectives contributing to a robust and far-reaching programme within the commission:

- Sound interdisciplinary scientific information underpins decisions and policies affecting plant diversity.
- Collaboration and strategic alliances, including local and national organisations, are increasingly used within the plant conservation community to achieve plant conservation success.
- Modes of production and consumption resulting in the conservation of native plant diversity are adopted by users of plant resources.
- Plant policy recommendations, guidelines, and advice are valued, adopted, and implemented by relevant audiences.
- Capacity to provide long-lasting, practical solutions to plant conservation problems is markedly increased.

The present time of crisis provides both danger and opportunity, and although futurists predict a context of chaos there will also be new opportunities for innovative partnerships and thinking 'outside the box' which we need to have the courage to face. There is a general consensus among those involved in conservation of biodiversity that major changes need to take place in human relationships, and we need to pursue opportunities for new approaches and attitudes in education, science, the arts and religion, if biodiversity security is to be achieved.

But while the vision is necessarily global, action must be local. There is no prescriptive approach - at the global level there are principles that only become prescriptive in the unique social, biological and economic mix of local community-based situations. It is essential also to continue to believe that solutions to the extinction crisis are achievable - without that hope the war against depletion and extinction will be lost.

Finally, none of us can stand on the sidelines. If we have no opinion, claim neutrality, or regard the status of plant life as an issue that does not concern us, then we are tolerating depletion and extinction, with the inevitable and irreversible loss of part of our heritage. It's worth closing with the words of David Brackett, Chair of IUCN's Species Survival Commission *"If you like to breathe and you like to eat, you should care more about plants."*

References and Further Information

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The IUCN Plant Conservation Subcommittee website is at http://wwwcjb.unige.ch/BVAUICN/Bplants.htm

To obtain a copy of the Global Strategy for Plant Conservation, contact Botanic Gardens Conservation International. Email: bgci@rbgkew.org.uk

Australian Plants Delisted from CITES Appendices

The 11th Conference of the Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) was held in Nairobi from 10th to 20th April 2000. Its agenda included a strategic plan for the Convention through 2005; 62 proposals to amend Appendices I and II species; and various trade control and conservation issues concerning specific species.

As a result of this process, and by following up contacts provided by ANPC, several Australian species have been deleted from Appendix II. Appendix II lists plants which, although not necessarily threatened at the moment, may become so if trade were not regulated. These include the Albany Pitcher Plant *Cephalotus follicularis*, a small carnivorous plant; and all species of the genus *Byblis* (Rainbow Plant), a small genus of carnivorous plants. The CITES Plants Committee explained that these species are either not internationally traded or else are artificially propagated for trade. *Byblis* species are not of significant horticultural value, and *Cephalotus follicularis* is easily propagated.

More detailed information and summaries of discussions at the CITES meeting can be found at:

http://www.iisd.ca/cites/cop11/

Rust on Eucalypts: A cautionary note regarding imported seed

This is an extract from a note written by Professor L.C. Bell, Executive Director of the Australian Centre for Mining Environmental Research (ACMER) in August 1999:

ACMER has become aware of various statistics which, when considered together, have prompted the Centre to alert the mining industry and other purchasers of native seed to the need for vigilance when purchasing Australian native plant seed which may be imported.

ACMER has identified through its agricultural contacts that guava rust (*Puccunia psidii*), which attacks foliage, flowers, shoots and fruits of a number of species in several genera of the family Myrtaceae, is attacking *Eucalyptus* species being grown for timber in plantations in Brazil. Species being grown in Brazilian plantations include *E. camaldulensis, E. citriodora, E. cloeziana, E. grandis, E. paniculata, E. pirocarpa, E. punctata, E. saligna, E. tereticornis* and *E. urophylla*. Rust spores can be present in trash associated with seed collected from infected trees.

The mining industry, as well as other purchasers of native seed such as Landcare and other community groups, should be alert to the possibility of being sold seed imported from overseas locations where guava rust occurs. Suppliers should be asked to provide information on the source of seed and, if imported, provide appropriate certification from the Australian Quarantine and Inspection Service (AQIS).

Companies and community groups should be aware that Florabank has recommended to the Federal Government that restrictions should be placed on the importation of native seed for revegetation purposes because of *"the concerns about the genetic origins and hybridisation of such seed, and the possible effects of such introductions on biodiversity and the introduction of plant pathogens as yet unknown"* (Mortlock, 1999).

ACMER does not want to cause alarm, but is providing this information to ensure that all users of native seed are aware of the situation in South America and the potential for damage to Australian flora should guava rust be introduced inadvertently.

CSIRO Forestry and Forest Products are currently applying for an Australian Centre for International Agricultural Research (ACIAR) grant to develop diagnostic methods for detecting the fungus, to screen a range of Australian plants for tolerance to the rust in Brazil and to identify those floral communities of Australia that would be attacked if the fungus came into the country.

For further information on the quarantine requirements for importation of native seed contact AQIS which has regional offices in each state and a web page (www.aqis.gov.au).

Reference and Further Reading

Mortlock, W. (1999). *Native Seed in Australia. A Survey of Collection, Storage and Distribution of Native Seed for Revegetation and Conservation Purposes.* Florabank, P.O. Box 74, Yarralumla, ACT 2600.

Note: ANPC's *Germplasm Conservation Guidelines for Australia* are essential further reading on this issue.

ANPC SEEKS VOLUNTARY WEBSITE ASSISTANCE

This is an excellent opportunity for a creative individual to help us ensure that the ANPC website is an attractive and informative resource for plant conservation. The work would involve helping us to redesign and maintain our website. This is a job which could potentially be done anywhere, and would not require the volunteer to be based in Canberra. If you know something about website design, have access to a computer and can spare a few hours a fortnight, or could even offer to do a one-off overhaul, please contact us at the ANPC national office.

Ph (02) 6250 9509, email: anpc@anbg.gov.au
Website: http://www.anbg.gov.au/anpc

Research Round-up

This new section aims to bring to the attention of plant conservation practitioners relevant recently published and on-going research that might inform their work. Contributions to this pages are welcome, as are comments about how we can make it more useful to you.

Threatening Processes

Biological Invasions 1 (2/3):301-311, 1999. Kluwer Academic Publishers. Before, During and After: The Need for Long-term Monitoring in Invasive Plant Species Management. Bernd Blossey, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853, USA (e-mail: bb22@cornell.edu; fax: +1-607-255-0349).

Invasions: the perspective of diverse plant communities. A.-H. Prieur-Richard and S. Lavorel. *Austral Ecology* 25(1), Feb 2000.

Relationships between site factors and distribution of *Phytophthora cinnamomi* in the Eastern Otway Ranges, Victoria. B. A. Wilson, J. Aberton and D. M. Cahill. *Australian Journal of Botany* 48(2). 2000.

Species-specific research

Germination response of seven east Australian *Grevillea* species (Proteaceae) to smoke, heat exposure and scarification. E. Charles Morris. *Australian Journal of Botany* 48(2). 2000.

Genetic diversity in natural populations of *Acacia mearnsii*. S. D. Searle, J. C. Bell and G. F. Moran. *Australian Journal of Botany* 48(2). 2000.

Further assessment of pollen limitation in the waratah (*Telopea speciosissima*). Ross L. Goldingay. *Australian Journal of Botany* 48(2). 2000.

Rehabilitation & Remnant Vegetation Management

Smoke and heat effects on soil seed bank germination for the re-establishment of a native forest community in New South Wales. T. R. Read, S. M. Bellairs, D. R. Mulligan and D. Lamb. *Austral Ecology* 25(1), Feb 2000.

Grazing effects on plant cover, soil and microclimate in fragmented woodlands in south-western Australia: implications for restoration. C. J. Yates, D. A. Norton and R. J. Hobbs. *Austral Ecology* 25(1), Feb 2000

The role of corridors and retained vegetation in biodiversity conservation. Land and Water Resources Research and Development Corporation (LWRRDC) funded research being conducted by David Lindenmayer, at Australian National University, Ph: (02) 62490654 Fax: (02) 6249075; Email: davidl@cres.anu.edu.au

Guidelines for the maintenance and improvement of remnant bush in Tasmania. LWRRDC funded research being conducted by JB Kirkpatrick, University of Tasmania, Ph: (03) 62262460 Fax: (03) 62262989; Email: j.kirkpatrick@utas.edu.au

Plant Systematics

Mike Crisp, of the division of Botany and Zoology of the Australian National University, is currently studying plant endemism in Australia, using the ERIN (Environmental Resources Information Network) data and GIS. Along with collaborators, more than 12 distinct centres of endemism at 1x1 degree scale have been identified. For more information or contact details, visit the division's website: http://www.anu.edu.au/BoZo/

Want to know more? Try some of these websites and information sources:

- Abstracts and papers published in the *Australian Journal of Botany* can be found at: http://www.publish.csiro.au/journals/ajb/recent/recent.html
- Contents of *Austral Ecology* can be found at http://life.csu.edu.au/esa/esaaje.html
- Descriptions of LWRRDC funded research can be found on their website at: http://www.infoscan.com.au/LWRRDC99/

Note for Users of GPS

For those who use Global Positioning Systems for survey work and vegetation mapping, you will be interested to know that on the 1st May the United States stopped the intentional degradation of the GPS signals. This will mean that civilian users of GPS will now be able to pinpoint locations up to 10 times more accurately. This should mean being able to measure a location to within 10 metres. In the past it had been intentionally less accurate for security reasons.

Also, note that at the beginning of this year, Australia changed from the Australian Geodectic Datum (AGD) to the Geocentric Datum of Australia (GDA) to make it easier to use GPSs. A 'geocentric datum' is a mathematical surface on which a mapping coordinate system is based. This is of significance when referring to grid references for recording species sightings. Grid coordinates for a point are likely to differ significantly as a result. For more information, visit the following websites:

http://www.auslig.gov.au/ausgda/gdastrat.htm

http://www.lic.gov.au/gda/gda.htm

Publications & Information Resources

Natural Heritage Trust Mid-term Review

The Natural Heritage Trust runs from 1996 to 2002 and these documents report on an extensive mid-term review of the NHT programs, comprising 29 review reports, and include the National Reserve System Program and Bushcare Program.

The full documents can be viewed at: http://www.nht.gov.au/review/index.html

Guidelines to Deal with Invasive Species

The IUCN "Guidelines for the Prevention of Biodiversity Loss caused by Alien Invasive Species" were formally adopted by the IUCN Council in February 2000. They are designed to help countries, conservation agencies and concerned individuals to reduce the threats posed by invasive species to global biodiversity. The full text is available on the IUCN website at: http://iucn.org/themes/ssc/pubs/policy/invasivesEng.htm

Geebungs and Snake Whistles. Koori people and plants of Wreck Bay.

Wreck Bay Community and Cath Renwick. Aboriginal Studies Press, 2000.

Plants to the Koori people are like a diary and a supermarket, enriching memories as well as providing food, games, medicines and materials. This book provides a glimpse of how the Koori

people value plants. Being written in the actual words of the community the aim is to make it accessible to all, and be a means of passing on knowledge to younger generations.

Price: $14.95. Order direct from Aboriginal Studies Press. Ph: (02) 6246 1111
Website: www.aiatsis.gov.au/rasp.htm

NSW Biodiversity Information Publications

A range of free annotated bibliographies about the natural heritage of New South Wales are now available as easily searchable databases through the NSW Biodiversity Survey Program. Includes a bibliography of field guides and reference works for identifying the biodiversity of NSW, including plants, fungi and mosses.

Available as IBM compatible computer disks as well as paper copies. Contact: Biodiversity Survey Coordination Unit, NSW NPWS, PO Box 1967, Hurstville 2220.

Email: biodiversity.program@npws.nsw.gov.au
Website: www.npws.nsw.gov.au

AMEEF Best Practice 2000

The yearbook of best practice environmental management in the minerals and energy industries. Includes articles on ANPC's guidelines for germplasm collection and translocation, plus a feature on the work being done by Alcoa to rehabilitate jarrah forest in south west Western Australia.

Available from AMEEF:

Ph: (03) 9679 9911
Fax: (03) 9679 9916
ameef@ameef.com.au

An electronic version is on-line on the AMEEF website:

http://www.ameef.com.au/

Biolink

BioLink is a biodiversity information management system designed to assist those working with taxon- and specimen-based information. It is primarily intended for use by taxonomists, ecologists, collection managers and biogeographers. It is suitable for use by individual researchers, large museums or collections, or teams of global collaborators.

BioLink manages taxon-based information such as nomenclature, distribution, classification, ecology, morphology, illustrations, multimedia and literature. Specimen-based information includes collection sites, collectors and collection dates, museum storage locations, loans and accession and catalogue numbers. For those involved in surveys, BioLink records information on ecological characteristics, traps and bulk samples. Preformatted reports are provided for material for a taxon, site species lists, specimen labels and taxon distribution maps. User-defined reports can be developed to produce complex publications such as checklists, catalogues, revisions, monographs and raw data exports.

BioLink is provided free of charge as a CD-Rom. To receive a disk, email your name and postal address to biolink@ento.csiro.au. For further information visit the BioLink website: http://www.ento.csiro.au/biolink/

Earth Alive! Biodiversity Month

September is Earth Alive! Biodiversity Month. Help to promote the conservation of Australia's species and ecosystems, and promote your community's conservation activities. For an Earth Alive information kit that includes an order form for free educational and community awareness materials, contact the Community Biodiversity Network on:

Ph (02) 9380 7629; email: earthalive@cbn.org.au or visit their website http://www.cbn.org.au/projects/earthalive/2000.html

Electronic Addresses

TASVEG2000

The Tasmanian Department of Primary Industries, Water and Environment and Bushcare are producing statewide vegetation maps of a scale and accuracy useful to individual land managers. TASVEG2000 is produced at 1:25,000 and focuses on Tasmania's non-forest native vegetation, covering more than 100 different vegetation community types, including scrub, heathland and grassland. The mapping will be widely available and will be invaluable for helping community groups and government organisations identify areas of high conservation

priority. At the GIS website (http://www.gisparks.tas.gov.au/explorer/TasvegGuide/tasvegdoc.htm) you can select a map of your area of interest and use the query options to obtain a vegetation report for the area, or for any single vegetation patch.

For further information contact Anne Kitchener, Ph (03) 6233 4501

Online Bibliography of Climate Change and Impacts on Flora and Fauna

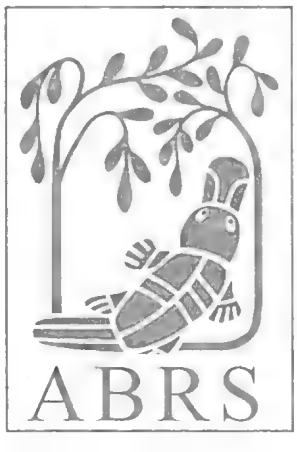
This bibliography of peer-reviewed and grey literature focuses on climate change (defined as global warming or ozone depletion) and its impacts on flora and fauna species and critical supporting ecosystems. Over 2013 citations have been included to date and the bibliography will be updated every two months.

Prepared by Wil Burns, Communications Director/Research Associate, Pacific Institute for Studies in Development, Environment, and Security & Co-Chair, American Society of International Law Wildlife Interest Group

http://www.pacinst.org/wildlife.html

Australian Biodiversity Information Facility (ABIF)

This site, administered by the Australian Biological Resources Study (ABRS) is an umbrella site for a number of searchable databases containing census, nomenclatural and bibliographic information on the Australian biota.



Of interest to botanists are the links to the Australian Plant Name Index, the Australian Marine Algae Name Index, the Freshwater Algae of Australia database and the Australian Lichen Index.

The site can be accessed at:

http://www.anbg.gov.au/abrs/abif.htm

Conferences

Genetics Society of Australia

3-7 July 2000, Canberra

Co-hosted by the ANU and CSIRO. Symposia include molecular phylogenetics; molecular genetics in plant and animal breeding and gene mapping. For more information:
Ph: (02) 6249 2881; Fax: (02) 6249 5573
Email: David.Rowell@anu.edu.au
Website: http://gsa2000.ebioinformatics.com/

The Fourth AMEEF Innovation Conference

15-17 August 2000, Brisbane

This is one of a series of innovation conferences run by the Australian Minerals & Energy Environment Foundation. The aim is to keep people up-to-date with research into environmental management practices in the minerals and petroleum industry. Aimed at environmental managers, regulators, policy developers, researchers and consultants.

For more information contact AMEEF:
Ph: (03) 9679 991; Fax: (03) 9679 9916
Email: ameef@ameef.com.au

Convention for the Facilitation and Cooperation of Environmental and Development Issues

22-24 November 2000, Cairns

The aim of this conference is to improve developers' and planners' understanding of the natural environment and of best management practices for sustainable development. Closing date for papers 30th June 2000. Contact: Australia and Australasian Conferencing Services, 16 Olden Court, Hydeaway Bay, QLD 4800.
Ph: (07) 4945 7122; Fax: (07) 4945 7224
Email: icsa2@bigpond.com.au

Ecological Society of Australia. Annual Conference 2000: Ecology in a Rapidly Changing World

29 November - 1st December 2000, Melbourne

Spatial and temporal change is a fundamental feature of all ecological systems. Understanding the effects of "change" in landscapes has important implications for the conservation and management of ecological communities. The aim of the conference is to capture the wide range of ecology traditionally presented at ESA and also particularly focus on how ecological research can

help better measure and interpret change.

The conference will be preceeded by a post-graduate seminar day (Tuesday 28th November). For more information, visit the conference website: http://www.zoology.unimelb.edu.au/ESA2000/esa2000.htm

Environment Institute of Australia 2000 Conference

6-8 December 2000, Canberra

The theme of the conference is "100 Years of Federation: Where to from here? An environmental perspective". Registrations of interest currently being sought. Contact: EIA, GPO Box 211D, Melbourne, VIC 3001.
Ph: (03) 9654 7473; Fax: (03) 9650 1242; Email: adoff@eia.asn.au.
Website: www.vicnet.net.au/~eia

Eradication of Island Invasives

19-23 February 2001, University of Auckland New Zealand

An international conference of the Invasive Species Specialist Group of IUCN. The term 'island' may include true islands, natural habitat islands (eg. ponds), remnant and artificial habitat islands (eg. reserves), or new invasions of natural ecosystems where eradication is deemed feasible. Preference will be given to papers which provide detail of the techniques used or of the ecosystem response to the work. Abstracts for papers and posters now invited.

All correspondence to the Conference Manager: Mr Dick Veitch, 48 Manse Road, Papakura, New Zealand. Ph & Fax +64-9-298 5775
Email dveitch@kiwilink.co.nz
ISSG Website: www.issg.org

Fern Flora Worldwide. Threats and responses. An international symposium

23-26 July 2001. University of Surrey, Guildford, UK.

Jointly organised by the British Pteridological Society, in conjunction with the IUCN Species Survival Commission Specialist Group for Pteridophytes. It is expected that this symposium will be a significant contribution to pteridophyte conservation awareness and action.

If you would like to contribute a paper or poster, contact: Clive Jermy, Dept. of Botany, Natural History Museum, Cromwell Road, London SW7 5BD, UK. Email: c.jermy@cwcom.net

Courses/workshops/Field work

NSW Atlas Database: Records wanted

This is a database on the flora and fauna of NSW coordinated by the NSW National Parks and Wildlife Service. Whilst all records are always welcome, records for a number of listed endangered and vulnerable flora species are desperately being sought. For a list of the species and further details, contact the Wildlife Data Unit, NSW National Parks and Wildlife Service, PO Box 1967, Hurstville, NSW 2220. Ph: (02) 9585 6694 or 9585 6684

Workshop on Off-Reserve Temperate Grassy Ecosystem Conservation

1-2 December 2000, ACT & NSW

Planning is in its early stages, but this Friends of Grasslands workshop will focus on both the Southern Tablelands, Monaro and ACT experience as well as the experiences of other regions. It will also include visits to quality grassland sites in the Monaro.

For more information contact Geoff Robertson:
Ph: (02) 6244 5616 (w); 6241 4065 (h & fax)
Email: geoff.robertson@facs.gov.au

Help needed to survey *Prostanthera junonis*

The *Prostanthera junonis* Recovery Team (NSW National Parks and Wildlife Service) is calling for expressions of interest from ANPC members interested in helping survey for this plant, which occurs at Somersby (near Gosford). The survey dates are likely to be as follows:

16-20 October 2000
1-3 November 2000
14-16 November 2000
23-24 November 2000

If you are interested, please contact Chris Lacey on Ph: (02) 9585 6821 or by email: christopher.lacey@npws.nsw.gov.au

Regional Groups

Sydney Region

Tracey Armstrong, Mount Annan Botanic Gardens

I attended the last ANPC conference in Albury and am pleased to say that it's the best conference I have ever been to. I strongly recommend that as many of you as possible come to the next one (2001) because the combination of fascinating seminars and workshops with really interesting people makes it very enjoyable without being high-stress.

Anyway, to get to the point. One of the most interesting parts of the conference for me was the session and workshops on non-vascular plants - fungi, lichens etc. This was a huge gap in my knowledge I didn't know where to turn to start to learn more. The conference gave me the chance to listen to presentations from Dr. Tom May of the Royal Botanic Gardens, Melbourne on fungi, and Dr. David Eldridge of the NSW Department of Land and Water Conservation on soil crusts. I also attended the fungi workshop run by Dr. May and Fungimap project volunteers, which gave me the opportunity for hands on practice in keying out fungi (see *Danthonia*, Dec. '99).

After the conference, on the 25th of March, I invited Dr. Eldridge to address the Sydney Region gathering on soil crusts and other cryptogams. David gave a very entertaining and informative talk on the various groups of cryptogams, including their ecology and importance in soil conservation and environmental diversity, especially in the arid areas of Australia. Using a series of experiments he illustrated the drastic effect that inappropriate fire regimes and overgrazing can have on the health of the land. Soil cores were inundated with 'rain' to show the stabilising effect of cryptogams. The results were staggering; without cryptogam cover, kilos of soil were washed away leaving only the quartz component of the original soil structure. Where the cryptogam cover was intact, their microsurface trapped the fine particles of clay etc. and minimised soil erosion.

On a lighter note, for all of us whose houses have tile roofs, David points out that lichens will take 500 years or so to damage your tiles enough for them to leak. So when that piece of junkmail comes through your letterbox warning about the danger of lichens and mosses to your tiles, recycle it and save your pennies for something more fun.

Contacts: Tracey Armstrong, Regional Coordinator, Ph: (02) 4634 7939
Email: Tracey_Armstrong@rbgsyd.gov.au

NSW South West Slopes Region

Paul Scannell, Albury Botanic Gardens

The Association of Friends of Botanic Gardens (Victoria) Inc. Conference was held in April in Albury and was a great opportunity for Friends from regional areas to catch up with the latest news and developments from major botanic gardens and in plant conservation. Threatened plant species and communities was a theme of particular interest to many of the delegates. The Hon. Tim Fischer MP opened proceedings, and Andrew Smith, Manager of Community Partnerships and the ANPC Tasmanian Regional Group Coordinator, was the keynote speaker. He described how the Friends of the Royal Tasmanian Botanical Gardens had evolved into Botanical Guardians, a joint initiative with ANPC, playing a key role in threatened species work (see Andrew's report, next page). Dr Kingsley Dixon, President of ANPC and Director of Plant Science at King's Park and Botanic Gardens gave a wonderful talk espousing the value of Friends, guides and volunteers in enhancing the scientific component of gardens to the community.

Other news from our area is that Woomargama State Forest, south of Holbrook, is soon to be declared a national park. The National Parks Assocation conducted a community survey of the Woomargama State Forest over Easter involving 75 scientists, researchers and people from community groups and it was a great success. The information gathered will be of value to local land managers in the surrounding areas for management of remnant vegetation on their farms and roadsides.

A similar survey will be conducted in the Corowa area in October. This will take in areas of different tenure and the comparisons of species present will be interesting. If you would like to participate please contact Claire Carlton (NPA) (02) 9299 0000 or **Paul Scannell**, Regional Coordinator:

Ph: (02) 6023 8241; Fax: (02) 6041 6527
E-mail: accgardn@albury.net.au

Tasmanian Region

Andrew Smith, Parks and Wildlife Service, Tasmania

The ANPC Regional Group in Tasmania (Botanical Guardians) operates as part of Wildcare Incorporated. Wildcare is a finalist in the Banksia Environment Award 2000. Winners will be announced on June 3rd at a gala event in Sydney.

While winter has slowed the number of on-ground projects, there continues to be a lot of back room organising going on. The Botanical Guardians have submitted an application in partnership with the Parks and Wildlife Service (PWS) to the Natural Heritage Trust for funds to create an Adopt-a-Species network to survey, monitor and care for threatened plant species. Wildcare has supported a number of funding applications for plant species, through the Endangered Species Program, by committing to provide volunteer support to the reasearch and on-ground activities components of the projects.

Botanical Guardians have been assisting the Flora Section of Nature Conservation Branch (PWS) in collation of information, report compilation and a variety of office and field based work. The Friends of the Royal Tasmanian Botanical Gardens and Botanical Guardians are about to begin a Threatened Species Network funded project dealing with the propagation of threatened species for sale into home gardens (reported in *Danthonia*, June 1999). There has been a delay while the RTBG prepares a new work area for the Friends, which is now nearly complete, and so work will begin in earnest soon. Botanical Guardians have also put in a heap of work with the Parks and Wildlife Service in weed removal on Schouten Island (third year, 10 day expedition) and other reserves on the east coast. Around 20 volunteers have contributed their effort on each occasion – gorse has been gnashed all over the place!

Wildcare members in other branches have also been contributing a lot of hours to project work, from whale rescuer training, to developing a TV advertisement and organising a mega-music event on the west coast in August. The PWS has recently appointed an Adopt-a-Track Facilitator to work closely with Wildcare to develop a program to give community groups and individuals the opportunity to adopt and care for walking tracks around the State.

Contact: Andrew Smith, Ph: (03) 6233 2185
Fax: (03) 6233 8308
Email: andrews@dpiwe.tas.gov.au

The Australian Network for Plant Conservation Inc. Membership List

The date in brackets indicates that the member has joined or renewed for that year. Addresses and names of contact persons are available from the National Office. *Note*: Memberships are valid for the calendar year.

Corporate Members

ACT Parks & Cons. Service (1998)
Adelaide Botanic Gardens (2000)
Albury Botanic Gardens, NSW (2000)
Alcoa of Australia Ltd, WA (2000)
Australian National Botanic Gardens (2000)
Aust Tree Seed Centre, CSIRO (1999)
Biodiversity Group, Environment Australia (2000)
Brisbane Botanic Gardens, Qld (2000)
Caloundra City Council, Qld (1998)
Centre for Plant Biodiv. Rsch, ACT (2000)
Centre for Plant Conservation Genetics, NSW (2000)
Coffs Harbour City Council, NSW (2000)
Council of the City of Orange, NSW (2000)
CSIRO Publishing (2000)
Defence Estate Organisation, ACT (1998)
Dept. of Conservation and Land Management, WA (2000)
Environment ACT (1999)
Eurobodalla Bot Garden, NSW (1999)
Flecker Botanic Gardens, Qld (1999)
Forestry Tasmania (1999)
Gladstone Tondoon Botanic Garden, Qld (1998)
Kings Park and Botanic Gardens, WA (2000)
Logan City Council, Qld (1998)
Macedon Ranges Shire Council, Vic (1999)
Maroochy Shire Council, Qld (1998)
Minerals Council of Aust, ACT (1999)
Mt Tomah Botanic Garden, NSW (1998)
Norfolk Island Botanic Garden (2000)
North Forest Products, Tas (1998)
NSW National Parks & Wildlife Service (2000)
Olympic Coord. Authority, NSW (1998)
Pacific Power, NSW (1999)
Parks and Wildlife Commission, NT (2000)
Parks Australia — North, Christmas Island (1999)
Queensland Herbarium (2000)
Queensland Parks and Wildlife Service (2000)
Randwick City Council, NSW (1998)
Redland Shire Council, Qld (1999)
RGC Mineral Sands, WA (1998)
Roads and Traffic Authority NSW (1999)
Royal Botanic Gardens, Melbourne, Vic (1999)
Royal Botanic Gardens, Sydney, NSW (2000)
Royal Tasmanian Botanical Gardens (1999)
Standing Committee on Forestry, ACT (1999)
Strathfield Municipal Council, NSW (2000)
Tas. Dept. Primary Industries, Water & Environment (1999)
Townsville City Council, Qld (1999)
WMC Olympic Dam, SA (2000)
Wollongong Botanic Gardens (2000)
Zoological Parks Board of NSW (2000)
Zoological Board of Victoria (2000)

International Associates

Auckland Plant Collections Network, NZ
Botanic Gardens Conservation Intl, UK
Botanical Research Institute of Texas
Botanischer Garten und Botanisches,

Germany
David Brackett, SSC, IUCN
Canadian Botanical Conservation Network
Center for Plant Conservation, USA
Columbus Zoo, Ohio, USA (1998)
Conservatoire et Jardin Botaniques, Switzerland
Don Falk, USA
Darren Crayn, Florida, USA (2000)
John Donaldson, National Botanical Institute, South Africa (2000)
Georgia Endangered Plant Stewardship Network, USA
David Given, NZ (2000)
Craig Hilton-Taylor, UK
Honiara Botanic Gardens, Solomon Islands
Indian Society for Conservation Biology
Indonesian Network for Plant Conservation
Clive Jermy
Kebun Raya Indonesia
Noelline Kroon, South Africa (1999)
Missouri Bot. Gardens Library (1999)
Dr Neil Mitchell, NZ (1999)
Suresh Narayana, India
National Botanical Institute, South Africa
Jeanine Pfeiffer, USA
PlantNet, UK
Provincial Museum of Natural Sciences, Argentina
Rare Plant Consortium, Canada
Royal Botanic Gardens, Kew, UK (2000)
SABONET, South Africa
Society for Ecological Restoration, USA, (1998)
Pritpal Soorae, IUCN/SSC, Kenya
Mark Stanley-Price, IUCN/SSC, Kenya
Dr I Wayan Sumantera, Indonesia
Suva Botanical Gardens, Fiji
Roy Taylor, Canada (2000)
Andrew Townsend, Dept. Cons., NZ (1998)
Marika Tuiwawa, University of the South Pacific (2000)
Vailima Botanic Gardens, Western Samoa
Wellington Plant Conservation Network
Mohamed Zackeriya, Sri Lanka

Other Organisations

ARAZPA (2000)
Assn. of Soc. for Growing Aust Plants (2000)
Australian Arid Land Botanic Garden, SA (1999)
Aust Assn. of Bush Regenerators (1998)
Aust. Inland Botanic Gardens, Vic (2000)
Aust. Plants Society Newcastle Group Inc. (2000)
Aust. Plants Society Central West Group (1999)
Aust. Plants Society, NSW (1999)
Aust. Plants Society South West Slopes, NSW (2000)
Aust. Trust for Conservation Volunteers (1997)
Blue Mountains Wildplant Rescue Service, NSW (1999)
Brunswick Valley Heritage Park, NSW (2000)
Burnley College, Vic (2000
Burrendong Arboretum Trust, NSW (1999)
Community Biodiversity Network (2000)
Dept Land and Water Cons'n, NSW (2000)
Friends of ANBG, ACT (2000)
Friends of Eurobodalla BG, NSW (2000)
Friends of Grasslands, ACT (2000)
Friends of North Coast Regional BG, NSW (1999)
Friends of Warrandyte State Park, Vic (1998)
Greening Australia (ACT/SENSW) (1999)
Greening Australia Ltd (2000)
Greening Australia (NSW) (2000)
Greening Aust Sth West Plains, NSW (1999)
Greening Aust Sth West Slopes, NSW (1998)
Greening Australia (Vic) (1997)
Hunter Region Botanic Gardens, NSW (2000)
Indigenous Flora & Fauna Assn (2000)
Lismore Rainforest Bot. Garden (1998)
Merri Creek Management C'ttee, Vic (2000)
Monarto Zool. Park, SA (1999)
Myall Park Botanic Garden, Qld (1998)
National Herbalists Assn of Aust (2000)
National Threatened Species Network (2000)
NSW Roadside Env't. C'ttee (1999)
Olive Pink Botanic Garden, NT (2000)
Pangarinda Arboretum, SA (2000)
Royal Aust Institute of Parks & Recreation (1998)
Royal Geographical Society of Qld (1999)
Royal Zoological Society of SA (1998)
SGAP Blue Mtns Group, NSW (2000)
SGAP — Canberra Region Inc. (2000)
SGAP — Dryandra Study Group (2000)
SGAP — Far Nth Coast Gp, NSW (1998)
SGAP — Ipswich Branch, Qld (2000)
SGAP — North Shore, NSW (1998)
SGAP — Northern Group, Tas (1999)
SGAP — North West, Tas (1998)
SGAP — Queensland Region (2000)
Stony Range Flora Reserve, NSW (1998)
Tasmanian Arboretum Inc. (1999)
Trust for Nature (Victoria) (2000)
Understorey Network, Tasmania (1997)
Wallum Action Group, Qld (1997)
Wildflower Society of WA (1999)
Wildflower Society of WA, Nth Suburbs (2000)
Wildlife Preservation Society of Australia, NSW (1999)
World Wide Fund for Nature Australia (1999)

Individual Members

Gail Abbott, NSW (1998)
Dr David Aldous, Vic (1998)
Diane Allen, Qld (2000)
Jan Allen, NSW (1999)
Ian Anderson, ACT (2000)
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Richard Arnett, NSW (1998)
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