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Biodiversity

The Contribution of Community-Based Programs

Report of the House of Representatives
Standing Committee on Environment, Recreation and the Arts

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TERMS OF REFERENCE

Recognising that the Biological Diversity Advisory Committee is drawing together specialist information in developing a national strategy for the maintenance of biological diversity, and that the Endangered Species Advisory Committee is reviewing the Endangered Species Program, the Standing Committee should inquire into the extent to which Commonwealth assisted community-based projects contribute, either directly or incidentally, to the protection of biological diversity and the maintenance of ecological processes and systems.

In undertaking the inquiry the Committee will have particular regard to the following major Commonwealth assisted community-based projects:

- the Save the Bush Program
- the One Billion Trees Program
- the National Soil Conservation Program
- the Murray-Darling Basin Natural Resources Management Strategy Program.

CONTENTS

LIST OF ABBREVIATIONS

ABRS	Australian Biological Resources Study
ACF	Australian Conservation Foundation
ANPWS	Australian National Parks and Wildlife Service
ANZECC	Australian and New Zealand Environment and Conservation Council
ATCV	Australian Trust for Conservation Volunteers
BDAC	Biological Diversity Advisory Committee
CAC	Community Advisory Committee of the Murray-Darling Basin Ministerial Council
CRC	*Co-operative Research Centre*
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DASET	Department of the Arts, Sport, the Environment and Territories
DPIE	Department of Primary Industries and Energy
ERA Committee	House of Representatives Standing Committee on Environment, Recreation and the Arts
ERIN	Environmental Resources Information Network
ESD	Ecologically Sustainable Development
ESP	The Endangered Species Program
FAO	*Food and Agriculture Organisation*
GA	Greening Australia Inc.
GBRMPA	Great Barrier Reef Marine Park Authority
IUCN	International Union for the Conservation of Nature
MDFRC	*Murray-Darling Freshwater Research Centre*
NGO	Non-Government Organisations
NIE	National Index of Ecosystems
NSCP	National Soil Conservation Program
NSW ALC	New South Wales Aboriginal Land Council

NRMS	Murray-Darling Basin Natural Resources Management Strategy
OBT	One Billion Trees Program
RBA	Rapid Biodiversity Assessment
STB	Save the Bush Program
UNCED	United Nations Conference on Environment and Development
UNEP	United Nations Environment Program
UNESCO	United Nations Environment, Scientific and Cultural Organisation
WRI	World Resources Institute
WWF	World Wide Fund for Nature

SUMMARY AND LIST OF RECOMMENDATIONS

The ERA Committee believes that all four Commonwealth funded community-based programs have greater potential to assist 'grass roots' initiatives to protect biodiversity and to maintain ecological processes and systems.

At the present time, the Save the Bush program is the only one which specifically directs its funding to biodiversity objectives by focusing on the maintenance of remnant native vegetation and habitats outside the reserve system. However, STB funds represent less than 3% of the total funding provided to the four programs. The Committee believes that increased funding for this program is imperative to allow its further development in a number of key areas.

The establishment of one billion trees will not necessarily contribute to biodiversity objectives. Understorey, ground-storey and native grasses must be considered, along with other environmental criteria. Throughout the inquiry, however, the Committee has been very impressed with the way in which the OBT program is being developed towards achieving biodiversity objectives. Greening Australia is to be commended for this and for the community enthusiasm it has generated. Nevertheless, the Committee feels the program, whilst it has this impetus, can go much further to address the maintenance of biodiversity and ecological processes in revegetation and rehabilitation projects. The Committee envisages that, in particular, STB and OBT might play complementary roles in providing connectivity across the landscape through networks of wildlife corridors, and networks of roadside verges, stock routes, rail reserves, and stream and riverbank vegetation.

The Committee considers that, whilst the NSCP and NRMS programs were not developed originally with biodiversity objectives in mind, they may contribute incidentally to the maintenance of biodiversity and ecological processes, particularly in severely altered landscapes. The Committee believes that with a clearer focus on biodiversity objectives and bioregional planning, these two programs could contribute a great deal to maintaining biodiversity and ecological systems, and therefore to ecologically sustainable, long term productivity for rural industries. The vital importance and role of soil biodiversity in this regard should be recognised in projects developed by these programs.

The One-Stop-Shop introduced this year for funding applications through the four programs is also a step forward. Several teething problems and areas for further co-ordination and integration were identified by the Committee and recommendations have been made to address these concerns. The Committee believes the One-Stop-Shop should be carefully monitored over the next two years, and adjustments made as necessary to ensure support and information goes to our greatest resource - the enthusiastic community groups and volunteers.

A strategic, bioregional approach to the planning and management of all natural resource programs and individual projects is needed across the entire continent. The Committee believes that a national network of facilitators/extension officers, with personnel based locally, is needed as a One-Stop-Shop for information on all programs as well as for advice and as a link to scientific knowledge.

Increasing the knowledge base by goal directed research, biological surveys and long term monitoring is an extremely important ongoing process. Such activities are vital for increasing the effectiveness of all programs on the ground. Methodologies to speed up the process (such as Rapid Biodiversity Assessment), and therefore to assist planning, management, and decision making, should be encouraged and supported.

Public perceptions of biodiversity are many and varied. It became apparent to the Committee that many Aboriginal people have a good, holistic understanding of the relationships of living organisms. Some people imagine biodiversity simply as native plants and animals but do not understand that ecosystem services provide Australians with our entire quality of life, food, shelter, recreation and so much more of unknown potential. Biodiversity underpins all rural industries, fisheries, tourism and even urban development. It is the basis for ecologically sustainable development and a great many options for future generations.

The Committee believes that raising public awareness, formal and informal education, and extension activities are of fundamental importance, both in the community-based programs and in a national biodiversity strategy.

The adverse effect of feral animals, invasive exotic plants and continued clearance of native vegetation were given a high profile in many submissions and in evidence. They were identified as the greatest threats to biodiversity and the maintenance of ecological processes in Australia, and to the goals and efforts of community-based programs. The Committee would like to encourage BDAC and the Government to consider these issues as matters of priority in the implementation of a national biodiversity strategy.

Throughout the duration of the inquiry, the need for a community-based program specifically focussing on biodiversity issues of the marine-coastal realm of Australia became apparent. The Committee believes such a program could be implemented as part of the previously recommended national coastal zone management strategy.

Finally, the preservation of biodiversity and maintenance of ecological processes and functions to maintain, improve and keep options open for this and future generations, is up to ordinary people. It depends on communities of people in every part of Australia, from Torres Strait Islander communities to urban dwellers, Aboriginal communities, mining townships and rural communities across the nation. The successful implementation of a national biodiversity strategy will depend entirely on people and 'grass roots' community action.

List of Recommendations

(1) that funding for the STB program be immediately increased to $5m in recognition of its vital contribution in maintaining biodiversity and ecosystem processes and in the implementation of the proposed national biodiversity strategy and the Decade of Landcare, and that funding be increased to $10m by 1994. *(paragraph 2.17)*

(2) that, with a portion of the recommended increased funds for STB, the ANPWS further develop the research, survey and monitoring component of the program. Studies should focus, in the first instance, on

i) the relationship of area and edge for viable remnants,

ii) the value or potential of critical habitats or key species as bioindicators,

iii) corridor establishment and management practices,

iv) the relationship of remnants to adjacent land and various grazing regimes. *(paragraph 2.21)*

(3) that, with a portion of the recommended increased funds for STB, the ANPWS further develop the program's extension component on a regional scale which recognises the continuity of biodiversity needs across the landscape. *(paragraph 2.21)*

(4) that with additional resources as required, and using the resources of ERIN, the NIE and STB, and in consultation with ANZECC, the ANPWS develop a national remnant native vegetation strategy (as a component of the national biodiversity strategy) for a bioregional-landscape approach to integrated planning, and to guide the preparation of regional vegetation management plans. The strategy should take into account the various State and Territory vegetation management programs. *(paragraph 2.23)*

(5) that the ANPWS retain organisational and administrative control of the STB program, and that the Service continue the strategic development of the program. *(paragraph 2.23)*

(6) that the Commonwealth, through wide consultation which should include the CSIRO, the nursery industry, and the Indigenous Flora and Fauna Association, develop national standards for

i) revegetation projects,

ii) the collection and storage of indigenous native plant seed,

iii) the protection and maintenance of eco-adapted seed stock. *(paragraph 2.50)*

(7) that the Commonwealth, through the OBT program administrators and appropriate scientific and technical advisors, establish regional seed banks or seed orchards at a local or district level under appropriate guidelines established by implementing recommendation 6. *(paragraph 2.51)*

(8) that funding for the OBT program be increased to $6m to provide additional resources for the implementation of aspects of program development identified in recommendations 6 and 7. *(paragraph 2.53)*

(9) that a proportion of OBT program funds be directed to target areas identified in the national biodiversity strategy and in regional vegetation management plans; and in the utilisation of groups such as the Australian Trust for Conservation Volunteers and jobskills programs to implement priority projects. *(paragraph 2.58)*

(10) that the Commonwealth implement measures to assess and monitor the long-term multiplier effects of NSCP projects, particularly 'demonstrations', in rural communities on a bioregional scale, and adjust appropriate sub-program objectives and guidelines as needed to maximise the maintenance and enhancement of ecosystem processes provided by the program. *(paragraph 2.76)*

(11) that the NSCP retain its specific focus on soil conservation, but that the program also incorporate objectives which ensure the maintenance of biodiversity and ecosystem processes, in recognising that these underpin long term ecologically sustainable development. *(paragraph 2.82)*

(12) that the Commonwealth develop the whole systems approach within the NSCP as a matter of urgency and incorporate the approach in appropriate sub-programs in the Decade of Landcare Plan. This should include a community-based component in a way in which community groups can see their essential, participatory role and contribution within the overall plan. *(paragraph 2.82)*

(13) that land capability assessments be completed across the entire Australian landscape as a planning tool for increased and more widespread implementation of whole farm planning within the whole systems approach and ecologically sustainable development as a matter of urgency. Assessments should be widely and locally available to promote increased usage of whole farm planning. *(paragraph 2.82)*

(14) that the Commonwealth, State and Territory governments establish a working group, consisting of their own representatives and representatives of other relevant groups, to develop and implement a National Rangelands Strategy as a matter of urgency. *(paragraph 2.86)*

(15) that an NSCP sub-program be developed to target and support information needs and community-based action specifically in relation to the maintenance of soil infaunal and microbial diversity in recognition of its vital role in maintaining Australian ecosystems and ecological processes. *(paragraph 2.89)*

(16) that the Commonwealth through the Murray-Darling Basin Commission revise and refocus the NRMS program with specific objectives for the maintenance of biodiversity and ecosystem processes, and Aboriginal cultural and natural heritage. This process will require closer consultation with all community-group representatives, including Aboriginal communities, in the Murray-Darling Basin. *(paragraph 2.109)*

(17) that a bioregional framework be established across the continent for the planning and management of all environmental and natural resource programs. The bioregions should be established through collaboration with all levels of government. *(paragraph 3.10)*

(18) that the One-Stop-Shop be further developed so that each program's specific focus is complementary to every other one, without overlap, and each has a single, over-riding principle - the maintenance of biodiversity and ecological processes. *(paragraph 3.16)*

(19) that tree planting projects specifically aimed at redressing soil conservation problems be funded by NSCP, rather than OBT, and that appropriate additional resources be provided. *(paragraph 3.20)*

(20) that on-going integration and streamlining of the application process for all programs through the One-Stop-Shop continue as a matter of urgency. Specific issues which should be addressed prior to the 1993/94 application round include:

i) an adequate, straightforward advertising campaign which clearly identifies all programs for funding community-based activities;

ii) further development of a user-friendly application form designed also to provide adequate information to assessors; and

iii) complete revision of the language and layout of the guideline booklets in close consultation with a variety of community groups including Aboriginal representatives. *(paragraph 3.25)*

(21) that the Commonwealth develop timetables for the One-Stop-Shop application process and distribution of funds which best serve the needs of community groups to undertake projects on a seasonally and ecologically sound basis to maximise success, and to complement State and Territory government programs. Four timetables should be developed to adequately reflect project implementation needs in the State/Territories as follows:

i) Queensland and the Northern Territory;

ii) New South Wales and the Australian Capital Territory;

iii) Victoria, Tasmania and South Australia; and

iv) Western Australia. *(paragraph 3.29)*

(22) that the Commonwealth establish project funding provisions for 3-5 year rolling programs for the four community-based programs. Each program should allow applicants to apply for approval in principle, for up to 3 years funding, with the possibility of extension to a maximum of 5 years. Continued funding should be made contingent on annual reporting or other assessments of satisfactory progress. *(paragraph 3.37)*

(23) that the Commonwealth improve funding arrangements and guidelines through the State/Territory governments to ensure appropriate levels, use and direction of funds. Particular attention should be given to the NSCP and NRMS programs. The fundamental criterion should be to maximise on the ground activity, at a local or regional level. *(paragraph 3.47)*

(24) that the Commonwealth and State/Territory governments collaborate to establish and resource a national network of biodiversity programs facilitators, so that, in each bioregion, an appropriately qualified facilitator is based locally to provide ongoing information support, technical advice and scientific extension to community-based groups on all natural resource programs. *(paragraph 3.51)*

(25) that the responsible Commonwealth agencies, in consultation with Aboriginal people, review the funding criteria of the programs to give equal emphasis to land uses of particular economic and social value to Aboriginal people. The review should ensure the availability and applicability of the programs to the land management and conservation needs on Aboriginal land. *(paragraph 3.58)*

(26) that the Commonwealth provide additional appropriate resources to enable the ANPWS Aboriginal Programs Unit to further develop its work, particularly as a focal point for contact, extension and consultation for Aboriginal communities with the four programs referred to in this inquiry, in addition to other relevant programs. *(paragraph 3.62)*

(27) that the Commonwealth allow tax deductibility for donations made to the Australian Rabbit Fund for research into the control and eradication of the rabbit in Australia. *(paragraph 5.27)*

(28) that the Commonwealth initiate an inquiry into the adequacy of risk assessment procedures and subsequent controls of imported exotic plants, animals and other organisms. *(paragraph 5.37)*

(29) that the Commonwealth and ANZECC, in considering the implementation of a national biodiversity strategy, give priority to the following issues:

i) public awareness and education;

ii) eradication strategies for feral animals, particularly rabbits, cats and foxes, and invasive exotic plants;

iii) assessment and management of vegetation clearing;

iv) improving the knowledge base on Australia's biodiversity; and

v) long term ecological monitoring. *(paragraph 5.40)*

(30) that the Commonwealth, in the implementation of a national coastal zone management strategy and national biodiversity strategy, develop and implement a Commonwealth funded community-based program that focuses on the maintenance of biodiversity and ecological processes in the maritime, coastal environment. *(paragraph 6.12)*

CHAPTER 1. INTRODUCTION

> In a very real sense, the human race unwittingly has become the proprietor of a sort of gigantic dispersed Noah's Ark, with all of the responsibilities that this entails.[1]

The Context of the Inquiry

The Global Scene

1.1 The maintenance of biological diversity and ecological processes is an issue of international, as well as national, importance. Various agencies of the United Nations and several non-government organisations (NGO's) have been involved in the issue of the conservation of biodiversity for some time. For example, several governments supported the principles of conserving biodiversity in the World Charter for Nature adopted by the United Nations in 1982.

1.2 In May 1989, the governing Council of the United Nations Environment Program (UNEP) decided that an 'international legal instrument on the biological diversity of the planet' would be developed. International organisations such as the World Conservation Union (IUCN) and the World Resources Institute (WRI) are also active in this field. The IUCN produced the World Conservation Strategy, and is assisting the UNEP in developing an international convention for the conservation of biodiversity. The WRI, with co-operation from the IUCN, UNEP, FAO and UNESCO, have recently published a Global Biodiversity Strategy which contains 'guidelines for action to save, study and use the earth's biotic wealth sustainably and equitably'.

1.3 The international biodiversity convention document was to be completed for the United Nations Conference on Environment and Development (UNCED), held in Brazil in June 1992.

The Australian Scene

1.4 Australia has participated in working groups on the international convention and the Global Strategy. In July 1989 the then Prime Minister, the Hon. R J L Hawke AC, MP, announced that the Government would prepare a National Strategy for the conservation of Australia's biological diversity. Following this announcement, the Minister for the Arts, Sport, the Environment and Territories, the Hon. Ros Kelly MP, established a Biological Diversity Advisory Committee (BDAC) to draft the national strategy. The BDAC is supported by staff of the biodiversity section in the Department of the Arts, Sport, the Environment and Territories (DASET). The

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1 Dr P Raven, Director of Missouri Botanical Gardens, address to Willi Hennig Society, 1990.

intention was to have the national strategy ready for adoption by May 1992 in time for UNCED.[2]

1.5 A period of public participation was initiated in March with the release of a draft strategy for public comment. A conference was organised on 11-13 March 1992 to discuss the draft. At this conference, the Fenner Environment Conference, which was attended by the then Chair of the ERA Committee Ms Jeannette McHugh MP, there was considerable debate over the draft strategy and recognition of the need for much wider community consultation. As a result, it is unlikely that a final strategy will be ready before Spring.

1.6 The ERA Committee strongly supports the public requests for more extensive consultation of the draft, but feels that it is unfortunate this was not done much earlier in the development of the draft strategy, so that the final document might have been ready for Australia's participation at UNCED. Concerns over the capacity of DASET to manage the strategy development were expressed at the Fenner Conference and in the press.[3] The Members felt these concerns were not sufficiently allayed when DASET appeared before the Committee at a Canberra hearing.[4] Indeed, throughout the inquiry, the Department appeared reluctant to be involved and evasive in providing timely information to the Committee. The Committee considers that the uncertainty over the national strategy development process has made it difficult for the Committee to play a complementary role in considering how community-based projects contribute to the maintenance of biodiversity and ecosystem processes.

The Inquiry

1.7 It was within the context of the international and national agendas described above that the Standing Committee was asked on 15 May 1991 by the Hon. Ros Kelly MP to inquire into the extent to which Commonwealth assisted community-based projects contribute, either directly or incidentally, to the protection of biological diversity and the maintenance of ecological processes and systems. The Committee was asked to focus on four major Commonwealth programs: the Save the Bush Program (STB); the One Billion Trees Program (OBT); the National Soil Conservation Program (NSCP); and the Murray-Darling Basin Natural Resources Management Strategy (NRMS). The Committee also recognised an important objective of the inquiry was to raise public awareness of biodiversity issues in the general community.

1.8 The inquiry was advertised nationally and drew a strong response, indicative of the tremendous community interest in environmental issues. More than 220 submissions were received.[5] A large number (112) of form letters from Victoria indicated considerable support for Greening Australia (GA) but gave no comment on the programs under consideration.

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2 *Biolinks* issue No. 1, DASET.
3 *The Australian* 12 March and 16 March 1992; *Financial Review* 10 March 1992.
4 *Evidence,* Canberra, 27 March 1992, pp. 391-402.
5 A list of submissions is at *Appendix A.*

1.9 Two background papers were prepared and several informal briefings were held in Canberra early in the inquiry. Analysis of the submissions and informal discussions formed the basis for the preparation of a program of public hearings and inspections.[6] Public hearings were held in Brisbane, Sydney, Canberra, Melbourne and Adelaide. During the course of the inquiry the Committee spoke with a total of 285 people.

About Biodiversity

What does it mean?

1.10 Biodiversity is about all living things and the interaction of all living organisms with each other. The variety of organisms and the 'balance of nature' provide all the products humankind depends upon. It remains a general but fundamental axiom of the 'web of life' that each and every organism is reciprocally dependent upon others for its survival. The identities and lives of the seemingly infinite varieties of plants, animals, fungi and other organisms that make up the earth's biological diversity are logically and intrinsically interconnected. Together, they all go to make up what ecologists call our total biosphere. Therefore it is the assemblages of species and their links to each other in the place where they occur which is all important. Preserving the roles of assemblages of species in ecosystems and their ability to continue to adapt or change (i.e. evolve) through time, is vital to maintaining biodiversity and ecosystem processes. Hence, biodiversity is neither static, nor is it just about individual species in isolation. It is the whole, interacting, variety of life. Biological diversity is the primary producer of thousands of years of human food, shelter and culture.

What do libraries have in common with biodiversity? [7]

No one really questions the existence of libraries. Libraries contain many volumes of information, some of which are obviously of immediate instrumental value - such information as how to build, maintain or repair things - while there are others which have little obvious instrumental value, and others again which are very likely, sooner or later, to be vitally important.

Nobody questions the notion that the nation maintains excellent libraries for both its short and long term goals, for instrumental, cultural and other reasons. Generally, most people are shocked or concerned when the last volume of a particular work gets burnt and disappears forever.

All living species contain vast amounts of information. Thus, species have an intrinsic or cultural value. Consequently, if we are to conserve as many species as possible for further study and use by future generations, a much improved knowledge of existing biodiversity will be essential.

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6 The inquiry program is at *Appendix B.* A list of witnesses is at *Appendix C.*

7 Analogy developed by Professors Mark Westoby and Andrew Beattie. *Submission* No. 104 and *Evidence,* Sydney 28 February 1992, p. 308

1.11 The internationally accepted definition of biological diversity used by various international agencies (IUCN, UNESCO, UNEP, WRI) is: 'the variety within and among living organisms and of the ecological systems they comprise'. The definition as used in the *Global Biodiversity Strategy* (WRI, IUCN, UNEP) and draft *National Strategy for the Conservation of Australia's Biological Diversity* (BDAC, DASET) encompasses all living things, including people, domesticated animals and plants and the ecosystems of which they are a part. This formal definition recognises three levels of biodiversity:

1. Genetic diversity - the variety of information stored at the biochemical level and which is represented as the genetic code in each individual of every species. Genetic variety occurs within and between populations of species.

2. Species diversity - the variety of currently living (i.e. extant), biological species.

3. Ecosystem diversity - the variety of the associations of biotic (plants, animals and micro-organisms) and abiotic (the physical environment) components of the biosphere. It relates to the variety of habitats, biological communities and ecological processes. It is dynamic because biological interactions and their organisation in space and time change continuously.

1.12 The biodiversity of Australia is global biodiversity in a microcosm. It comprises all living plants, animals and micro-organisms and ecosystems of all the landscapes and seascapes of Australia, its external territories, its marine exclusive economic zone and the Australian Antarctic territory.

1.13 People are the most important component of biodiversity. Every individual is a minute component of this one and only living planet - a point often made by returning astronauts after viewing the evidence of a vitally alive planet earth from far away in a lifeless solar system. Yet we take a breath of fresh air or a sip of clean, clear water for granted and without a thought for the living things which provide or sustain these essential ingredients for life.

1.14 The ERA Committee firmly believes, therefore, that individuals and communities of people are not just a part of biodiversity, but are fundamental to the maintenance and management of biodiversity and ecosystem processes for future generations.

Why biodiversity is important to every person

1.15 Humanity has long recognised and utilised foods, fibres, medicines, building materials and recreational opportunities provided by nature or its domesticated relatives. Nevertheless, human use has concentrated on only a small proportion of the potential which nature has to offer. Globally, approximately 90% of all living species are unknown to science. Therefore, from a portion of the 10% of known living species comes a rich

variety of goods which support economies and provide most people in developed countries such as Australia a high quality of life.[8] It is most likely that the remaining 90% could provide a plethora of additional goods and products.

Resources may emerge from any component of biodiversity. [9]

For example -

- Aquatic protozoa and fly larvae are now known to be excellent indicators of water quality.
- Bees, in collecting nectar and pollen also inadvertently collect airborne particles. Therefore, their pollen loads contain valuable information on air quality.
- Shallow water corals contain a unique sun screening compound, now under commercial development.
- Ants which live with termites produce a deterrent from which a commercial grade termiticide has been produced.
- Some worms and sea slugs have simple nervous systems valuable in medical research.
- A flexible concrete has been developed by studying the shell structure of deep water marine molluscs.

1.16 It is now generally recognised that human activities are diminishing the earth's capacity to support life. Most people are well aware that land degradation, polluted water, loss of production, loss of native plants and animals and possibly greenhouse warming are a result of eroding the capital base of natural biological resources (genes, species, ecosystems) rather than sustainable use of the 'interest' from the 'capital'. The greatest challenge may lie in the area of human behaviour and the acceptance of responsibility by every individual that we are members of the only species with the capability and initiative to maintain and manage (or degrade and destroy) what constitutes the life support system of our planet.

> The human race had 850 million members when it entered the industrial age, sharing Earth with life forms nearly as diverse as the planet has ever possessed. Today, with a population nearly six times as large and resource consumption proportionately far greater, both the limits of nature and the price of overstepping them are becoming clear. A turning point is upon us.[10]

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8 *Submission* No. 104.

9 Andrew Beattie, *Submission* No. 104 and *Evidence,* Sydney, 28 February 1992.

10 *Global Biodiversity Strategy* (WRI, IUCN, UNEP), p. 1.

1.17 Eighteen species of Australian mammals have become extinct in the last 200 years and this is possibly only a small indicator of the extinction of invertebrates which has occurred. Australia's rural and coastal environment, upon which every Australian depends, are showing signs of severe degradation.[11] Land degradation accounts for $220 million losses in agricultural production in the Murray-Darling Basin annually.[12]

1.18 The imperative for the maintenance of biodiversity and ecosystem processes, and their wise use in the long term future, is quite clear. It underpins Ecologically Sustainable Development (ESD) for future generations. Humankind can continue to simplify the environment in order to meet immediate needs at the cost of long term benefits. Alternatively, we can preserve life's precious diversity, use it in a sustainable way and deliver to future generations a world rich in possibilities, not one impoverished of life. We are making that choice now. David Suzuki, during his recent visit to Australia, remarked:

> You know, the American Indians always think back seven generations and forward into the future seven generations, but in some countries, like Australia, we tend to think only as far as the next elections.[13]

1.19 It is important to maintain a sense of urgency at this critical time when public awareness and action from the 'grass roots' of communities is occurring right across Australia. Australians should be encouraged in that this country has great potential for wise development and inter-generational equity for the future. We should also recognise that much has been done and is now being done as we come to understand the value of, and threats to, Australia's biodiversity and ecosystem processes.

1.20 The ERA Committee is well aware of the many excellent projects currently being undertaken and has had the opportunity to meet with many enthusiastic community groups throughout the duration of the inquiry.[14]

1.21 The Committee expects that individual, social and cultural attitudes will change as the general public's understanding of biodiversity grows. There appears to be a considerable lack of understanding of biodiversity in the general community at the present time. It is apparent from submissions and evidence received, however, that many Aboriginal people, through their close cultural and spiritual ties with the environment, have a sound understanding of biological diversity and its inter-relationships.

1.22 Understanding and awareness by the community at large is a basic component in harnessing their enthusiasm and support. The 'grass roots' or local action initiatives approach is also extremely important in harnessing the energies of assemblages of people by their common needs and aspirations. Another component is the Commonwealth funded programs which support community-based projects. These have a vital role in promoting awareness in the community and they provide a means of acting on that knowledge and enthusiasm.

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11 *'The effectiveness of Land Degradation Policies and programs'* ERA Committee 1989; *'The Injured Coastline'* ERA Committee 1990.

12 *'Murray-Darling Basin Environmental Resources Study'* 1987.

13 *Interview* on ABC Radio, 15 May 1992.

14 *Appendix* B.

CHAPTER 2 . THE COMMONWEALTH FUNDED, COMMUNITY-BASED PROGRAMS

Save the Bush Program

Background

2.1 The Save the Bush Program (STB) is administered by the Australian National Parks and Wildlife Service within the portfolio of the Arts, Sport, the Environment and Territories. This program complements other programs administered by the Service which focus on biological diversity and nature conservation outside reserves. These include:

. the Endangered Species Program (ESP);

. the National Index of Ecosystems (NIE); and

. the Environmental Resources Information Network (ERIN).

2.2 The objective of the STB Program is to encourage, facilitate and support programs and activities associated with the protection, management and investigation of remnant native vegetation, particularly outside national parks and other reserves, which directly or indirectly assist with the maintenance of biological diversity in Australia.

2.3 The Program has three components:

. a general Grants Scheme;

. special grants to State/Territory governments to assist in the development and/or implementation of State/Territory remnant native vegetation strategies; and

. projects undertaken by the Australian National Parks and Wildlife Service.

2.4 Applications should be for 'project funding' rather than for administrative overheads or equipment purchase.

2.5 Appropriate categories of application include:

. on-ground vegetation protection activities (e.g. land management, land protection, bushland regeneration);

. development and implementation of remnant vegetation management strategies;

- public awareness activities (e.g. extension and advisory services, education, demonstration of bush conservation activities and practices); and

- surveys and data collection.

2.6 It is unlikely that funds will be provided for land acquisition or extensive tree planting exercises. Applicants will normally be expected to contribute significantly to the proposed project, either in cash or in kind.

The Save the Bush Program (STB):

- focuses on remnant native vegetation and is concerned with the maintenance of biological diversity;

- focuses on protection and management of remnant native vegetation outside reserves;

- has relevance to a wide range of native vegetation types and a wide range of land use categories;

- aims to stimulate greater community awareness of the presence and importance of remnant native vegetation.

2.7 With total funding of $1.5 million in 1990/91 (a similar amount will be provided in 1992/93), implementation of the Program in 1990/91 had three main elements:

- $750,000 to State/Territory governments to assist with the development and implementation of remnant native vegetation programs;

- $610,000 to the Grants Scheme under which funds are provided to government and community organisations for projects concerned with the conservation of remnant native vegetation. Seventy two projects totalling $610,000 were approved by the Minister under the Grants Scheme. This followed the receipt of 420 applications requesting a total of over $6.5 million;

- $140,000 to funded ANPWS projects on public information and education, as well as salaries and administration.

Assessment

2.8 Most submissions and witnesses considered that all four programs contribute at least incidentally to the protection of biodiversity and have the potential to contribute directly. Every submission or witness that commented on STB regarded it as the only program which currently focuses specifically on biodiversity and directly contributes to the maintenance and preservation of biodiversity and ecological processes.[1] The main reason for this high commendation is that the program aims to protect, *in situ,* assemblages of indigenous species which occur outside National Parks. Such areas of remnant native vegetation are relatively intact habitats which support a great diversity of species and ecological interactions. Many submissions[2] considered the protection of such local patches of remnant native bush to be extremely important in a broader bioregional context. They may be important for the preservation of regional genetic stocks and relic endangered flora and fauna, and are valued as a network of linkages or corridors across the landscape[3]

2.9 Dr Hugh Ford of the University of New England summed up the importance of protecting remaining remnants:

> By far the major way in which we can maintain biodiversity is to protect and manage extensive and intact ecosystems. By intact I do not mean virgin wildernesses, for there is none, but large areas where most of the species, microhabitats, and ecosystem processes still occur. From this it follows that a cessation of the clearing of native vegetation would have the greatest beneficial effect on retaining our biodiversity. In comparison, tree-planting, even on a large scale, has a rather minimal effect.
>
> However, it may be too late to retain large areas of some ecosystems as they have been extensively cleared or degraded. Box gum woodlands on the tablelands of New South Wales and salmon gum woodlands in the WA wheatbelt would be good examples. Hence, we have to conserve some of our biodiversity in networks of remnants, and this is where the STB and other community schemes have such a part to play.[4]

2.10 There were two major concerns expressed to the Committee in relation to the STB Program. The first relates to vegetation clearing. A number of submissions[5] expressed considerable concern that broadscale clearing is still continuing and saw this as a direct contradiction to the aims and efforts of the STB and OBT programs. This issue is discussed in a later section of this report.

2.11 The second concern was the level of Commonwealth funding for STB, which was seen as very small. Whilst a very high proportion of STB funds actually go to the implementation of remnant native vegetation programs, only a small number of projects can be funded. In 1990/91, 420 applications under the STB Grants Scheme requested a total of $6.5m, however, only 72 projects could be funded[6].

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1 *Submission* Nos. 54, 116, 161, 176.
2 *Submission* Nos. 6, 7, 8, 9, 26, 103, 105, 116, 161, 165, 203, 210, 215.
3 For example, *Evidence,* Brisbane, 31 January 1992, p. 14-15 and p. 24-29.
4 *Submission* No. 215.
5 *Submission* Nos. 2, 3,7 ,9, 25, 50, 54, 56, 59, 65, 66, 77, 104, 116, 161, 175, 178, 188, 207, 209, 211, 213, 215, 219.
6 *Submission* No. 161.

Members inspect remnant lowland rainforest on the Clarence River near Maclean, northern New South Wales, 24 January 1992. The rainforest patch is being surveyed and protected under a STB project. Left to right: Mr Ashley Love, Clarence Environment Centre committee member; Mrs Chris Gallus MP; Ms Jeannette McHugh MP; Mr Phil Gilmour, consultant botanist to the Clarence Environment Centre.

2.12 One witness considered this lack of funds gave negative feedback to applicants and was therefore a serious threat to community enthusiasm and local community initiatives:

> ... the whole thrust is to try to encourage community groups. But when you saw the Save the Bush scheme in the last two years, there was an average of about 15 per cent of applicants who were successful. That is another problem with the grants system, that only a certain percentage get the grant. In this case there is an 85 per cent discouragement factor. The community groups go to the time and trouble two years in a row and they get rejected.[7]

2.13 The majority of submissions and witnesses considered the STB program to be grossly under funded, especially as it is seen as cost efficient in that most of the funds actually go to 'on the ground' projects and that it aims to preserve remaining biodiversity, rather than funding costly rehabilitation which may not address biodiversity goals to the same extent. In contrast, the NSCP, which focuses on correcting land degradation and land rehabilitation of rural areas, receives almost twenty times the funding. Agriculturalists, land managers, and their representatives, also strongly supported the STB program as they recognised the value to rural producers that remnant

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7 *Evidence,* Brisbane 31 January 1992, p. 52.

bush affords as shelter, windbreaks, nutrient sinks and in assisting water table balance, as well as preserving the natural qualities of the environment.[8]

2.14 The following comments by the NSW Aboriginal Land Council were mirrored in numerous submissions:

> STB is an extremely important program. It is the only one which really addresses biological diversity ... NSWALC believes the program is run well but seriously underfunded.[9]

2.15 Similarly, one witness considered that the priority for government funding and community action should be: firstly, retention; secondly, restoration; and thirdly, revegetation.[10]

2.16 The ERA Committee considers that funding for the STB program should be increased several fold because the program has a vital role to play in the national strategy and in the current Decade of Landcare in which it is not currently considered a major program, if biodiversity and ecological processes are to be maintained. The current level of funding is desultory.

2.17 Accordingly, the Committee recommends

> (1) **that funding for the STB program be immediately increased to $5m in recognition of its vital contribution in maintaining biodiversity and ecosystem processes and in the implementation of the proposed national biodiversity strategy and the Decade of Landcare, and that funding be increased to $10m by 1994.**

2.18 The Committee considers the proposed increase in funding to be modest in comparison to the other programs and that a further review of funding should be undertaken in 1996 to assess the need for additional resources.

2.19 A number of submissions emphasised the importance of biological surveys[11] and resource inventories. With regard to the latter it is important that the Australian Biological Resource Study (ABRS) be given additional resources under the implementation of the national strategy being developed by BDAC.[12] World Wide Fund for Nature (WWF) and GA (NSW)[13] suggest that regional vegetation plans would be useful to establish priorities and planning for remnant vegetation work and the Committee observed components of a successful project in the Armidale district.[14] The

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8 *Submission* No. 55, 216; *Evidence,* Adelaide, 10 April 1992, pp. 673-674; Inspections Gunnedah, Armidale, NSW, 23 January 1992; Tammin, WA, 9 March 1992; Horsham, Nhill, Vic. 17-18 March 1992.

9 *Submission* No. 203, p. 24.

10 *Evidence,* Melbourne, 21 February 1992, pp. 237-238.

11 *Submission* Nos. 4, 5, 9, 47, 50, 65, 66, 79, 116, 176, 183.

12 *Submission* Nos. 5, 104.

13 *Submission* Nos. 116, 218.

14 *Inspection,* northern NSW, 23-24 January 1992.

Committee considers the regional approach being taken by GA(NSW) in terms of regional vegetation strategies (e.g. for the Northern Tablelands) to be a valuable model. Throughout the inquiry, the increasing need for and value of a regional or ecosystem-based approach which enables local community action to be an effective part of biodiversity goals over a broad region has become apparent. The Environmental Resources Information Network (ERIN) and the National Index of Ecosystems (NIE) might be of assistance in such an approach.

2.20 On several field inspections, community groups expressed the need to know how to assess the viability and value of remnants and corridors and what principles to use in linking corridors. The ANPWS recognises the need for this research and subsequent dissemination of the information to the community[15].

2.21 The Committee recommends:

(2) **that, with a portion of the recommended increased funds for STB, the ANPWS further develop the research, survey and monitoring component of the program. Studies should focus, in the first instance, on**

i) **the relationship of area and edge for viable remnants,**

ii) **the value or potential of critical habitats or key species as bioindicators,**

iii) **corridor establishment and management practices,**

iv) **the relationship of remnants to adjacent land and various grazing regimes.**

(3) **that, with a portion of the recommended increased funds for STB, the ANPWS further develop the program's extension component on a regional scale which recognises the continuity of biodiversity needs across the landscape.**

2.22 The Committee further concludes that the preparation of regional vegetation management plans, as part of a national strategy, would provide direction for the implementation of STB and OBT projects at a local community level, so that a high level of ecological rationale can be applied to individual projects. Small projects undertaken by community groups would then be able to make an even greater contribution, both at a local level and on an integrated regional scale. The Australian and New Zealand Environment and Conservation Council (ANZECC) might also play a role in the development and implementation of regional vegetation management plans across the nation.

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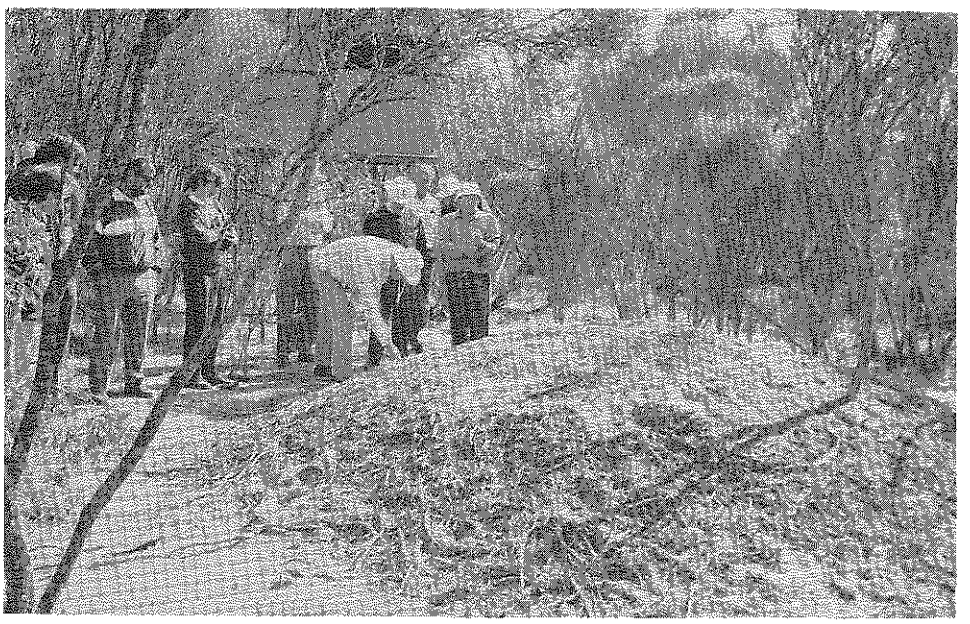
15 *Submission* No. 161.

2.23 The Committee considers that the ANPWS is best suited to provide professional and administrative support to STB at a national level, and to co-ordinate the State and Territory sub-program, and recommends:

(4) **that with additional resources as required, and using the resources of ERIN, the NIE and STB, and in consultation with ANZECC, the ANPWS develop a national remnant native vegetation strategy (as a component of the national biodiversity strategy) for a bioregional-landscape approach to integrated planning, and to guide the preparation of regional vegetation management plans. The strategy should take into account the various State and Territory vegetation management programs.**

(5) **that the ANPWS retain organisational and administrative control of the STB program, and that the Service continue the strategic development of the program.**



Mr Neville Newell MP, tests the humidity and incubation temperature of a Mallee fowl mound on Mr 'Whimpey' Reichelt's Little Desert Lodge property in the Victorian mallee. Mallee fowl habitat is protected in National Parks in the area and through the work of Mr Reichelt, supported in part by STB. Mr Reichelt is on the far right. Amongst those looking on are: Mr Alasdair Webster MP; Mr Peter Fisher MP; Mr Harry Jenkins MP; Mr John Langmore MP; and Mr Geoff Evans, Ms Lisa Morcom, Mr Ian Voigt and Mr Terry Lewis of the Victorian Department of Environment and Conservation.

2.24 The Save the Bush Program, with its off-reserve focus, is an extremely valuable program which is contributing significantly, but with additional resources and through education of the general public and government at all levels, has even greater potential for maintaining biodiversity and ecosystem processes across the Australian landscape.

One Billion Trees Program

Background

2.25 In his July 1989 statement on the environment, the Prime Minister announced the One Billion Trees Program (OBT). The program builds upon and absorbs the National Tree Program.

2.26 The aim of the OBT Program is to have a least a billion new trees planted, sown and regenerated by the year 2000, and to create an even greater community awareness and capacity to conserve, restore and nurture Australia's native vegetation.

2.27 During the Decade of Landcare, at least 400 million trees will be established through community planting of seedlings, and at least 600 million through the increasingly better known methods of direct seeding and assisted natural regeneration. Establishing the right trees where they are most needed will help to restore an appropriate cover of vegetation as well as producing both economic and ecological benefits.

2.28 The main strategies of the program through which these targets will be achieved include:

- major revegetation projects involving community, corporate and government organisations;
- school-based projects to provide hands-on learning experience for young people;
- financial grants to community groups, local authorities and landholders to implement revegetation projects on farms, Crown land and in towns and cities; and
- support information and education activities.

2.29 One Billion Trees is administered by ANPWS and implemented under contract by Greening Australia Ltd, a national community organisation. Greening Australia (GA) was set up by the community in 1982 as a loose yet cohesive 'umbrella' for a great diversity of individuals, groups and institutions with an active interest in overcoming tree decline and land degradation, particularly in rural areas. Community groups, farmers, industry, conservation groups, professional associations, and relevant government agencies are well represented on Greening Australia's national, State and Territory committees. The OBT program was transferred from DASET to ANPWS on 1 July 1991.

The One Billion Trees Program (OBT):

- provides a quantifiable target for broader goals;
- focuses the reversal of tree decline;
- aims at replacement of Australia's cover of native trees and vegetation;
- aims to provide greater community awareness and the capacity to conserve, restore and nurture.

2.30 The national ten year target will be attained using two approaches to tree establishment.

- *Planting tree seedlings.* This is a well-known and widely used approach which has much appeal for community tree projects. Almost all of the millions of trees established since 1982 by Greening Australia have been 'planted', and this approach will remain a popular means of community participation.

- *Direct sowing of tree seed.* A less well-known approach which offers no immediate visual evidence of a 'result'. Nor does natural regeneration - i.e. sowing of seed by nature. However, these technologies hold great promise, especially as relatively cheap ways to restore tree cover on a 'broad-acre' basis across large areas of the continent.

2.31 Areas for retaining and re-establishing trees and shrubs include:

- groundwater recharge areas associated with salinity problems;
- eroded stream and riverbanks;
- areas affected by wind and water erosion;
- important degraded flora and fauna habitats and connecting areas;
- degraded water catchments; and
- local remnants of native vegetation.

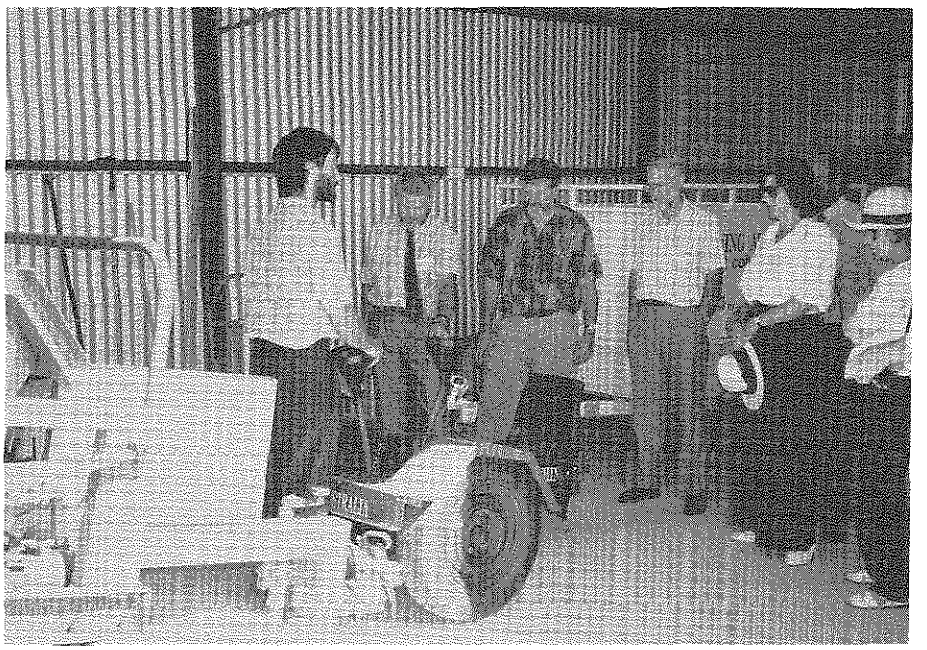
2.32 The main guideline is that the largest part of the Greening Australia budgets must support or be allocated to community tree planting projects. These are roughly divided into three categories.

- *Co-operative projects.* These involve participation by community, corporate and government organisations and, as a rule, are managed by the Greening Australia State offices. 'Ribbons of Green' and 'Whole Farm Planning' are examples of projects in this category.

- *Community grants projects.* Small financial grants to community groups, local government and landholders to implement tree projects on farms and in towns and cities.

- *Schools Greening Program.* Projects designed to provide young people with hands-on learning experiences.

2.33 The Federal Government provided Greening Australia with a grant of $5.1 million for 1990/91 (a similar amount will be provided in 1992/93). This is not the limit of the resources which can be applied to the task. Greening Australia, at both national and State levels, actively seeks to supplement this support from other levels of government and from the corporate sector, either in cash or in kind. The Federal grant is treated as 'seed' money to a maximum of half the dollar value of a project. Some States set aside up to 50% of their funds for distribution as community grants. The emphasis is on supporting self-help projects which maximise local interest and involvement.



ERA Committee Members examine Greening Australia's direct seeding equipment at the GA seed store at the South Australian Department of Agriculture's Flaxley Research Station, near Mr Barker. Left to right: Mr Wayne Brown, Department of Agriculture revegetation officer; Mr Neville Bonney GA (SA) direct seeding project manager; Mr Malcolm Campbell, GA (SA) State Manager; Mr John Langmore MP; Ms Jeannette McHugh MP; Mrs Chris Gallus MP.

Assessment

2.34 The ERA Committee recognises that GA has achieved a great deal in a relatively short time. The planting of a billion trees, in itself, might be considered superficial or cosmetic and would not necessarily address biodiversity issues[16]. Greening Australia, in recognising this, has been developing the program in various ways which consider important environmental objectives. The evolution of the program is illustrated by the following quotes from the GA Inc. submission:[17]

> Firstly a tremendous spirit of community cooperation arose (especially through the landcare movement), and it can grow much further. A great interest in indigenous species developed and there was wide consensus that these trees, shrubs, grasses and groundcover should be the foundation of the revegetated landscapes.
>
> .... all realised that in Australia rehabilitation could only occur if there evolved a local sense of responsibility.
>
> Revegetation is not just planting seedlings (with spade or a tractor-drawn implement); it includes also direct-seeding techniques, transplanting of surplus naturally regenerated seedlings, natural seedfall from existing plants, root treatments such as ripping to create thickets of suckers, and the fencing of bush remnants to allow regeneration.

2.35 There is a growing awareness of the need for a full complement of species, of all vegetation strata, but particularly understorey and ground cover species. Members of the ERA Committee have inspected the products of many of these initiatives.[18]

2.36 The 'Corridors of Green' program is providing for the creation of networks of revegetated road verges, stock routes, rail reserves and other public areas, linked with revegetation on private property to form wildlife corridors across the landscape. At its national conference in Adelaide in March 1992, GA continued developing a vision for a 'Catchments of Green' program which will focus on rehabilitation and revegetation of streams and riverbanks. These initiatives have the potential to address important biodiversity goals. Several submissions[19] and witnesses[20] suggested that OBT and STB in particular have tremendous potential to contribute to the 'connectivity' across the landscape of a better system of ecosystem representative, protected areas. This concept is mentioned briefly in the draft national biodiversity strategy and was discussed at the Fenner Environment Conference in Canberra during March 1992.

2.37 Members of the ERA Committee commend GA for its responsiveness in developing the OBT program and note the valuable role played by GA in raising community awareness.

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16 *Submission* Nos. 100, 101, 105, 207, 213, 219.

17 *Submission* No. 207.

18 *Inspection,* Northern NSW, 23-24 January 1992, South Australia 11 February 1992, Western Australia, 9-10 March 1992 and Western Victoria, 17-18 May 1992.

19 *Submission* Nos. 9, 54, 105, 116, 161, 176, 188.

20 *Evidence,* Professor Buckley, Brisbane, 31 January, p. 46; Professor Beattie, Sydney, 28 February, p. 314; ANPWS, Canberra, 3 April, p. 536; Greening Australia Inc, 3 April, pp. 514-515.

2.38 In some ways, however, the great enthusiasm and impetus for 'tree planting' and revegetation that has been successfully engendered, appears to be getting too far ahead of ecological rationale. Many concerns have been raised with Committee Members about the appropriateness of plantings, species selection, and the correct planning and preparation for revegetation activities to be able to maximise and not threaten biodiversity objectives.[21] It is clear that these concerns were raised not so much as criticism but in recognition that enormous advances have been made, yet there is so much further to go and improvements to make in order to address objectives for maintaining biodiversity and ecosystem processes.

2.39 The scientific basis and methods for vegetation re-establishment requires urgent and ongoing development, and there is a need for goal directed, concurrent research and ecological monitoring to be incorporated into community projects. Nevertheless, there are many factors for which data are available which would greatly assist planning and implementation of community group projects. Effectiveness of projects and therefore encouragment of community action would be increased.

2.40 The Committee considers that there is tremendous potential to do this; not to do so whilst community action is increasing exponentially may threaten the maintenance of ecological processes and subsequently dishearten our most important resource - communities of people keen to make a positive contribution.[22]

2.41 Surveys of nearby remnant vegetation, or research of historic records (e.g. old newspapers) are two ways of gaining an understanding and a planning focus for revegetation activities. Specific information on the number, proportion and identity of species present in all strata of the vegetation should be gathered in the greatest possible detail. This should also include information on drainage, changes in soil type and aspects of the natural remnant site.[23] Such information can be related to the rehabilitation or revegetation site.[24] The project should then aim to mirror the 'natural' indigenous remnant. The Committee believes that regional or district facilitators with access to scientific input and advice coupled with regional vegetation management plans suggested earlier[25] would greatly enhance the program and assist individual projects to meet biodiversity objectives. Local community groups will also be encouraged by the fact that their local, grass-roots project is contributing to a 'bigger picture' for the maintenance of biodiversity and long-term ecological processes on a regional or ecosystem scale.

2.42 There are two general components to dealing with these concerns which should assist in the long-term viability and increased ecological effectiveness of revegetation activities.

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21 For example, *Submission* Nos. 4, 5, 6, 7, 9, 25, 50, 56, 61, 65, 101, 103, 104, 105, 116, 188, 213, 219.

22 *Evidence,* Canberra, 27 March 1992, p. 434; Adelaide, 10 April 1992, pp. 615, 652-654.

23 *Evidence,* Adelaide, 10 April 1992, p. 654.

24 *Submission* Nos. 4, 5, 6, 7, 66, 79, 104, 183.

25 *Submission* No. 116.

2.43 The first should be an essential ingredient in all programs. This is the availability of information at a local level, through regional facilitators who are themselves living in the district and so are part of the grass roots community. These people should have a thorough knowledge of all the programs, relevant qualifications and the ability to quickly access information through a 'knowledge' network. They should all receive training in extension.[26] Such an approach will also ensure that the valuable ground-up approach of community groups is retained whilst providing information and direction on a needs basis at the local level and not from the 'administrators' above.

2.44 The second component relates specifically to revegetation activities. In order to better ensure the effectiveness of rehabilitation, all project planning processes should ask the question: Is there any likely or potential threat to biodiversity or ecosystem processes which may result from this project?[27] At this point facilitators may need to assess the need for further scientific input. Scientists must also be prepared to provide the best advice available, even if based on 'educated guesses', and to make an objective and realistic assessment of risk. Ideally, the Committee would like to encourage scientists to devolve themselves from their institutional frameworks to become more involved with communities in management and restoration of the natural environment. Accordingly, community groups are encouraged to 'adopt a scientist'. Where this is not possible, local facilitators are the key link for community groups and the knowledge base. The Committee observed an excellent example of this in Armidale, where the regional GA Manager, Mr Curtis, is involved both in the scientific and local community with great effect.[28]

2.45 National guidelines or standards are required for the collection and storage of native indigenous plant seed.[29] A wider variety of seeds also needs to be collected in order to increase the potential of successfully re-establishing vegetation which mirrors a local province remnant.[30] It follows that enormous quantities of seed are required and that provincial and genetic integrity should be maintained to allow for natural adaptive processes to continue.

2.46 During a number of inspections, the idea of the establishment of regional seed banks or seed orchards was raised with Committee members.[31] This issue was also raised in evidence. For example, Mr Forbes (ANPWS) said:

> One way of achieving it which we have been thinking about but do not have the resources for, is that you need good, if you like, seed banks and seed orchards, regionally based and supported from the Commonwealth level, so that there is that infrastructure to provide that local seed source locally.[32]

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26 *Submission* Nos. 15, 47, 50, 61, 62, 75.
27 *Submission* Nos. 5, 7, 50, 100, 105; Evidence, Canberra, 27 March 1992, p. 443.
28 *Inspection*, Northern NSW, January 23-24; *Submission* No. 218.
29 *Submission* Nos. 140, 207, 209, 218 and *Evidence*, Melbourne, 21 February 1992, pp. 184, 252-253; Canberra, 3 April, p. 544; Adelaide, 10 April, p. 612.
30 *Submission* Nos. 7, 77, 79, 100, 161, 183, 188.
31 *Inspections*, South Australia, 11 February, Western Australia, 9-10 March.
32 *Evidence*, Canbera, 3 April 1992, p. 544.

2.47 The evidence discussed above, and several submissions, clearly identified the need for guidelines for seed collection and revegetation projects.[33]

2.48 A witness for the Australian Association of Soil Science summed up these requirements as follows:

> I think there is a lot of interest in self-identification of acceptable codes of practice. I believe that the scientists need to be providing the guidance for acceptable management codes of practice. You would be aware that in South Australia we have developed a code of practice for seed collection, which is being adopted by Trees for Life and Greening Australia. So in effect we have got it there. I think this is the best way for it to evolve but a national strategy and guidelines need to be provided.[34]

2.49 GA is currently drafting a species selection policy. Such a valuable document should be developed with broad scientific consultation and should take the good measures now being implemented several steps further. When these objectives are firmly established as practice, further evolution and revision will be required to aim at even greater achievements which reflect biodiversity needs as a principal criterion.

2.50 The Committee recommends:

> (6) **that the Commonwealth, through wide consultation which should include the CSIRO, the nursery industry, and the Indigenous Flora and Fauna Association, develop national standards for**
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> i) **revegetation projects,**
>
> ii) **the collection and storage of indigenous native plant seed,**
>
> iii) **the protection and maintenance of eco-adapted seed stock.**

2.51 The Committee further recommends:

> (7) **that the Commonwealth, through the OBT program administrators and appropriate scientific and technical advisors, establish regional seed banks or seed orchards at a local or district level under appropriate guidelines established by implementing recommendation 6.**

2.52 After a period of establishment, some seed banks or seed orchards may become self-funding. Nevertheless, the Committee understands that increased resources are necessary to develop such a program.

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33 *Submission* Nos. 100, 116, 178, 183, 188, 207, 218.

34 *Evidence*, Adelaide, 10 April 1992, p. 662.

2.53 Accordingly, the Committee recommends:

> (8) **that funding for the OBT program be increased to $6m to provide additional resources for the implementation of aspects of program development identified in recommendations 6 and 7.**

2.54 Additional funds will be required beyond the modest increase in Commonwealth funds recommended here. The Committee believes there are two main sources for such funds. The first is through increased corporate sponsorship. The second is through rationalisation and devolution of the GA administration and program delivery mechanisms.

2.55 The organisation and administration of GA grew considerably when it took up the OBT program. An independent review of the program initiated by DASET in 1991 found that:

> the complex structure of GA means that a high proportion of OBT funds is taken up with administration ... The current structure of GA with its network of separately incorporated bodies needs to be reviewed to reduce the overheads of the organisation and direct a greater proportion of funds to projects.

2.56 The Committee believes that the State offices of GA could be devolved to regional areas to reduce overheads in administration and to increase effectiveness of on ground delivery of the program.[35]

2.57 With regard to the national biodiversity strategy, the current method of OBT program delivery depends on community participation which favours the development of projects around centres of population. Rehabilitation of the Australian landscape and areas requiring revegetation may be situated well away from urban or rural population centres. The need for regional vegetation plans for implementation of OBT and STB, as part of a national strategy, was discussed under the STB program. To meet biodiversity revegetation needs, projects which draw on the work force and skills available through the Australian Trust for Conservation Volunteers (ACTV),[36] and jobskills programs[37] could be more effectively used in delivering the OBT program to meet biodiversity objectives across the continent.

2.58 The Committee recommends:

> (9) **that a proportion of OBT program funds be directed to target areas identified in the national biodiversity strategy and in regional vegetation management plans; and in the utilisation of groups such as the Australian Trust for Conservation Volunteers and jobskills programs to implement priority projects.**

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35 *Submission* Nos. 65, 105.

36 *Submission* No. 105 and *Evidence,* Melbourne, 21 February 1992, pp. 173-178.

37 *Submission* No. 218.

2.59 The ERA Committee considers that the OBT Program should continue to develop and has the potential to make a substantial contribution to the maintenance of biodiversity and ecological processes, particularly if it plays a complementary role to the STB program in providing buffer zones around remnants as well as linkages through the rehabilitation and revegetation of wildlife corridors. The Scout Association's 'Eprapah Creek' project in Brisbane is a good example of the complementary role STB and OBT projects can play in order to address biodiversity objectives.[38] The Committee commends the positive moves in this direction that GA has taken in its 'Ribbons of Green', 'Corridors of Green' and 'Catchments of Green' programs. Raising public awareness throughout the entire community is recognised by the Committee as a vitally important aspect of the OBT program.

National Soil Conservation Program

Background

2.60 The National Soil Conservation Program (NSCP) aims to develop and implement national activities for the rehabilitation and sustainable use of the nation's soil and land resources. It complements State government activities in soil conservation and is consistent with the objectives of the National Soil Conservation Strategy, agreed between the Commonwealth and the States in 1988 and released in April 1989. The Program is administered within the Commonwealth Department of Primary Industries and Energy.

2.61 Grants are made available for projects in the areas of education, training, extension, planning, resource assessment, research, mapping, demonstrations and provision of technical advice. Projects contribute to the prevention or control of one or more of the following land degradation problems:

- water erosion;
- wind erosion;
- soil structure decline;
- soil acidification;
- soil salinisation;
- invasion of productive land by native woody shrubs;
- mass movement; and
- water repellency.

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38 *Submission* No. 210; and *Evidence,* Brisbane, 31 January 1992, pp. 3-8.

The National Soil Conservation Program (NSCP):

- promotes the use of all lands in Australia within their capability;
- aims to have soil conservation activities and land use decisions based on whole catchment land management planning concepts;
- aims to have all land users and levels of government meet their respective responsibilities in achieving soil conservation;
- promotes effective co-operation and co-ordination among all sectors of the community, all disciplines and all agencies involved in the use and management of land and water resources;
- encourages the whole community to adopt a land conservation ethic.

2.62 The NSCP encourages participation and co-operation by providing funding under three sub-programs.

2.63 *The Community Landcare Support sub-program* focuses on development and adoption of sustainable land use practices at a local or district level by assisting with extension, planning, research and training projects by landholder-based community groups, with support from State and local government agencies. Most forms of land degradation are best controlled by community members who have land management responsibilities or a concern for the local environment. People working together can find solutions through pooled resources and ideas, especially where problems cross farm boundaries. This self-help approach by locally-based community landcare groups means that on-farm structural works and tree planting are seen as landholder or local community responsibilities. NSCP funding is restricted to legitimate demonstration projects which have a wider community benefit.

2.64 *The Major Program Support sub-program* aims to overcome deficiencies at the national, State and regional levels of land management which limit the achievement of sustainable land use. The sub-program has encouraged projects aimed at filling the gaps in our understanding of land use systems and degradation processes. Multi-disciplinary and multi-agency co-ordination have been encouraged.

2.65 Activities of the major program support sub-program include:

- land resource assessment and mapping;
- land use planning;
- land degradation monitoring;
- policy and legislation reviews, multi-agency co-operation;
- workshops and conferences on national soil conservation issues; and
- demonstration of soil conservation methods or equipment.

2.66 *The Public Participation, Education and Training sub-program* focuses on increasing community awareness of and participation in soil conservation, and on developing the knowledge and practical skills of land managers in preventing and correcting land degradation.

2.67 NSCP received an allocation of $21.8 million in 1990/91 increasing to $26 million for 1992/93. Expenditure on the three sub-programs in 1990/91 was: Community Landcare Support, $7.6 million; Major Program Support, $9.3 million; Public Participation, Education and Training, $2.8 million. The remainder was used for administration of the program, and servicing of the Soil Conservation Advisory Committee (SCAC). Funds provided under the NSCP are not the total funding of landcare projects or groups. State agencies, the landcare groups themselves and other organisations also contribute substantial funds.

2.68 Research for the NSCP is now handled by the Land and Water Resources Research and Development Corporation, set up by the Commonwealth Government in July 1990.

Assessment

2.69 The NSCP was originally set up in 1983[39] to address land degradation issues. The program has been tremendously successful in many ways, but particularly in assisting the development of the Landcare movement. Over 1,000 Landcare groups now exist and these have become the focus for a wide range of activities and issues, many of which contribute, at least incidentally, to biodiversity maintenance.[40] The Committee considers that with a little more information, awareness and encouragement these enthusiastic and capable groups have the potential to contribute a great deal more.

2.70 The ERA Committee's 1989 report, *The Effectiveness of Land Degradation Policies and Programs,* dealt with this program specifically. It was that report which initiated government action resulting in the 'Decade of Landcare'. Stemming from that inquiry, and from early submissions to this inquiry, the 'One-Stop-Shop' for funding applications was incorporated into the Commonwealth component of the Decade of Landcare Plan.[41]

2.71 The One-Stop-Shop consists of a single application form, a single closing date and a single State-based selection committee for applications for funding community group initiatives under the four programs. The vast majority of people with whom the Committee has spoken considered the One-Stop-Shop to be a tremendous improvement and a step in the right direction for closer co-ordination of the programs. Nevertheless, several teething problems were identified and will be discussed in the next chapter.

2.72 The ERA Committee spends a large proportion of its time visiting agricultural and pastoral areas because Committee Members believe that the local community and Landcare groups are absolutely fundamental to environmentally sound, sustainable and

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39 Funding is now made available under the *Soil Conservation (Financial Assistance)* Act 1985.

40 *Evidence,* Canberra, 3 April, pp. 472-473; Inspections, northern NSW, WA, western Victoria and Queensland.

41 *Evidence,* Canberra 3 April, p. 468.

productive agriculture. Access to information or extension, available locally, is vitally important to these groups. It is of great concern to the Committee that some State and Territory governments are cutting funds and reducing staff in agriculture and soil conservation, particularly in regional areas[42]. The extension and support provided by these personnel to rural communities and Landcare groups is extremely important, and the Committee believes it should be available at a district, or at least regional, level.

2.73 A recent feature article by John Allwright, Vice-President of the International Federation of Agricultural Producers, also remarked on this requirement:

> The greatest need for Landcare groups is more information and advice about broad natural resource management.[43]

2.74 Concern has also been expressed that Commonwealth funding might be taking on an additional burden which the States should be covering out of normal departmental operational budgets[44]. The Committee considers that the Commonwealth funds should be in addition to and complementary to State and local government initiatives in natural resource management and should not replace the latter.

2.75 The NSCP mainly provides seed money or funds for on-farm demonstration projects, field days and whole farm planning. The general philosophy is that the funds spent on such demonstrations have extensive multiplier effects, because peers observing the value in a particular practice might undertake the same work at their own expense.[45] According to this theory, the investment in demonstrations is cost effective in promoting action by individual farmers on a broader scale. Undoubtedly these spin-offs occur; however, the Committee believes the effectiveness of such projects should be monitored to assess how many landholders actually take up the environmentally sound practices that were demonstrated. In the case of corporate landholdings, the property managers may not be able to implement projects if the owners are not willing to provide funds in the short term.[46] At a bioregional scale, therefore, valuable ecosystem processes and biodiversity benefits to production may continue to be lost.[47] In the case of a major environmental problem afflicting a particular region, a large pool of resources may need to be put into direct action to ameliorate the problem. Alternatively, some other approach may be necessary. It seems to the Committee that such options or flexibility might be useful and might have greater value in maintaining systems than demonstrations which are unproven in this regard.

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42 *Evidence*, Canberra, 3 April, p. 483.

43 *Australian Journal of Soil and Water Conservation* 5 (1), February 1992, p. 5.

44 *Submission* Nos. 55, 218.

45 *Evidence*, Canberra 3 April 1992, pp. 480, 525-526.

46 *Evidence*, Melbourne, 21 February 1992, p. 219.

47 *Informal Discussions* and *Inspections*, northern New South Wales, South Australia, Western Australia, western Victoria, Queensland; *Evidence*, Canberra 3 April 1992, pp. 468-469.

2.76 The Committee recommends:

> **(10) that the Commonwealth implement measures to assess and monitor the long-term multiplier effects of NSCP projects, particularly 'demonstrations', in rural communities on a bioregional scale, and adjust appropriate sub-program objectives and guidelines as needed to maximise the maintenance and enhancement of ecosystem processes provided by the program.**

2.77 The Committee hopes that such steps may enable some specific pro-active projects to be undertaken where appropriate. Unfortunately, through necessity, NSCP projects have tended to be mostly reactive because of serious land degradation problems. The Committee welcomes signs that this is changing, particularly through the Landcare movement, and that this is in part due to the active involvement of women in Landcare groups.[48]

2.78 In the past, the NSCP has tended to provide 'band-aid' solutions to problems of immense proportions rather than looking at causal factors in the long term (e.g. tillage practices, irrigation, clearing). However, these practices are gradually changing. The Committee offers these comments as observations, with the benefit of hindsight and current available knowledge. Nevertheless, it is clear that a more holistic approach is ultimately crucial to sustaining the ecological processes which will ensure a stable base for Australia's primary industries and ecologically sustainable development.

2.79 The witness for the DPIE in support of this view, remarked:

> ... we should be taking a system perspective on resource management, a whole systems approach.
>
> Essentially we would develop that strategy so that we have a number of tactics, if you like, in place which address the problems, regardless of whether they are land or water or vegetation based.

2.80 In a recent article, 'Towards Sustainable Agriculture', Dr Hutchinson of the CSIRO, said:

> ... land managers will need to apply an 'ecosystem perspective' if they are to meet the challenges of ecological sustainability. Management traditionally favours the grazier rather than the grazed. We have neglected the regenerative needs of the grazed plant, which is often grazed year-long and selectively. Even less attention has been given to the soil and to the organisms in it that have the essential role of recycling plant nutrients.[49]

2.81 The Committee agrees that a regional, ecosystem based approach should be the direction that all of the programs should be moving to increase their effectiveness in maintaining biodiversity and ecological processes and systems. Several submissions and witnesses recommended that the NSCP and NRMS should be refocussed to a biodiversity

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48 *Inspections*, northern New South Wales, Western Australia, western Victoria; *Evidence*, Sydney 28 February 1992, p. 336; *Submission* No. 161.

49 *Ecos* No. 71, Autumn 1992, p. 5.

emphasis which encompasses the needs of the whole ecosystem.[50] Integrated catchment management[51] and bioregional planning are two approaches which are particularly useful, but not exclusive. The Committee identified the need for land capability assessment to be undertaken to assist the development of whole farm planning and management in its report, *The Effectiveness of Land Degradation Policies and Programs.* A large number of land capability assessments have been undertaken in some areas (e.g. in NSW), however there is an urgent need for their completion elsewhere.

2.82 Accordingly, the Committee recommends:

(11) **that the NSCP retain its specific focus on soil conservation, but that the program also incorporate objectives which ensure the maintenance of biodiversity and ecosystem processes, in recognising that these underpin long term ecologically sustainable development.**

(12) **that the Commonwealth develop the whole systems approach within the NSCP as a matter of urgency and incorporate the approach in appropriate sub-programs in the Decade of Landcare Plan. This should include a community-based component in a way in which community *groups can see their essential, participatory role and* contribution within the overall plan.**

(13) **that land capability assessments[52] be completed across the entire Australian landscape as a planning tool for increased and more widespread implementation of whole farm planning within the whole systems approach and ecologically sustainable development as a matter of urgency. Assessments should be widely and locally available to promote increased usage of whole farm planning.**

2.83 The Committee believes that the Decade of Landcare Plan might also be developed to include more strategically measurable objectives. These might take the following form:

. Every rural property in Australia has prepared or adopted a whole farm plan by the turn of the century.

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50 *Submissions* Nos. 5, 9, 25, 45, 50, 62, 207, 209 and *Evidence,* Adelaide 10 April 1992, pp. 646 and 677; Brisbane 31 January 1992, p. 107.

51 For example, the 'Wimmera River Integrated Catchment Management Strategy'; *Inspection,* western Victoria, 17-18 March 1992.

52 Recommendation 3, *the Effectiveness of Land Degradation Policies and Programs,* ERA Committee, 1989.

- By 2001, bioregional management is in place across Australia in a relevant manner which is appropriate to ecosystem needs. This may take the form of integrated catchment or basin management, rangelands or arid lands management strategies and coastal zone strategies. A bioregion may incorporate more than one local government boundary.[53]

- An appropriate regional network is developed for integration 'from the ground up'. For example, from individual whole farm plans and local Landcare/community groups, projects which are also components of a catchment management plan that in turn, with a regional vegetation plan and appropriate reserve and corridor management, are essential ingredients of an integrated, complementary and holistic approach to managing the bioregion.

2.84 With reference to the need for bioregional management, a strategic management plan is needed for the semi-arid marginal lands or rangelands, which cover a large proportion of Australia.[54] There are considerable land degradation problems in the rangelands, including large feral animal populations (e.g. rabbits and goats) which are exacerbating environmental problems to a critical level. A rangelands strategy might be an important component in the implementation of a national biodiversity strategy.

2.85 Wildlife utilisation with a conservation focus has been proposed as one mechanism of decreasing the total pressure on the land and allowing some degree of ecological rehabilitation, whilst deriving a sustainable income and placing a higher value on native species for the maintenance of biodiversity.[55]

2.86 The Committee recommends:

(14) that the Commonwealth, State and Territory governments establish a working group, consisting of their own representatives and representatives of other relevant groups, to develop and implement a National Rangelands Strategy as a matter of urgency.

2.87 Consideration may need to be given to the formulation of a novel community-based program which reflects the needs of the more isolated landholders of these areas. The Committee views the rangelands strategy as a component in the implementation of a national biodiversity strategy.

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53 *Evidence,* Adelaide 10 April 1992, pp. 679-681.

54 *Submission* Nos. 65,154,161; *Evidence,* Adelaide 10 April 1992, pp. 627-628, 641.

55 *Submission* Nos. 6, 56, 76, 161, 213; *Evidence,* Brisbane 31 January 1992, p. 61; Melbourne 21 February 1992, p. 155; Adelaide 10 April 1992, p. 683.

Soil Biodiversity

The total biomass of the soil biota (most of which are microscopic) in a fertile soil may exceed 20 tonnes per hectare and its diversity may be richer than that of coral reefs.

Most groups of Australian soil organisms are not well understood even in agricultural areas where they have been most studied. There is no doubt they play a vital role in sustaining productivity of these systems. However, even less is known of the soil biota of natural Australian ecosystems.[56]

2.88 A considerable number of submissions and witnesses, in suggesting a biodiversity focus for the NSCP, were specifically concerned with the lack of knowledge of soil systems and in particular the paucity of sub-program components which targeted the maintenance of soil biodiversity (particularly the infaunal and microbial components). The soil fauna are considered fundamental to short and long-term ecologically sustainable development.[57]

> I am particularly interested in things that live in the soil. These are a very wide variety of organisms ranging from bacteria through to things like wombats, but mostly they are smaller than that. The significance of these organisms in forming soils and maintaining the soil fertility is something which soil scientists are aware of and lots of other people are, to some extent, aware of. But in fact they are the foundation of the whole life support system of terrestrial life on this planet because they are concerned with the recycling of nutrients, the restoring of oxygen to the environment, the breakdown of organic matter that falls from plans, the whole business of cycling energy and plant nutrients.[58]

2.89 The Committee refers in particular to an ESD working party report (convened by Dr K Lee, CSIRO) on *The Conservation of Biodiversity as it relates to Ecologically Sustainable Development.*[59] This report argued very strongly for the basic importance of the diversity of soil organisms in maintaining natural and altered ecosystems and vital ecological services. The Committee believes much greater emphasis must be placed on understanding and maintaining Australia's soils and soil biota if ecologically sustainable development is to become a reality, and recommends:

> (15) **that an NSCP sub-program be developed to target and support information needs and community-based action specifically in relation to the maintenance of soil infaunal and microbial diversity in recognition of its vital role in maintaining Australian ecosystems and ecological processes.**

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56 *Evidence,* Adelaide 10 April 1992; *Exhibit 10,* ESD Working Party Report - *The Conservation of Biodiversity as it relates to Ecologically Sustainable Development.*

57 *Submission* Nos. 54, 100. *Evidence,* Sydney 28 February 1992, p. 321; Adelaide 10 April 1992, pp. 646-647, 676.

58 *Evidence,* Adelaide 10 April 1992, p. 647.

59 *Exhibit* 10, Adelaide, 10 April 1992.

Murray-Darling Basin Natural Resources Management Strategy Program

Background

2.90 The Murray-Darling Basin comprises approximately one-seventh of the continent of Australia. It has a population of 1.8 million people and a further 1 million depend on its resources for their livelihood. It consists of 20 major rivers and hundreds of smaller tributaries which drain an area 1,450 kilometres long and 1,000 kilometres wide. It extends from Goolwa in South Australia to Toowoomba in Queensland and from Broken Hill to Tamworth in New South Wales.

2.91 The Basin produces about one-third of Australia's total output from rural industries. It supports 25% of the nation's cattle and dairy farms, about 50% of its sheep, lambs and crop land, and almost 75% of its irrigated land. The production derived from the Basin is valued at some $10,000 million annually. There is, however, widespread community and government concern at the extent of land degradation, deteriorating water quality, rising groundwater and loss of native flora and fauna throughout the Basin.

2.92 The Murray-Darling Basin Ministerial Council was established in 1985 in recognition of the unique importance of the Basin. The Council comprises Ministers of the Commonwealth, New South Wales, Victorian and South Australia Governments responsible for land, water and environmental issues. The Council defined the objective for managing the Basin's resources as:

> to promote and co-ordinate effective planning and management for equitable, efficient and sustainable use of the land, water and environmental resources.

2.93 In 1989, the Council announced a Natural Resources Management Strategy (NRMS). This Strategy is a blueprint for co-ordinated government and community action to tackle degradation problems and to implement planning and management programs with which individuals can identify. It seeks to accelerate action through a program of works and community education. It also provides mechanisms for ongoing planning and review of policy and legislation.

The Murray-Darling Basin Natural Resources Management Strategy (NRMS):

- aims to prevent further degradation of natural resources and to restore degraded resources;
- promotes sustainable use practices by ensuring appropriate resource use planning and management;
- aims to ensure a long term viable economic future for Basin dependents;
- aims to ensure self-maintaining populations of native species;
- aims to preserve cultural heritage and recreational values;
- promotes community and government co-operation.

2.94 The NRMS Program has two components:

- The first is the Interstate sub-program which focuses on activities that benefit more than one State. The four contracting governments fund projects dealing with the River Murray, knowledge-based activities such as strategic research and investigations, and Basin-wide policy matters and their implementation. Each government contributes 25% of the funds for this sub-program.

- The second, an Intrastate sub-program, is concerned with the planning or implementation of on-ground actions that have local and/or regional benefits within a State. This sub-program predominantly supports the activities of community groups through the Communities of Common Concern (CCCs) but may also help develop or implement regional or local policy. Projects are funded 50% by the State and 50% by the Commonwealth. Under the Intrastate sub-program, the implementation of on-ground works and measures is largely the responsibility of individuals and communities. To facilitate implementation, the Strategy provides for the recognition or establishment of CCCs. These may be existing or specifically-formed community groups which address 'common' issues, or broader issues of high priority such as land or vegetation management, management of water quality or quantity, or management of natural or historic sites of significance.

2.95 Federal government funding for 1991/92 was $18 million including approved ongoing projects funded in previous years. The indicative level of funding for 1992/93 is $19 million.

2.96 The funding is 40% interstate sub-program and 60% Intrastate sub-program with emphasis on community involvement.

2.97 Funds are available for projects dealing with aspects such as:

- aquatic and riverine, including freshwater fisheries, management;
- groundwater management;
- land and vegetation management;
- cultural and historical site management;
- native flora and fauna management; and
- community education.

Assessment

2.98 The ERA Committee was particularly disappointed that the Murray-Darling Basin Commission did not make a submission to the inquiry and did not give formal evidence at a public hearing. The Committee was briefed informally by members of the Commission, but the apparent lack of interest by a key agency administering a program referred to in the inquiry's terms of reference is of considerable concern to the Committee, as it should be also to the Government.

2.99 Dr Evans, Chair of the Community Advisory Committee of the Murray-Darling Basin Ministerial Council (CAC) and who took a considerable interest in the inquiry, described the NRMS program in the following way:

> The NRMS is a two-way agreement between government and the people in the basin. By providing a bit of what amounts to seed money, it attempts to get community groups and people within the basin to pick up a lot of the work which, traditionally, might have been expected to have been done by government agencies. In a sense, it is a partnership between government and the community in the basin.
>
> The corollary to that is that attempts are being made to pass over power to devolve a certain amount of power and capacity for initiative to people in the basin. That is one of the issues about which we are concerned. A good deal of our work has been with the various matters, such as conservation, water management, agriculture and so forth within the basin. We are very concerned with looking at how this relationship develops. I think it is developing reasonably well. It is not developing evenly across the whole of the area. In many cases there are excellent relationships in the region, but in other cases perhaps a little too much of the old top down tradition applies. That is undergoing quite an amount of change. We are not a technical expert body. Our job is to identify issues and to advise the Council. If we are expert in anything it is in the identification and ventilation of issues.[60]

2.100 The Murray-Darling Basin covers more than a million square kilometres: most of inland south-eastern Australia. The river system is one of the longest in the world. Climatic regimes vary considerably from sub-tropical in the north to the cool temperate of the south, including the Australian alps, and the moist Great Dividing Range in the east to the semi-arid west. It is not surprising that several different ecosystems occur in the Basin. A bioregional management approach within the Basin, therefore, is urgently required.

2.101 The catchment management approach, which focuses on a principal river system in an area, is moving towards bioregional management but is still governed more by local government and resource use, than by biodiversity and ecological sustainability criteria. In addition, catchment management techniques are not applicable in the more marginal or semi-arid areas.

> I think the catchment management approach is really one of harnessing the local activities and, I suppose, coordinating them to some extent. The difference from what went before under local government auspices, say, or under State lead agencies is that it does tend to be based on a geographically natural unit, so that people in the river basin tend to be

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60 *Evidence,* Canberra, 27 March 1992, p. 422.

gravitating towards the same towns, the same football teams or the same cultural activities - whatever they are. I think it is just a question of harnessing that local activity but by use of a sort of regional viewpoint and forums which are regionally based to make people more aware of what other people are doing.[61]

2.102 The need for an ecologically based regional approach to planning, and for scientific management in the NRMS program and by the Murray-Darling Basin Commission was emphasised in several submissions[62] and by witnesses[63].

2.103 In the Basin, community works funded by NRMS are undertaken by CCC groups. Mr Tukian (CAC) provided up-to-date information on these groups:

> ... our submission referred to approximately 150 communities of common concern. In the last year - just to bring the figures up to date with our survey or our review - we have about 230 in place approximately. One of the needs, particularly in New South Wales which takes up a very large area of the basin, is to have support for those total catchment management committees which have essentially been established in the top down process that our Chairman explained and, if supported, have tremendous potential for disseminating and building knowledge in broadening the concept of biodiversity.[64]

2.104 One excellent example of community group involvement in research on riverland native fish is worthy of reproduction. The example also highlights other issues with respect to facilitation, education and the dispersal of relevant knowledge for effective community group action. This experience was related to the Committee by Mr Pierce, of the South Australian Department of Fisheries, who spoke of the involvement of community groups in evaluating the status of, and attempting to restore, Murray riverland native fish species.

> ... During the project we have received massive amounts of community support in the form of volunteers who have been more than happy to assist us. In fact, we have had to turn away large numbers of people who wanted to help. Also, we have seen people take some of the ideas we have had and want to spin those into community of common concern projects.
>
> Our perceptions from the time that we have spent dealing with the communities primarily in the Riverland are that there are a few problems in actually making all this happen. One is that within the NRMS biodiversity is simply not a key issue at this stage. It does not seem to be one of the measurable outcomes of success. In our submission we highlighted that in terms of how little it was actually mentioned even though it is a natural resource management scheme. That is not to say that the NRMS is in any way a bad direction. I just think that, if you folks are concerned about biodiversity, you are going to have to make your point through those funding groups.[65]

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61 *Evidence,* Canberra, 27 March 1992, p. 424.
62 *Submission* Nos. 4, 5, 9, 62, 65, 79, 105, 161, 165, 195, 207.
63 *Evidence:* Canberra, 27 March 1992, pp. 420, 423-424; Canberra, 3 April 1992, pp. 525-526, 535.
64 *Evidence,* Canberra, 27 March 1992, p. 422.
65 *Evidence,* Adelaide, 10 April 1992, p. 582.

2.105 This example[66] shows that there is tremendous merit and potential in the involvement of 'grass roots' community groups with scientists. It also highlights the need for NRMS program funding to have an overall biodiversity focus (see paragraph 2.81). This concern was also raised in submissions[67] and in evidence[68].

2.106 Other issues raised in submissions and evidence in relation to NRMS suggested further development of the already very good information and public awareness program. They stressed the need for education programs in schools and for community participation and the need for clearly readable language in all program material and information.[69] These concerns also apply to the NSCP program and, to a lesser degree, the other Commonwealth programs. They are discussed in more detail in the following program.

2.107 The Committee also recognises that the NRMS program has greater potential to contribute to projects run by Aboriginal communities, specially in the areas of revegation, restoration and cultural heritage management.[70] Although the Murray-Darling Basin covers three-quarters of Aboriginal land in NSW, communication with Aboriginal people has sometimes been lacking. The Committee suggests a more personal approach and consultation with Aboriginal communities is required.

2.108 In conclusion, the Committee identifies the particular requirements for development of the NRMS program, as with NSCP, to be the need for clear biodiversity objectives, wide-spread scientific facilitation of projects and revised easy to understand language for printed information and education materials. The Committee also notes that there is duplication of funding through NRMS for projects within the Murray-Darling Basin, which are available also through the other programs.

2.109 Accordingly, the Committee recommends:

> **(16) that the Commonwealth through the Murray-Darling Basin Commission revise and refocus the NRMS program with specific objectives for the maintenance of biodiversity and ecosystem processes, and Aboriginal cultural and natural heritage. This process will require closer consultation with all community-group representatives, including Aboriginal communities, in the Murray-Darling Basin.**

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66 See also, *Submission* No. 47.

67 *Submission* Nos. 9, 47, 65, 105, 140, 165, 203, 207.

68 *Evidence:* Canberra 27 March 1992, p. 423-424; Canberra, 3 April 1992, p. 525-526, 535, 548; Adelaide, 10 April 1992, pp. 582, 596-597, 677.

69 *Evidence,* Adelaide, 10 April 1992, p. 600; and *Inspections,* Murray Bridge, SA, 11 February 1992.

70 *Submission* No. 203.

2.110 A serious concern which the Committee feels might be addressed by the Murray-Darling Basin Commission or the Commonwealth is the low, and falling, level of funding to the Murray-Darling Freshwater Research Centre (MDFRC). The aim of the Centre is to provide a reliable scientific basis for the sustainable management of surface waters and aquatic ecosystems in the Murray-Darling Basin. One extremely important research area undertaken by MDFRC, and one which is of considerable concern to the wider community, is into the prediction, causes and management of blue-green algal blooms. The MDFRC also maintains an analytical chemistry laboratory, a reference collection of the known flora and fauna of the Murray-Darling Basin and is building an up to date bibliography of the aquatic ecology of the Basin. Such work is vital to the long term ecological sustainability of the Basin. The Committee believes that the Centre is under resourced now, with a current budget of $2 million, however, the Members are particularly concerned that the MDFRC is facing funding cuts of more than $600,000 over the next two years. This is an unacceptable situation for the institution which undertakes research on one of the worlds largest river systems, an area encompassing a large part of five States, and which has a total annual production estimated to be $10 billion.

CHAPTER 3. IMPLEMENTATION, CO-ORDINATION AND MANAGEMENT

A Bioregional Approach

3.1 A recurring theme in the views put to the Committee is the overwhelming need for a regional approach for the planning, co-ordination and implementation of the programs through 'on the ground' community projects.[1] This issue was raised in Chapter 2 in the discussions on the individual programs. Mr Forbes' summary encapsulates the feelings expressed by other submissions and witnesses:

> ... at present we tend to have an ad hoc collection of projects which are going out through the Save the Bush Program and NSCP, Murray-Darling and Greening Australia. To put community action into a broader regional framework, it needs some form of planning. I guess our vision is that these corridors and linkages have to be created through a regional planning process, so that people can understand the context which their individual projects lie within, and the sort of longer term objectives and vision, so they can actually see their activity on the ground in the longer term and how that it will actually link up into a bigger picture.[2]

3.2 A regional planning focus is required to address management, administrative and community information needs for program delivery and implementation of local community action in maintaining biodiversity and ecological processes. Bioregions might be identified by their bio-geomorphological attributes (e.g. soils, geology, topography, flora, fauna, climate profile, elevation, catchment patterns). On a broad scale the regions may be identified through compilation of existing data sets and assessment of multi-layered data by state-of-the-art geographic information systems such as ERIN and NRIC. The Committee wishes to emphasise the importance of understanding bioregions as ebb and flow entities; that is, without real boundaries. The various levels of ecological processes and the 'web of life' are not restricted and have effects on adjacent areas as well as those farther afield. Time and space scales (e.g. evolutionary histories of plants and animals) makes the determination of biogeographic provinces more complex.

3.3 The effectiveness of the community-based programs would be greatly increased, as well as becoming more meaningful and rewarding to individual community groups, if their remnant vegetation projects, revegetation work, whole farm planning, monitoring and control of water tables and catchment management were undertaken through a bioregional planning and management framework.[3] The distribution of populations or

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1 For example, *Submission* Nos. 9, 11, 25, 45, 47, 50, 62, 104, 116, 207, 212, 217.

2 *Evidence,* ANPWS, Canberra, 3 April 1992, p. 536.

3 *Evidence,* Melbourne, 21 February 1992, p. 270; Canberra, 3 April 1992, p. 536; Adelaide, 10 April 1992, pp. 680, 683.

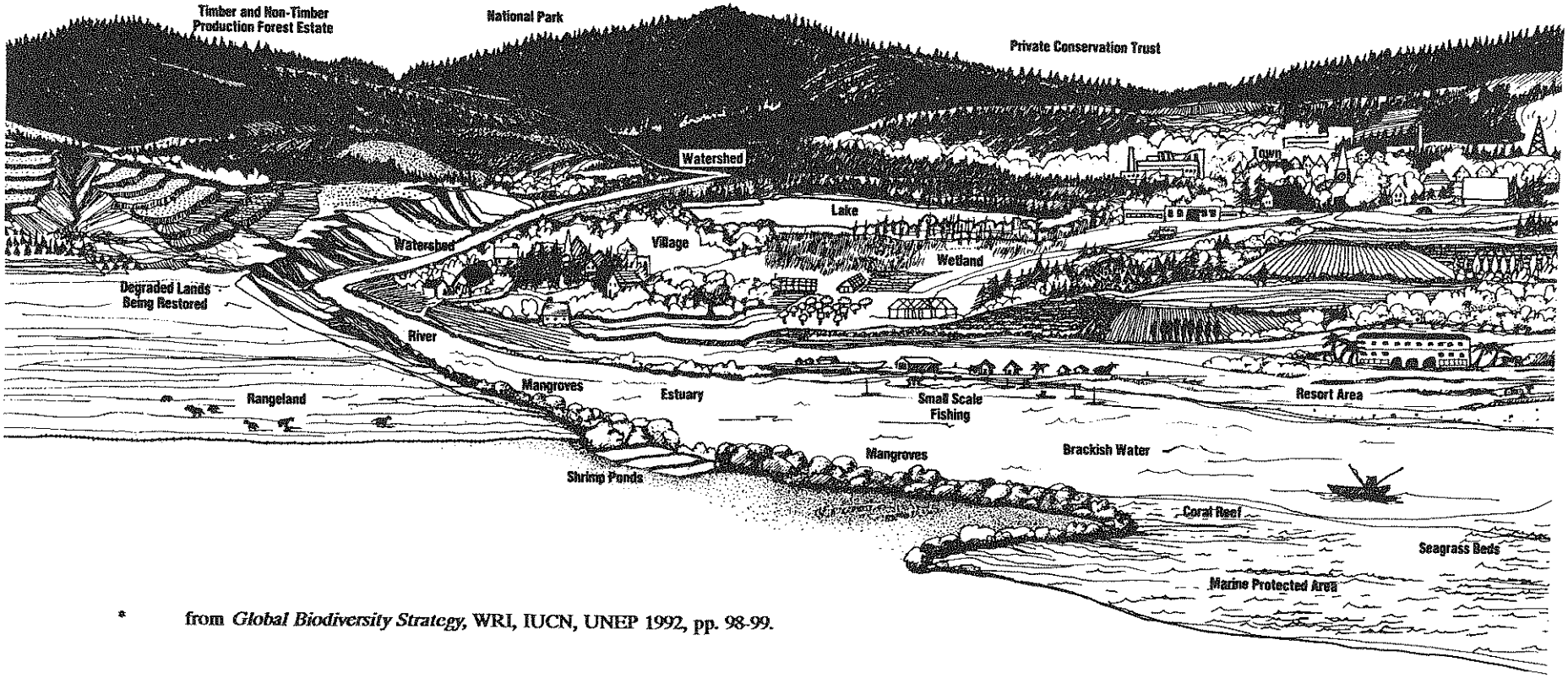
communities, represented by local government structures, will also influence bioregional planning and management. The Committee believes that consideration of the best use of these important local social attributes must be included in the bioregional planning framework.

Elements and Dynamics of a Bioregion[4]

- Watersheds are managed in their entirety, from ridgetop to blue water, and across a range of uses from strictly protected uplands to estuarine fisheries.
- Coastal and marine areas are managed to conserve key coral reefs, mangroves, beaches, and other elements, maintain fisheries' productivity, and provide local economic opportunities through carefully managed tourism development.
- Degraded lands are restored for a variety of uses, including soil and water conservation, coastal protection, timber production, agriculture, pasture, and for National Parks.
- Rangelands are managed within their carrying capacity to maintain native flora and fauna, raise livestock and ensure the livelihoods of Aboriginal people.
- Agricultural lands are managed to optimise long-term productivity and support biodiversity by minimising use of chemical pesticides and fertilisers, using local as well as introduced crop varieties, and including native trees, remnant and rehabilitated vegetation and wildlife corridors within the agricultural landscape.
- A variety of protected area types are used in a bioregion: strictly protected nature reserves; national or state parks; areas for the controlled extraction of non-timber forest products; privately owned conservation areas; and areas of permanent forest estate managed for timber production.
- A range of community-based institutions support biodiversity conservation, including seedbanks, agricultural extension services, and biodiversity assessment and research stations.
- Larger towns within the bioregion provide a range of supporting institutions. These include zoos, aquaria, and botanic gardens to conserve and re-establish endangered species and educate the public; schools, places of worship, and media outlets to build awareness; non-governmental organisations to provide support and information for both communities and government; and One-Stop-Shop biodiversity information centres to serve as a focal point for bioregional dialogue, information sharing, and collective action.

[4] Adapted from the *Global Biodiversity Strategy*, WRI, IUCN, UNEP 1992, pp. 98, 99.

BIOGEOGRAPHIC and CULTURAL FEATURES of a BIOREGION*



* from *Global Biodiversity Strategy*, WRI, IUCN, UNEP 1992, pp. 98-99.

3.4 Broad biogeographical provinces or bioregions can now be identified using specific sets of defined attributes such as those mentioned above. These bioregions should serve the national interest at the continental scale. Accuracy of various subsets of the data is weak at the bioregional scale, however, and extensive surveys are required. The most serious gaps, often total ignorance, relate to invertebrate animals and non-vascular plants.[5] Both of these groups are represented by huge numbers of, mostly unknown, species.

3.5 In this regard, increases in effort and resources are required for taxonomic work to document Australia's biodiversity.[6] The availability of this information would greatly decrease development uncertainty, and provide the means for sensible resource use decisions.[7]

3.6 The Australian Biological Resources Study (ABRS) is presently attempting to document Australia's known flora and fauna, and supports research to identify the unknown. Such an enormous task can be expected to take some time. However, available funds and the paucity of available, trained taxonomists are also limiting factors. Biological surveys, therefore, should be specifically directed to the needs of a bioregional planning framework to be of maximum benefit to the community-based programs. What is required will depend upon the information necessary for bioregional planning and management. Once the bioregional framework is established, biological surveys and environmental monitoring can be adjusted in the light of new or altered information.[8]

3.7 Local community groups within a bioregion would have the opportunity to understand how their bioregion is defined, how it differs from other bioregions and to identify the parameters along which co-operation, integration and co-ordination of their projects may proceed.

3.8 The Committee understands that some States are considering biogeographic regions in some areas at the present time, but believes the greatest benefit will accrue if the approach is developed across the entire continent (as well as the marine exclusive economic zone). Furthermore, the Committee considers a bioregional, whole ecosystem approach is necessary for the implementation of a national biodiversity strategy. Co-operative arrangements should be established where bioregions overlap State or Territory boundaries. ANZECC might be the appropriate body to co-ordinate the establishment of a framework of bioregions across the States and Territories.

3.9 Local government and local community needs should also be considered in the identification of bioregions. The 'Environment Round Table' being developed by the Australian Local Government Association is an excellent initiative and the Committee believes it could play a valuable role in bioregional management strategies.[9] A regional

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5 *Submission* Nos. 4, 5, 6, 9, 25, 47, 50, 77, 79, 104, 116; *Evidence,* Adelaide, 10 April 1992, pp. 553-555; *Fauna of Australia,* Volume 1A.

6 *Evidence,* Brisbane, 31 January 1992, pp. 24-26; Melbourne, 21 February 1992, p. 203; Adelaide, 10 April 1992, p. 608.

7 *Submission* Nos. 165, 211; *Evidence,* Brisbane, 31 January 1992, pp. 24-26.

8 *Submission* Nos. 4, 79, 161.

9 *Submission* No. 217 and attachment, *'The Environment Round Table'*, Report of Activities 1990-1991.

plan or strategy may include one or more integrated catchment management strategies as is appropriate through bioregional assessment.

3.10 The Committee recommends:

> (17) **that a bioregional framework be established across the continent for the planning and management of all environmental and natural resource programs. The bioregions should be established through collaboration with all levels of government.**

3.11 There is a sense in which recent initiatives, the evolution of natural resource management practices, and the engagement of community support and action has caught up with the Murray-Darling Basin program. Apart from an education and awareness program specific to the Basin, the NRMS projects are, in general, covered by the other three programs being examined during the inquiry, plus the Federal Water Resources Assistance Program and the Contract Employment Program for Aboriginal people in Natural and Cultural Resource Management.

3.12 Although the Murray-Darling Basin approach was the first initiative to develop broad scale regional planning, it can now be seen that it does not go far enough. In addition the NRMS program provides a second source of funding which duplicates the other programs which have evolved and been implemented on a national scale. If all the latter programs, each with a specific focus within broad biodiversity objectives, are co-ordinated and implemented under bioregional planning and management strategies right across the continent, the inevitable redundancy of the NRMS program can be seen. The Committee considers that at the time bioregional planning and management is implemented, NRMS funds should be divided evenly between the aforementioned programs so that assistance to community-based groups is not decreased either within Basin bioregions or in bioregions outside this area.

The One-Stop-Shop

3.13 In response to concerns raised early in the inquiry, and in the development of the Commonwealth component of the Decade of Landcare, a One-Stop-Shop was introduced to integrate and streamline the application process for the four programs under examination. Funding under this new arrangement will commence in 1992/93. The One-Stop-Shop consists of a single application form, single closing date and a single State-based selection committee. In general, the Committee found that there was wide-spread acceptance of the One-Stop-Shop as a very positive step forward. There was also general acknowledgment that various teething problems were inevitable. The Committee strongly supports the One-Stop-Shop initiative, but wishes to make some specific, constructive suggestions in the light of concerns that have been identified since its implementation early in 1992.

3.14 A proposal was made to the Committee that all of the programs should be amalgamated as a single funding source administered by a single, distinct department.[10] The proposal has considerable merit with regard to rationalisation of administrative costs, and co-ordination of a holistic approach. Nevertheless, most submissions and witnesses supported the separate identity and focus of individual programs and departments as a healthier, more open and publicly accountable way in which environmental and primary industry objectives could be addressed.[11] One submission made the point that no single funding body is able to set national priorities and therefore supported a number of programs, concluding that 'the diversity of funding is essential'.[12] Another suggested that targeting specific environmental aspects, without duplication, is one way of ensuring that limited funds are used appropriately within broad areas of a defined national strategy.[13]

3.15 A holistic approach may be achieved by retaining the separate programs, refocussing objectives and increasing co-ordination and integration so that all the programs are complementary and are implemented as part of a whole ecosystem, bioregional strategy. To provide a focus for complementary implementation and management, each program must have as its principal objective, the maintenance of biodiversity and ecosystem processes. As mentioned in Chapter 2, there is a particular need for the NSCP and NRMS programs to recognise that biodiversity underpins the maintenance of life processes, especially the functioning of whole systems. This includes all natural resource primary industry production (e.g. pastoralism, agriculture, fisheries).

3.16 Accordingly, the Committee recommends:

> (18) **that the One-Stop-Shop be further developed so that each program's specific focus is complementary to every other one, without overlap, and each has a single, over-riding principle - the maintenance of biodiversity and ecological processes.**

3.17 The Committee believes that the government should act quickly to refine the One-Stop-Shop in a number of key areas relating to the four programs. Community enthusiasm and commitment is likely to be enhanced without loss of 'ownership', but with a greater feeling of contributing to a larger goal as well. The ERA Committee suggests that compatibility between all programs be re-assessed on a periodic basis.

3.18 One particular problem of incompatibility and inconsistency between the OBT program and NSCP is shown in the 1992/93 guidelines for applications for community group projects and NSCP funds.[14] These guidelines state that the first objective for the OBT program is:

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10 *Submission* No. 212; *Evidence,* Brisbane, 31 January 1992, pp. 50-54.
11 For example, *Evidence,* Canberra, 3 April 1992, pp. 474-475, 533.
12 *Submission* No. 61, p. 188.
13 *Submission* No. 103.
14 *Submission* No. 178 and *Evidence,* Canberra, 3 April 1992, pp. 475, 476, 479-481.

to sustain and improve the productivity of soils by reducing wind erosion, water erosion and salinity and by increasing biological activity.[15]

3.19 The Committee considers such guidelines to be more appropriate to the soil conservation program (NSCP) than as a primary objective of OBT. In contrast, the NSCP booklet, *Guidelines for grant applications for other than Landcare group projects 1992/93,* [16] states that a grant *cannot* be used for 'tree planting for soil conservation purposes unless it is a bona fide demonstration project'. In the next section of the guidelines,[17] eligibility for funding is generalised, but does not appear to include tree planting to combat soil degradation problems. The Committee is concerned that OBT might be used extensively for soil conservation purposes, which should be funded by NSCP funds in recognition of the purpose of that program.

3.20 Accordingly, the Committee recommends:

(19) that tree planting projects specifically aimed at redressing soil conservation problems be funded by NSCP, rather than OBT and that appropriate additional resources be provided.

3.21 NSCP funds could be used to contract GA or other appropriate bodies as consultants, or to undertake tree planting works (e.g. direct seeding) associated with soil degradation. The OBT funds could then be focussed on landscape rehabilitation and revegetation, particularly linking remnant bush, establishing corridors and stream riparian vegetation. The Committee considers that GA's present vision in terms of corridors, catchments and ribbons of green is developing in this way and has further potential. The STB program and OBT have tremendous potential to complement each other, especially in a bioregional planning framework.

3.22 Considerable confusion has arisen in the community through the way in which programs under the One-Stop-Shop were advertised, and also through the program literature and guidelines. The Committee is concerned that advertising occurred under the NSCP Landcare banners rather than highlighting the four programs or the availability of funding for community-based groups. Wording of the advertisements, application forms and guideline booklets has led to further confusion in the first year (1992/93) of the One-Stop-Shop arrangement.[18]

3.23 A recent survey of a range of community groups in Western Australia summed up comments on the application form as 'needs major rethinking'; 'people find the form difficult, it's certainly not user-friendly'. Program co-ordinators also found the standard of applications was lower, but also more difficult to assess. These difficulties were also attributed to the application form.[19]

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15 1992-93 Guidelines for Community Group Applications to the National Landcare Program, p. 16.

16 Under; '2. Major program support sub-program', p. 7.

17 Public participation, education and training sub-program, p. 9.

18 *Submission* Nos. 55, 65, 75, 103; *Evidence,* Brisbane, 31 January 1992, p. 117, Canberra, 27 March 1992, p. 421, 3 April 1992, pp. 477, 524-525; GA (WA) in correspondence, 11 May 1992.

19 GA (WA) *Results of community group surveys,* in correspondence, 13 March, 11 May 1992.

3.24 Discussions with local community groups and facilitators confirmed these views.[20] Notwithstanding these concerns, the majority of people with whom the Committee spoke felt the new arrangements and application form were a great improvement over previous arrangements. The community-based programs and the One-Stop-Shop have the potential to play an important and valuable role in a co-ordinated strategy for each bioregion. The relevant government agencies should act quickly to further improve advertising, the language of guidelines and application forms, and the timing and compatibility of objectives and guidelines.

3.25 Accordingly, the Committee recommends:

(20) **that on-going integration and streamlining of the application process for all programs through the One-Stop-Shop continue as a matter of urgency. Specific issues which should be addressed prior to the 1993/94 application round include:**

i) **an adequate, straightforward advertising campaign which clearly identifies all programs for funding community-based activities;**

ii) **further development of a user-friendly application form designed also to provide adequate information to assessors; and**

iii) **complete revision of the language and layout of the guideline booklets in close consultation with a variety of community groups including Aboriginal representatives.**

3.26 Timing of applications and the release of funds and limitations of yearly funding cycles to long-term planning of projects is a further problem with the One-Stop-Shop. There is a particular concern with the timing of applications for revegetation projects but also for NSCP, Landcare, STB and NRMS projects for which preparations need to be made, or the project implemented in a particular season.

3.27 In the current application round, concern was expressed to the Members during inspections to the southern States and Western Australia, about the timing for applications. In the case of revegetation projects, the length of time before planting is considerable because applications for 1992/93 closed on 27 March 1992, yet funds are not likely to be available before October 1992. Either a season is lost or applications for winter or spring projects would need to be made 18 months to 2 years in advance.[21]

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20 *Inspections,* Northern NSW, 23-24 January 1992; South Australia, 11 February 1992; Western Australia, 9-10 March 1992; western Victoria, 17-18 March 1992; central Queensland, 12-13 May 1992.

21 *Submission* No. 207; *Evidence,* Brisbane, 31 January 1992, pp. 75,117; Canberra, 3 April 1992, p. 525; GA (WA) *'Results of community group surveys'*, in correspondence 13 March, 11 May 1992.

An additional complication caused by the timing of applications has been the dislocation of Commonwealth One-Stop-Shop timing with that of the complementary States' programs. It is essential that the programs, including the administrative components, meet the needs of community groups and facilitate their 'grass roots' initiatives.

3.28 The Committee believes that these concerns might be addressed through a system of flexible, long-term funding arrangements, and by having closing dates for applications which suit seasonal requirements of the community groups to undertake the projects.

3.29 Accordingly, the Committee recommends:

(21) **that the Commonwealth develop timetables for the One-Stop-Shop application process and distribution of funds which best serve the needs of community groups to undertake projects on a seasonally and ecologically sound basis to maximise success, and to complement State and Territory government programs. Four timetables should be developed to adequately reflect project implementation needs in the State/Territories as follows:**

i) **Queensland and the Northern Territory;**

ii) **New South Wales and the Australian Capital Territory;**

iii) **Victoria, Tasmania and South Australia; and**

iv) **Western Australia.**

3.30 The staggering of the application timetables across the continent should lead to further efficiency gains and streamlining. The Commonwealth end of the funding cycle, in particular, will be able to become more efficient because there will not be a large build-up of paper work for funding requirements all at one time.

Taking a long term view

3.31 Most people plan, budget for, and undertake various works on their cars and homes to maintain them for many years of good service. Although biological diversity and ecosystems are dynamic, we need to maintain their capacity to provide for human needs now and in the years to come and to keep options open for future generations. Such reasoning is quite logical from an ecosystem view point also, as ecological process are slow and continual over long periods of time. Therefore, to maintain the services nature provides (e.g. nutrient cycling, productive soils, carbon and energy fixation, purified water and clean air), there is no option but a long term view.

3.32 To be effective, the planning, preparation, implementation and ongoing management of community-based projects undertaken through any of the four Commonwealth funded community-based programs should also take a long term view.

A number of submissions[22] identified the need for long term ecological monitoring, and the concurrent need for project funding to be for a longer period.

3.33 The NSCP and the NRMS program both have some provision to fund projects for up to three years, but these are usually salary related (e.g. Landcare group co-ordinator). The STB and OBT programs fund projects for one year. The Committee considers that, to be complementary and co-ordinated in delivery, the programs should have the same funding periodicity for projects.

3.34 Many submissions[23] also emphasised the need for long term funding commitments and suggested that short term funding is likely to decrease the effectiveness of individual projects, or lead to ill considered implementation, a lack of planning and little follow up management or monitoring. This may actually have a detrimental effect on biodiversity whilst using funds inefficiently and frustrating well meaning, enthusiastic community volunteers. The ERA Committee feels that flexibility is the key to funding a diverse range of community-based projects which aim to maintain biodiversity and ecosystem processes.

3.35 At hearings and on inspections the Committee asked community members if 3-5 year funding cycles would be more appropriate to address requirements for long term biodiversity objectives. There was unanimous support for this proposal, and general agreement that funds should be available for long term rolling programs. One witness felt that five years was the minimum required for the pastoral or semi-arid regions of Australia where regeneration is slow and distances are vast.[24] Other witnesses[25] considered funding for up to 3 years with the real possibility of an additional 2 years funding would assist enormously and would encourage continuity of projects. Ongoing funding should be contingent upon satisfactory progress towards implementing a strategically planned project. Continuity of projects for a realistic term which recognises ecological constraints may then be possible.

3.36 The following comments by Mr Swinton, of the Blighty Tree and Salinity Group, summed up the broad support for the proposal:

> I think it is a good idea, especially since it takes 18 months to get the funding in the first place. We applied for three years of funding and were given an approval in principle for three years, but we had to reapply each year. I cannot see anything wrong with that because that keeps people on their metal. If you know that you have got guaranteed funding for three to five years, there is not quite the urgency to make sure every year's operation is done as efficiently as it can be; whereas, if you have been given an approval in principle for three years or five years funding, with each year's continued funding dependent upon the satisfactory results of the preceding year, then it provides an incentive for people to get their act together quickly and keep the ball really rolling in the early stages.[26]

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22 *Submission* Nos. 5, 6, 7, 9, 45, 47, 50, 60, 61, 62, 79, 103, 104, 105, 116, 161, 176, 207, 212.

23 *Submission* Nos. 5, 6, 7, 9, 45, 47, 50, 60, 61, 62, 79, 103, 104, 105, 116, 161, 176, 207, 212.

24 *Evidence,* Adelaide, 10 April 1992, p. 641.

25 *Evidence,* Brisbane, 31 January 1992, p. 75; Melbourne, 21 February 1992, pp. 182, 250, 234; Sydney, 28 February 1992, p. 358; Canberra, 3 April 1992, p. 482; Adelaide, 10 April 1992, pp. 593-594.

26 *Evidence,* Sydney, 28 February 1992, p. 358.

3.37 Accordingly, the Committee recommends:

> (22) **that the Commonwealth establish project funding provisions for 3-5 year rolling programs for the four community-based programs. Each program should allow applicants to apply for approval in principle, for up to 3 years funding, with the possibility of extension to a maximum of 5 years. Continued funding should be made contingent on annual reporting or other assessments of satisfactory progress.**

3.38 The Committee believes that 3-5 year project funding will not only enhance community effectiveness and enthusiasm to address biodiversity objectives, but will also allow for the strategic planning of long term public education and awareness programs.

Local Facilitation and Co-ordination

3.39 In general, for projects to be successful, it is vital that a sense of community 'ownership' is engendered and that the 'ground up' initiative is maintained. The Landcare movement (NSCP) and Communities of Common Concern (NRMS) are excellent examples. This important characteristic of effective community-based programs is now well established and this fact was reinforced by many submissions, witnesses and on the ERA Committee's inspections throughout the inquiry.

3.40 However, for biodiversity objectives to be met in the long term, and to maximise cost effectiveness, it is important to ensure that sound scientific principles are followed and community groups are encouraged to seek scientific input to the strategic planning and implementation of their projects.[27] It is also imperative that scientists make themselves available and accessible to community groups and convey information in lay person's language. It has been the Committee's observation that many community groups actively seek relevant information, but with varying degrees of success.

3.41 The Committee believes that local facilitation enhances effectiveness in three main ways. Firstly, community ownership is maintained and the facilitator or extension officer is living and involved in the local community.[28] Secondly, a person with general scientific or technical training as well as training in extension will be able to break down barriers of scientific language, build networks and access information for community groups, as well as generally increasing public awareness in the local community simply by being part of it.[29]

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27 *Submission* Nos. 6, 7, 11, 15, 25, 26, 47, 50, 60, 61, 62, 65, 66, 75, 76, 79, 105, 116, 140, 144, 161, 167, 178, 188, 211.

28 *Inspections,* northern NSW, 23-14 January 1992, Western Australia, 9-10 March 1992; western Victoria, 17018 March 1992.

29 *Inspections,* northern NSW, 23-14 January 1992, Western Australia, 9-10 March 1992; western Victoria, 17018 March 1992.

3.42 Mr Swinton made the following comment:

> I would just like to restress again the importance of things being grassroots based and that, if you want to put in technical knowledge, the way to put it in is within the sphere of trained extension. Getting scientists to work with the community group is great as long as you have got someone there who can interpret, because there is a communication problem between farmers and technologists or technocrats: they just do not speak the same language.[30]

3.43 Thirdly, locally based facilitation can implement effective co-ordination across the four programs to ensure that components of the bioregional plan are addressed.

3.44 The Committee believes that properly resourced extension services are urgently required. Such a service can make the link between research scientists and local community needs as required, as well as maintaining co-ordination and complementarity across programs with a view to the effective 'ground up' implementation of the bioregional strategic plan. It follows that facilitation, extension and co-ordination is best done at the local level.

3.45 Another valuable point was raised in evidence; the need for some kind of career path and continuity for facilitators and extension officers. Mr Day, of the United Farmers and Stockowners Association of South Australia commented:

> The continuity of projects is an important problem. I have probably had more experience with it on the land care theme, but I am sure the same principles will apply in save the bush and those areas as well. We have seen, where the project may be a three-year project, that getting into the start of a third year, operators, naturally enough, are starting to wonder about what their employment might be next year. So there is a tendency to start to look for greener pastures. I think that is an inherent problem with a short term program. By the same token, I see a lot of benefit in having contracts, more or less, on programs and contracts on employment to ensure that you are getting the best use of your money. I really do not know what the appropriate answer is but if there were some way of having a commitment to possible career progression for staff, so that they were not encouraged to turn over as quickly as the programs do, it would certainly help the implementation of programs in the long term.[31] ...
>
> I see a real need though for more or less executive assistance to the communities to deal with those problems. There is a need for funded positions to be made available to the local community to use at their discretion to achieve things like the actual implementation of ESD and biodiversity principles on the ground.[32]

3.46 The Committee reiterates its concern that district extension services (particularly soil conservation) appear to be undergoing severe cutbacks by State/Territory governments. At the same time, it has been put to the Committee that the Commonwealth may be providing funds, particularly through NSCP and NRMS, that State governments are using for departmental/administrative expenses.[33]

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30 *Evidence,* Sydney, 28 February 1992, p. 358.
31 *Evidence,* Adelaide, 10 April 1992, p. 675.
32 *Evidence,* Adelaide, 10 April 1992, p. 680.
33 *Submission* Nos. 55, 218; Inspection, Queensland, 12-13 May 1992.

3.47 The Committee recommends:

> (23) **that the Commonwealth improve funding arrangements and guidelines through the State/Territory governments to ensure appropriate levels, use and direction of funds. Particular attention should be given to the NSCP and NRMS programs. The fundamental criterion should be to maximise on the ground activity, at a local or regional level.**

3.48 Clearly, a much greater effort needs to be made to facilitate extension of management research information to landholders as well as providing access to scientific knowledge and advice. In order to continue the integration and co-ordination of all programs at a regional level, the Committee recognises the need to provide resources for appropriately trained facilitators/extension officers to bring the One-Stop-Shop to the grass-roots level where community groups are active.

3.49 One Stop information centres have proven very effective in places where they have already been established (e.g. Hamilton, Victoria; Armidale, New South Wales). The value of local facilitators/extension officers to community groups has been observed by the ERA Committee in many places, but most recently in the Nhill-Kaniva district of the Victorian Wimmera.[34] The Shire of Kaniva received the local government award at the 1992 National Landcare awards.

3.50 The Committee believes that a network of locally placed facilitators should be established across the country. These people must be able to represent and provide information and advice on all natural resource community-based programs, as well as run local or regional public education programs. It is envisaged that such 'biodiversity program facilitators' would also play an important role in the local/bioregional implementation of a national biodiversity strategy. They would provide the much needed link to implementing the action behind the axiom, 'Think globally, act locally.'

3.51 In responding to these needs, the Committee recommends:

> (24) **that the Commonwealth and State/Territory governments collaborate to establish and resource a national network of biodiversity programs facilitators, so that, in each bioregion, an appropriately qualified facilitator is based locally to provide ongoing information support, technical advice and scientific extension to community-based groups on all natural resource programs.**

3.52 It was put to the Committee during inspections at the Macquarie University Research Unit for Biodiversity and Bioresources, that the establishment and funding of a 008 telephone number for scientific and technical advice would provide a very accessible and cost efficient tool for extension officers and community groups. The ERA Committee believes the idea has tremendous merit in extending access to up to date technical and scientific information to the national facilitation network.[35]

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34 *Inspection*, western Victoria, 17-18 March 1992.

35 *Inspection*, Macquarie University, Sydney, 20 May 1992.

Aboriginal Involvement

3.53 The significance and fundamental importance of the involvement of indigenous people in any strategy to maintain biodiversity and the earth's ecosystems is now gaining broad recognition.[36]

3.54 During the course of the inquiry, it became clear to the Committee that, in contrast to much of the Australian public, most Aboriginal Australians have a good understanding of biodiversity and the 'web of life'.[37] One reason for this is the very close cultural ties of Aboriginal people to the Australian environment over a very long period of time.[38] Despite this, governments of all levels have been slow to seek the advice of Aboriginal people and there seems to have been little direct communication with Aboriginal communities about most of the programs.[39]

3.55 Aboriginal people control over 14% of the Australian mainland. Most of this area is arid or semi-arid and much of it is now degraded from over grazing. The ERA Committee concurs with the feeling of several submissions and witnesses, that there is considerable scope for:

- adjusting existing programs to enable greater access and support for Aboriginal land management;

- providing greater support for land management programs specifically developed by Aboriginal people for Aboriginal communities.[40]

3.56 The Committee was particularly concerned to hear that some Aboriginal Land Council's rural properties have not been given serious consideration for Landcare, NSCP or NRMS funds in some instances, yet these are very enthusiastic community groups with a genuine caring ethic for the land which they have re-inherited, often in a degraded state and are now attempting, to make a living from it.[41]

3.57 Aboriginal communities are particularly interested in the STB and OBT programs, but again have not had access to the programs because of a lack of information and difficulties with the application forms. This may partially have been overcome with the One-Stop-Shop initiative, but further revision of the application process, in consultation with Aboriginal people is warranted. The ANPWS agreed that more could be done:

> In terms of Aboriginal involvement, I think the individual programs under the four programs you have been looking at, including Save the Bush and One Billion Trees, have

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36 *'Economics and Biological Diversity'* 1988, J McNeely, IUCN; *'Global Biodiversity Strategy'* 1992, WRI, IUCN, UNEP; Draft *'National Strategy for the Conservation of Australia's Biodiversity'* 1992, BDAC.

37 *Evidence,* Sydney, 28 February 1992, Committee Chair, p. 370.

38 *Evidence,* Sydney, 28 February 1992, NSW Aboriginal Land Council; Canberra, 3 April 1992, ANPWS, pp. 537 - 538; Adelaide, 10 April 1992, SA NPWS, p. 573.

39 eg. *Evidence,* Canberra, 30 April 1992, GA, p. 361, ANPWS, p. 536.

40 eg. *Submission* Nos. 116, 161, 176, 203; *Evidence,* Sydney, 28 February, NSWALC pp. 360-363, 377, 378-379, GA pp. 523-524, ANPWS pp. 537-538; Adelaide, 10 April 1992, p. 573.

41 *Evidence,* Sydney, 28 February 1992, pp. 374-375.

not delivered particularly well in the Aboriginal communities at all. We have helped fund, as you may recall, the CRES review of the mainstream programs in terms of Aboriginal involvement in land management. Aboriginals, as you are aware, own 14 per cent of the land. We consider it to be very important that they are actively involved in the process.[42]

3.58 With regard to the concerns discussed above the Committee recommends:

(25) **that the responsible Commonwealth agencies, in consultation with Aboriginal people, review the funding criteria of the programs to give equal emphasis to land uses of particular economic and social value to Aboriginal people. The review should ensure the availability and applicability of the programs to the land management and conservation needs on Aboriginal land.**

3.59 The Committee believes that Aboriginal communities, as landowners, could play an important role in managing elements of a network of native vegetation remnants or traditional use protected areas. As Aboriginal people culturally have a great affinity and knowledge of the Australian landscape, and a deep-felt sense of responsibility for 'healing' and looking after the country, seeding funds from the STB and OBT programs are likely to generate a multiplier effect. Many Aboriginal communities are seeking to apply their traditional management skills as a means of caring for their country and as a means of restoring dignity and esteem. Traditional knowledge is used to great effect in the management of Kakadu and Uluru National Parks.[43]

3.60 The Committee commends the ANPWS for having recently established an Aboriginal Programs Unit which has an Aboriginal manager. The ANPWS administers the Contract Employment Program for Aboriginals in Natural and Cultural Resource Management and the Committee was impressed with work done through this program in establishing the Brambuk centre at the Grampians - Gariwerd National Park.[44]

3.61 Members of the ERA Committee believe the ANPWS Aboriginal Programs Unit should be advertised widely to all Aboriginal communities in Australia. Based on evidence given by the NSW ALC[45] a personal approach by staff of the Unit to go out and talk directly with Aboriginal communities might be the best way to deliver information on the programs, in addition to other extension methods. The Committee considers the unit could play a central role in the One-Stop-Shop by becoming the focus for Aboriginal communities to provide advice and consultative services and to receive extension materials, personal liaison and advice on all of the Commonwealth funded, community-based programs.

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42 *Evidence,* Canberra 3 April 1992, p. 536.
43 *Submission* Nos. 161, 203.
44 *Inspection,* western Victoria, 17-18 March 1992.
45 *Submission* No. 203; *Evidence,* Sydney, 28 February 1992.

3.62 Accordingly, the Committee recommends:

> (26) **that the Commonwealth provide additional appropriate resources to enable the ANPWS Aboriginal Programs Unit to further develop its work, particularly as a focal point for contact, extension and consultation for Aboriginal communities with the four programs referred to in this inquiry, in addition to other relevant programs.**

3.63 The Committee suggests that some of the additional resources required for the training and employment of Aboriginal staff may be available through the Department of Education, Employment and Training.

3.64 In summary, and to reiterate the close social and cultural ties that Aboriginal people feel for this country and its flora and fauna, the Committee would like to reproduce two statements made by Aboriginal representatives of the NSW ALC at the public hearing in Sydney.

Mr Penrith:

> ... we have got some problems down the south coast - mainly in my country where I come from - and that is imported weeds ... Lantana is growing up the side of our sacred mountain. It is killing all the fauna and flora in the gullies and everything like that. We looked around, we did not know about this Landcare business - there is hardly any information given out to Aboriginal communities. We had one mob down there doing that bitou bush, eradicating that from the beaches and up. But our other problem is the lantana, and we have been trying to get money so that we can dig it out because it is just wrecking the side of the mountain.[46]

Ms Lowe:

> The unfortunate thing with all of these environmental problems from things that have been used by man is that they have impacted on our Aboriginal culture and particularly the beliefs and stories which are part of a particular landscape. For example, north of where I come from there is a mountain commonly known as Coolangatta Mountain, north of Shoalhaven Heads and near Gerroa. I was told by one of our elders many years ago that they could look over at that mountain on any type of day and it was like a barometer for them. They could tell whether a southerly wind was going to come up or whether a westerly wind was going to blow or a north-easterly. Because of the effects of the pollution on the land, and we are putting it up there too in the atmosphere, it is having that effect on those traditional beliefs. I would even go so far as to say that it is most likely having those types of effects not only in Australia but most likely worldwide.[47]

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46 *Evidence*, Sydney, 28 February 1992, pp. 370-371.

47 *Evidence*, Sydney, 28 February 1992, p. 379.

CHAPTER 4. INFORMATION NEEDS, NOW AND IN THE FUTURE

The Knowledge Base

4.1 The links from scientific research to applied science management and to effective action by enthusiastic community groups is an issue which might be addressed through a network of adequately trained facilitators/extension officers as recommended in the previous chapter. The problem of the availability of scientific expertise to community projects has never been properly addressed. For many years, science has not been seen as relevant. Scientists tend to aggregate around universities or special research institutions, in the large urban centres, where the few jobs and funding support are to be found. This is particularly a problem in Australia, one of the most urbanised nations in the world. Career development and advancement in scientific disciplines is almost wholly based on the publication of scientific papers which are evaluated by peers. There is a lack of incentive for scientists to train themselves as good educators or communicators, or in the interpretation of science for use in applied management by the rest of society. The decrease in regional research centres is also attributable to decreased funding to such centres (e.g. CSIRO Division of Wildlife and Ecology, Deniliquin Station; and the Murray-Darling Freshwater Research Centre).

4.2 A valuable suggestion that universities could implement with a little government assistance and which might build future alliances between science and the community was put to the Committee by Professor Westoby of Macquarie University:

> Most university academics and lecturers do not have a heck of a lot of free time on their hands and whatever they did would obviously mean less teaching or less of some sort of research. There are people in universities who are doing PhDs on scholarships and getting through them in 3 to 3½ years flat, if they are lucky. Certainly, if a means could be found to fund them for a few months somewhere during their PhDs to get hooked up with one of these sorts of organisations, I am sure they would not mind a break from flat out research for three years at times. They could certainly use the money.
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> At the moment they are a cheap resource, so to speak. They get paid $14,000 a year which is not bad for people with first-class honours degrees. They do not necessarily have the expertise themselves but they are a channel to where the expertise resides and you might finish up with a generation of people trained as scientists but who had more familiarity with working with community groups, more contact in community groups, instead of being purely ivory tower types when you were done.[1]

4.3 There is a thirst for scientific information by many community groups, as identified in Chapter 2. The problem of accessibility to what is known, and the interpretation and extension of that knowledge has been discussed to some degree in Chapter 3. Nevertheless, the Committee believes it is symptomatic of the much wider issue of raising

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1 *Evidence*, Sydney, 28 February 1992, pp. 311-312.

public awareness and access to information on biodiversity issues. The BDAC should look at this issue closely when advising the government on the implementation of a *national biodiversity strategy.*

4.4 The other concern and great challenge is to develop a much greater understanding of living organisms, their interactions and the ecosystems in which they occur. Many future options await humanity from the abundance of life on this planet about which very little is presently known.[2]

> ... approximately 90% of all living species are as yet undescribed by science.
>
> ... There are 92 known phyla of extant (living) organisms. Human beings, their pets, domesticated animals and zoo favourites belong to just one of these phyla. It happens to be a small one, the Chordata, and is only one of 32 other phyla in the Kingdom Animalia.
>
> ... 70,000 species of millipedes await discovery.
>
> ... there are hundreds of thousands of species of undescribed parasitoid wasps. The number of mite and tick species may exceed that of insects, the number of nematode species may challenge these, and the numbers of species within three entire Kingdoms ... remain largely unknown.[3]

4.5 Clearly there is an increasing need for taxonomic information not only for bioregional management and community group action at a local level, but also for rational decisions on industry and development, and identification of new bioresources.[4]

4.6 A number of submissions[5] and witnesses[6] identified the knowledge base requirements for the planning and implementation of the community-based programs. These include:

- flora and fauna surveys, including development of rapid biodiversity assessment techniques;
- biogeographic mapping, mapping of flora and fauna distributions, and mapping of remnant vegetation patches on regional and local scales;
- habitat fragmentation, re-linking habitats and landscape connectivity maximising the viability of remnants and wildlife corridors;
- sustainable stock carrying capacities of marginal or semi-arid regions;

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2 *Submission* Nos. 9, 65, 77, 104, 116, 161, 165, 173, 211.

3 *Submission* No. 104, extracts, pp. 295-297.

4 *Submission* Nos. 104, 165, 211; *Evidence,* Brisbane, 31 January 1992, pp. 47-50.

5 *Submission* Nos. 6, 7, 9, 25, 47, 50, 56, 61, 64, 65, 66, 76, 79, 100, 101, 103, 104, 161, 167, 173, 183, 188, 191, 194, 203, 207, 209, 211, 218.

6 *Evidence,* Brisbane, 31 January 1992, p. 96; Melbourne, 21 February 1992, pp. 168, 150; Sydney, 28 February 1992; Canberra, 27 March 1992, p. 446; 3 April 1992, p. 543; Adelaide, 10 April 1992, pp. 561, 631-632, 653-655.

- soil biota, soil systems ecology, soil types and their relationship to habitats and species selection for revegetation[7];

- assistance from Aboriginal communities and their traditional knowledge.[8]

4.7 The urgent need for taxonomic data was emphasised by Professor Ralf Buckley of Griffith University.[9] The Committee considers the research being undertaken at the Macquarie University Research Unit for Biodiversity and Bioresources on Rapid Biodiversity Assessment (RBA) to be of great merit and further potential.[10] RBA provides a quick assessment and identification of what organisms are present in a particular area, but does not replace formal taxonomic research. Increased resources for research and validation of the program, development of education programs to get new methods into use and to increase community involvement could be wisely and efficiently used. The linking of RBA and other programs on biodiversity and bioresources currently being undertaken at Macquarie University, with a taxonomic institution such as the Australian Museum to establish a co-operative research centre for biodiversity and bioresources, would seem to be the next logical step.

4.8 Some submissions also give various examples of the, largely untapped, capacity and interest of community groups in undertaking basic field research after receiving some initial training and some ongoing scientific support.[11]

4.9 One excellent example is the collaborative research done by CSIRO scientists and Aboriginal communities at Uluru. Wildlife management will greatly benefit from this ground-breaking study linking Aboriginal knowledge and scientific research.[12]

4.10 Another example of the engagement of local people in research and encouraging their interest in biodiversity was given by Professor Westoby:

> ... one from overseas is Professor Dan Janzen's program in Costa Rica, where the biodiversity is so vast that even experienced biologists tend to wonder at it. He has simply gone out to all the farmers that surround one of the largest national parks there and said, 'Can you help find out what is here, to begin with, and then can you help us manage it so that you can grow your cattle and we can preserve our biodiversity?'. He has got funding from institutions like the World Bank. Every peasant who works on the farm has now had some basic scientific training and does the collecting, the mounting and the curatorial part of the scientific work with all kinds of animals and plants. A few who are getting really interested, and this includes some of the farmers who formerly were willing to shoot Dan, are now getting into the secondary process of learning some of the basics of taxonomy. They are actually starting to classify their collections and then saying, 'I had no idea what was on my property. I can now suggest, on the basis of my collections which will now go to the professionals, that I may have 500 new species of butterfly on my property, which I never knew'.[13]

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7 for example, the *Warramgamba Shire Land Management Manual* developed by the local Landcare Committee (NSCP funded) - *Inspection* Queensland, 12-13 May 1992.

8 *Submission* Nos. 116, 161, 203; Evidence, Sydney, 28 February 1992, pp. 377-379.

9 *Submission* Nos. 165, 211; *Evidence,* Brisbane, 31 January 1992, pp. 47-50.

10 *Inspection,* Macquarie University, Sydney, 20 May 1992.

11 *Submission* Nos. 47, 50, 66, 105, 161.

12 *Evidence,* Canberra, 3 April 1992, pp. 537-538; *'ECOS'* No. 71, Autumn 1992, pp. 6-13.

13 *Evidence,* Sydney, 28 February 1992, p. 318.

Long Term Ecological Monitoring

4.11 Long term ecological monitoring of all projects funded under the four community-based programs would increase the knowledge base and provide information that would assist in making future projects more effective for biodiversity maintenance. Analysis of long term monitoring data would also provide the basis for identifying future directions and needs for the programs.

4.12 At the 1992 Fenner Environment Conference, which focussed discussion on the *draft national biodiversity strategy, the workshop on monitoring concluded:*

> There is a pressing need for the involvement of all levels of the community in monitoring activities of one kind or another and the need for communication among such levels and between community groups is stressed. The need for mechanisms to allow ready and appropriate flow of data to and from such groups was identified.[14]

4.13 The incorporation of long term ecological monitoring in community-based projects was seen to be of utmost importance in submissions received by the Committee.[15]

4.14 Regional reference collections of soils and soil indicator species would provide baselines for monitoring which would prove to be extremely useful in developing realistic *ecologically sustainable development principles on a bioregional scale. Monitoring of* some remnant vegetation patches as baselines, would provide comparison with other remnants and with nearby rehabilitiation and revegetation projects. Similarly, long term monitoring of revegetation projects will provide information on their effectiveness in maintaining biodiversity and ecosystem processes, and in gaining a much needed understanding of on-going regeneration from revegetation projects.

4.15 Dr Nias summed up these concerns:

> It needs be long term and ongoing. We need to be looking at monitoring selected remnants in these areas: the evidence is that they degrade over long periods of time - 10, 50 or 100 years, that sort of time scale, we are looking at. Monitoring of replanting *schemes or other schemes needs to be undertaken. I do not think it is good enough just* to plant an area or regenerate an area and then walk away and not have some sort of evaluation of how it went.[16]

4.16 The Committee recognises that long term monitoring is also required at the bioregional level. Further development of the ERIN system would seem to be the most logical option as it is best placed to co-ordinate existing databases and analyse layered biogeographic data at a regional and continental scale.

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14 Point No. 6, typescript for Workshop No. 8, Monitoring, *1992 Fenner Environment Conference,* Canberra, 10-13 March 1992.

15 *Submission* Nos. 4, 5, 6, 7, 9, 25, 47, 50, 76, 79, 103, 104, 105, 116, 161, 173, 188, 213.

16 *Evidence,* Sydney, 28 February 1992, p. 287.

Public Awareness and Education

4.17 Most people may be able to give an example of their understanding of the variety and inter-relations of living organisms in ecosystems. However, biodiversity is a broad, and in some ways complex, concept to grasp and therefore the importance is not widely understood.

4.18 Dr Stone, the National Environmental Advisor to the Scout Association, remarked:

> I think the community as a whole looks at the aesthetic side initially; they look at the beauty of the bush. They probably do not think very deeply about biodiversity, about the importance of it. It is gradually coming, and I feel that education of the community as a whole in this particular area of biodiversity, and particularly of young people, is the key to success.[17]

4.19 Committee Members asked most witnesses at public hearings[18] if the general public, or members of community-based groups undertaking projects funded by the Commonwealth programs, would know or understand what biodiversity was all about. In general, the responses are summed up in the words of Mr Swinton, representing the Blighty Tree and Salinity Group:

> I do not think the concept is one that has concerned them. Again, I think it is where the extension agencies can work very strongly in getting across this message. We are taking sustainable agriculture now as one of the buzz words of the Department of Agriculture. Maintenance of biodiversity could easily become a program within that activity. It could be an education awareness raising exercise because at the moment there is nothing being done.
>
> Your Committee is very aware of the problem and what it can mean, because you have been educated. You are educating as you go along, but the community has not been educated. There has to be programs put into place through extension organisations and the schools - the schools are probably the most effective of the lot - to raise public awareness of the importance of biodiversity.[19]

4.20 It was also put to the Committee that many sections of society fail to understand that decreasing biodiversity, even on a local or district scale, will have undesirable effects on human quality of life.[20] Considerable concern was expressed that short term views or rationales put biodiversity threatening processes, such as broad scale vegetation clearing, before long term considerations.[21] The majority of submissions and witnesses impressed upon the Committee the need to increase public awareness and education also as a means of developing a community-based biodiversity ethic.

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17 *Evidence*, Brisbane, 31 January 1992, p. 11.

18 *Appendices* B and C.

19 *Evidence*, Sydney, 28 February 1992, pp. 342-343.

20 *Submission* No. 65.

21 *Submission* Nos. 2, 3, 7, 9, 25, 50, 54, 59, 66, 77, 104, 116, 176, 188, 203, 207, 211, 219.

4.21 Whilst the current programs, particularly STB, OBT and NRMS, are doing much in this area, a greatly increased effort is required. The Committee believes that public awareness raising and education programs on biodiversity are urgently needed in four areas:

- general community awareness;
- school curricula and activities;
- scientific extension education; and
- industry - specific education.

4.22 The Committee was impressed by the interest and the pro-active approach to some of these specific education needs which the Macquarie University's Research Unit for Biodiversity and Bioresources is attempting to address.[22] Such initiatives should be fully supported by government.

4.23 The Committee considers that all the Commonwealth programs should further develop their education and extension activities. The NSCP, in particular, should develop soil biodiversity related education programs.

4.24 There is also considerable scope, as discussed previously, for increased consultation with Aboriginal communities on how they wish to maintain their traditional knowledge and raise awareness in their own communities.[23]

4.25 The ERA Committee is aware that the Biodiversity Advisory Committee (BDAC) is currently revising the Draft *National Strategy for the Conservation of Australia's Biological Diversity* and that the issues discussed briefly in this chapter are also under consideration by BDAC. Nevertheless, these three issues - the knowledge base, long term ecological monitoring and public education - were emphasised in submissions to the inquiry, by witnesses at public hearings, and on inspections undertaken by the Committee. The Committee believes these three areas are important topics to address in order to meet biodiversity information needs now and in the future. Consequently, they should be given priority in the implementation of a national biodiversity strategy.

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22 *Inspection*, Macquarie University, Sydney, 20 May 1992.
23 *Submission* No. 203 and *Chapter 3*.

CHAPTER 5. BIODIVERSITY ISSUES WHICH IMPACT UPON THE PROGRAMS

5.1 A number of biodiversity issues were brought to the Committee's attention, on the basis of their indirect but substantial influence on the effectiveness of the programs. Various advisory committees, including BDAC, are looking into these issues; indeed some are of such significance to warrant separate inquiry. Accordingly, only a brief discussion of those of principal concern follows.

Ecologically Sustainable Development - Keeping Options Alive

> Loss of biodiversity undermines prospects for sustainable development. The world's renewable resources, such as crops, forests, wildlife and fisheries, make up a subset of biodiversity of immediate use to humanity. The genetic diversity of these resources provides the basis for continuing adaptation to the world's changing climate. Further, the highly diverse natural ecosystems and the wealth of species they include and support contribute substantially to the maintenance of hydrological cycles, the regulation of climate, the formation of soils and maintenance of their fertility, the absorption and breakdown of pollutants, and at the same time provide sites for human relaxation.
>
> It is held by some biologists that a high level of biodiversity confers stability on ecosystems, because it provides a diversity of resource-use strategies, so enabling alternate pathways for primary production and nutrient cycling when ecosystems are stressed, or providing a communal defence against invasion.[1]

5.2 During the course of the inquiry, at public hearings, but particularly during informal discussions and inspections, the idea that this new term 'biodiversity' was separate from, and a threat to, primary industry often arose. Some people with whom the Committee came into contact seemed to feel that ecologically sustainable development (ESD) and biodiversity were somehow incompatible. Others thought biodiversity was just a new word for nature conservation.

5.3 In retrospect, it is unfortunate that the ESD working groups were established before the development of a national biodiversity strategy began. The two concepts, therefore, seem to have become disassociated and confused.

5.4 Mr Day of the United Farmers and Stockowners Association of South Australia, made the following remarks:

> I think that there needs to be very clearly a merging of ESD and biodiversity and putting programs like those and endangered species into context with each other. It comes back

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1 *Evidence,* Adelaide, 10 April 1992, Exhibit 10: *The Conservation of Biodiversity as it relates to Ecologically Sustainable Development,* Report of Working Party convened by Dr K Lee (CSIRO), August 1991, p. 6.

to my earlier point of having, if you like, an umbrella of attitudes so that other programs can be seen to relate to each other.

The sort of approach we promote is one which says if we are looking at rural areas our prime concern is to ensure that landowners are making a financial return on their land. Our next concern would be to ensure that resources being used in that are maintained in condition or improved in condition. We also see the protection and maintenance of biodiversity as integral in that as well. So, if you like, we have almost the three objectives when we start to talk about sustainable development. The third would very much relate to biodiversity and we would see endangered species protection as being a component of biodiversity.

I am aware that people argue about which comes first, biodiversity or ESD. I suppose our productive background sees ESD coming first, with biodiversity as a component of that. But I think it would greatly enhance the ability of communities to grapple with these sorts of concepts if they were put together into a neat package so that there was a consistent theme coming through in all the programs coming forward from the government.[2]

5.5 The Committee wishes to reiterate and emphasise that biodiversity concerns all living things in the biosphere. Some of these living organisms have been bred or genetically modified to increase their benefit to humanity. It is the diversity of life which allows us the opportunity to develop rural industries. Biodiversity in fact underpins natural resources or bioresources, and therefore is the basis for maintaining and developing resources in a way that is ecologically sound and sustainable. Australia's biological diversity and the matrix of ecosystems across the landscape and throughout the seascape are the treasuries of the nations future.

5.6 In summary, it follows that the maintenance of biodiversity and ecological processes and systems is of paramount importance to wise economic development which ensures a high healthy standard of living for this and future generations. Biodiversity is our entire capital base for keeping options alive now and in the future. Maintaining the capital is vital for ecologically sustainable development.

Clearance of Native Vegetation

Over the last 200 years the Australian continent has provided the staging ground for a rather unique, albeit unwitting experiment on the consequences of unrestrained clearing of native vegetation. That period has transformed at least 25% of the Australian landscape; in some areas more than 90% of the country side has been radically altered.[3]

5.7 Without a thorough understanding of the role of native vegetation in maintaining ecological processes such as the hydrological cycle, excessive clearing has led to a progressive salinisation of the landscape. Despite early warnings and wide publicity at the time of the publication of the first scientific paper linking salinisation to over-clearing in 1924, settlement schemes which left little option but to extensively clear, continued.

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2 *Evidence,* Adelaide, 10 April 1992, p. 677.

3 'Integrating farm and conservation priorities' - *Rural Research* 153, Summer 1991-92, p. 13.

In addition, and also through ignorance of Australia's fragile soils, the clearance of slopes and stream banks has resulted in extensive sheet and gully erosion, siltation in dams, streams and rivers and severe degradation of catchment water quality.

5.8 The extensive alteration of the Australian landscape has put much of its native flora and fauna under pressure, resulting in a number of extinctions. On the other hand, for some insect, vertebrate and plant species, the changes to the landscape and increased human occupation has led to a considerable increase in their numbers.

5.9 In general, people with whom the Committee Members have spoken, throughout all the inspections, considered that the days of extensive clearing were over. They recognised the value of maintaining or re-establishing indigenous vegetation in rural and urban areas.

5.10 Many submissions[4] and several witnesses[5] highlighted the contradiction which exists between programs such as OBT and STB and programs which allow continued clearing in many parts of Australia. Some also expressed some frustration that clearing is allowed to continue today without regard for future costs, despite the fact that the costs of past clearing are so evident.

5.11 Most of the submissions cited above, and some witnesses,[6] considered it is now time for a national moratorium on broad scale clearing. The Committee recognises that there are considerable problems in attempting to impose a moratorium. In a very few exceptional cases, such as the mulga lands, where the landscape is considerably altered, the regenerative potential of such plant communities as 'woody weeds' is considerable. Nevertheless, the quality of components of the original plant vegetation in these areas has been compromised by inappropriate fire regimes, weed invasion, altered soils and retention of vegetation in small, non-viable units.[7]

5.12 The ESD Agriculture working group looked at the question of a moratorium on clearing in some detail. Whilst the Committee considers that the working group might have made a stronger recommendation in relation to limiting the clearence of native vegetation, it fully endorses their conclusions.[8] These are reproduced in Appendix D.

5.13 The Committee believes the Commonwealth, through ANZECC, could play a role in encouraging the States and Territories to develop complementary standards for the management and gradual phasing out of land clearing, with the objective of optimising biodiversity and promoting ecologically sustainable agricultural activities.

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4 *Submission* Nos. 2, 3, 7, 9, 25, 50, 54, 56, 59, 65, 66, 77, 104, 116, 176, 209, 211, 219.

5 *Evidence:* Brisbane, 31 January 1991, pp. 38-39, 62; Melbourne, 21 February 1992, pp. 221-222, 227, 255-256, 269-272; Adelaide, 10 April 1992, pp. 670-672.

6 *Evidence,* Brisbane, 31 January 1992, p. 62; Melbourne, 21 February 1992, pp. 156, 269.

7 *Submission* No. 209; *Inspection,* Queensland, 12-13 May 1992.

8 *Ecologically Sustainable Development Working Groups, Final report* - Agriculture, November 1991.

5.14 In South Australia the evolution of increasing public awareness, in concert with protection of native remnant vegetation through legislation which has culminated in the *Native Vegetation Act 1991,* has been very effective.[9] The Committee considers this to be a very useful model which might be of interest to other States and Territories.

5.15 Dr Robinson of the South Australian National Parks and Wildlife Service commented:

> It had to happen in South Australia first because in the agricultural areas of South Australia there has been more natural vegetation cleared than anywhere else in Australia. I would hate to see other States, which still have a considerable amount of their rural natural biodiversity, Queensland, in particular, reach the state that South Australia got into, in terms of the loss of the natural flora and fauna of that part of the Australian continent. I think there is an opportunity here to follow the better experiences of the South Australian model and to get to the point that we now are in South Australia.[10]

5.16 Mr Yelland of the Pastoral Board of South Australia said:

> We have a system in South Australia whereby people cannot clear scrub or vegetation. They can, however, apply to have it placed under a heritage agreement, and there are certain financial incentives for them to do so. We are looking at the idea that the Native Vegetation Act, which lets that happen, has a State-wide brief. It has not happened much in the pastoral country before but it might happen now.
>
> There are also powers under the Native Vegetation Act to stop further clearances by grazing. And one of the issues in this State is that grazing under our Act is a clearance. If you put stock into an area that has never been grazed before, that is a clearance and has to be approved by the Native Vegetation Council.[11]

5.17 In his paper 'Legislation and the conservation of biodiversity: Species, Vegetation, Habitat' Mr Bradsen, a senior lecturer in Environmental Law at the University of Adelaide, makes the following points about the South Australian experience and the idea of extending the model for use by other States/Territories:

> In response to any suggestion that this is too drastic a solution, the South Australian experience is informative. There has long been a temptation, if not a habit in Australia to point to a sweep of native vegetation and say that it just "goes on for miles", that it's "all the same". But perhaps the most vital aspect of the South Australian experience, where vegetation proposed for clearance has been subject to biodiversity assessment since 1985, is that Australia's vegetation, (certainly what is left of it), is far more diverse and far more likely to be biologically significant than most people have realised. Indeed it is simply for this reason, not for reasons of legislative or administrative policy that the rate of refusal for clearance application in South Australia has reached 96%. There can be no doubt, based on this experience, that a great deal of biologically important habitat is being removed elsewhere in Australia. It is no answer that policies are being developed to deal with the question, or that notification of clearance must be given with a power of disallowance. It is clear that assessment in accordance with scientifically rigorous statutory criteria is essential to an effective program.[12]

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9 *Submission* No. 219; Evidence, Adelaide, 10 April 1992, pp. 566, 631, 637, 670-672.

10 *Evidence,* Adelaide, 10 April 1992, p. 566.

11 *Evidence,* Adelaide, 10 April 1992, pp. 631, 637 respectively.

12 *Submission* No. 219, p. 1012.

5.18 The paper goes further to suggest that endangered species legislation such as that used in the US, is ill founded because it tends to focus on individual species rather than on ecosystems or at least, habitats and species associations.[13]

5.19 In summary, the ERA Committee recognises that the clearing issue is one of national importance and that the clearing policies of most States and Territories run contrary to the four Commonwealth funded community-based programs, the Decade of Landcare, and the maintenance of biodiversity and ecosystem processes. The Committee urges the BDAC to consider these concerns in detail as they prepare the final draft of a national biodiversity strategy for Australia.

Feral animals and invasive exotic plants

5.20 In addition to vegetation clearing, the two most critical threats to Australia's biodiversity and ecosystems, in the immediate and long term future, are feral animals and invasive exotic plants. Submissions[14] and witnesses[15] clearly put the rabbit as the feral species of greatest concern. Goats were also identified as particularly destructive in the pastoral rangelands, and feral foxes and cats were considered the greatest direct predatory threat to native animals.

> The impact of pest plants and feral animals on a large number of environments in Australia is quite disastrous. It is probably as bad as anywhere else in the world, because of the nature of Australia and its biological history. The number one problem in this State - if you have got to rank these things - would have to be the rabbit.[16]

5.21 The cost in lost primary production alone (excluding other environmental damage) due to rabbits is estimated at $90 million annually.[17] It is also recognised that rabbits consume more seedlings in one year than would be planted in a decade of tree planting.[18] Since introduction into Australia with the First Fleet, rabbits have the dubious honour of achieving the fastest rate of spread of any introduced mammal in the world. They now inhabit more than two thirds of the continent and have been linked to the decline of many native plants and animals.

5.22 People in the 'grass roots' rural communities are keen to deal with the rabbit problem and are attempting to create more public awareness and support for the demise of the rabbit in Australia. Mr Yelland of the Pastoral Board of South Australia told the Committee:

> ... a national rabbit fund has been established. It started at a public meeting in this State quite recently. It is privately run and is going to establish a trust to raise money and

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13 *Submission* No. 219.

14 *Submission* Nos. 5, 8, 9, 10, 25, 27, 55, 56, 58, 61, 104, 154, 161, 207, 209.

15 *Evidence:* Sydney, 28 February 1992, pp. 304-305; Canberra, 27 March 1992, pp. 454-456; Adelaide, 10 April 1992, pp. 576, 624-625.

16 *Evidence,* Adelaide, 10 April 1992, p. 576 (Dr Robinson).

17 CSIRO Information sheet, National Information Network.

18 Australian Rabbit Fund brochure, *'Rabbits to Ruin'*.

people's awareness for researching control, and it is really bubbling along fairly well. That was driven by pastoralists themselves; it was their idea and it is a good one.[19]

5.23 Mr Day of the United Farmers and Stockowners Association of South Australia added:

> ... They will be looking for community membership and corporate sponsorship, and we hope to get rid of the Easter bunny and replace him (sic) with the Easter bilby and hopefully get some money out of that as well.[20]

5.24 The Australian Rabbit Fund is being established to:

- administer a publicly subscribed national fund to support the eradication of the wild rabbit from Australia;
- seek tax deductibility for donations to the fund;
- raise public awareness and understanding on the nature and extent of land and environmental degradation caused by rabbits.[21]

5.25 The idea of the Australian Rabbit Fund committee, for replacement of the Easter Bunny with the Easter Bilby,[22] is an excellent one which the Committee considers should be taken seriously by all levels of government, and all rural and urban communities.

5.26 The ERA Committee fully supports and commends the 'grass roots' community initiative to establish the Australian Rabbit Fund to gather funds to assist with biological control research. The Committee agrees that eradication of the rabbit, though an ambitious objective, should be the aim. Tax deductibility would greatly enhance the ability of the fund to attract corporate donations. Donations to Landcare Australia Ltd have tax deductibility. There are also examples of donations to trust funds, for research by recognised institutions having tax deductibility (e.g. Koala trust fund of the University of Queensland). The Committee considers that the eradication of the rabbit is a national priority of widespread significance that should also qualify for tax deductability.

5.27 The Committee recommends:

> **(27) that the Commonwealth allow tax deductibility for donations made to the Australian Rabbit Fund for research into the control and eradication of the rabbit in Australia.**

5.28 Whilst aware of the recent announcement that a co-operative research centre is to be established within the CSIRO Division of Wildlife and Ecology, the Committee fully endorses further resources being given to rabbit, fox and feral cat control. The initiative of the Australian Rabbit Fund, to seek corporate sponsorship, is applauded.

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19 *Evidence*, Adelaide, 10 April 1992, p. 641.
20 *Evidence*, Adelaide, 10 April 1992, p. 675.
21 Brochure, *Rabbits to Ruin*, Australian Rabbit Fund.
22 *Evidence*, Adelaide, 10 April 1992, pp. 642, 668.

10-80, a naturally safe control for feral animals in Western Australia [23]

In Western Australia, the variety and interrelatedness of life has provided a natural and safe mechanism for the control of foxes and wild pigs.

Native animals in Western Australia are immune to 10-80 poison because it occurs in the native vegetation. This immunity has developed because of the long association of the plants and animals together, and in their adaptations to each other and the harsh environment in which they live. Naturally the translocated European fox and pig do not share this immunity to 10-80.

Fencing of large areas in north Western Australian, followed by intensive baiting has eliminated these ferals from the area and has resulted in some quite amazing recoveries, not only of native plants and animals, but of the whole landscape.

The native fauna in eastern Australia do not share this immunity to 10-80 because it does not occur naturally in the local vegetation.

5.29 Dr Robinson of the South Australian National Parks and Wildlife Service, further remarked:

> The other issue at the moment which is receiving a lot of Commonwealth government support and a lot of State government interest is the control of feral predators, in particular foxes but also feral cats. There has been a lot of work done in Western Australia in that area and it is also where the CSIRO work has just begun. I do not think that there is any other answer than biological control for long term effective reduction in the population levels of rabbits, foxes or cats. The cat debate tends to be bogged down in urban pussy cats rather than out where the real problem is ...[24]

5.30 The feral cat problem in Australia is becoming increasingly serious.[25] Cats are intelligent and efficient predators which prey on a range of Australian native animals such as small birds, lizards and native mammals. A considerable effort is required to raise public awareness and understanding in this area. Efforts should be made to encourage greater public appreciation of, and interest in creating, native gardens which encourage native species to come in safety to be observed and enjoyed in their own freedom.

5.31 Dr Nias of the World Wide Fund for Nature told the Committee:

> Work in Adelaide is showing that domestic cats are taking virtually the entire production of birds in the suburbs. In other words, virtually all the birds that are born and raised every year are lost to cats. The cat population is taking virtually the entire crop of birds that are produced every year in suburban Adelaide. It is probably the same throughout the suburbs.[26]

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23 *Inspection,* Western Australian, 9-10 March 1992, (Department of Conservation and Land Management).

24 *Evidence,* Adelaide, 10 April 1992, p. 576.

25 *Evidence,* Sydney, 28 February 1992, pp. 303-305, 378; Canberra, 27 March 1992, pp. 436-437.

26 *Evidence,* Sydney, 28 February 1992, p. 304.

5.32 The ERA Committee is concerned that responsible pet ownership is not as widespread as it should be. Through education and raising the awareness of children and adults, this may change in the long-term. Immediate efforts should be made, through substantial public education programs for adults and children, particularly in urban areas, to raise awareness of the extremely serious threat to native animals posed by ever growing populations of feral cats. Responsible pet ownership with the application of strict regulations such as the proposed Victorian *Companion Animal Bill* is one approach, which the Committee endorses. The other imperative is to control and eradicate feral cats in metropolitan and rural areas, as well as in National Parks and other places throughout the Australian bush.

5.33 In summary, the following statement by Dr Morley in his submission reflects the majority of comments and evidence about feral animals received by the Committee.

> ... feral animal control is an urgent national pre-requisite for successful long term maintenance of biodiversity and without which community projects can only be partially successful.[27]

5.34 Invasive, exotic plants are also detrimental to Australia's biodiversity. Thousands of plant species introduced from around the world have become established in Australia. Many are now known to rural industries and horticulture as pest species because they decrease productivity and are expensive to control. There is now increasing concern that introduced species are a considerable threat to native species, natural communities and ecosystems in Australia.[28]

5.35 At a public hearing in Canberra, Dr Nielsen of the CSIRO remarked:

> It is also important to make the point that invasive weeds and plants from other parts of the world have a tremendous impact on Australian biodiversity. That is probably recognised very little. The work that the CSIRO and State departments of agriculture are currently undertaking on controlling introduced weeds into Australia is mainly for the purpose of controlling weeds that have an impact on productivity of farmlands. What is not recognised perhaps is that introduced grasses spread into our native grasslands system, for example in South Australia, and have a tremendous impact because they outcompete our native grasslands. We must realise that, perhaps on any native grass species, there are perhaps 10 species of invertebrates depending on any one of these. There we see whole communities, not only of plants, but also of associated invertebrates disappearing at the moment right in front of our eyes.
>
> I will not go into details, but I have one example here of a day flying moth which, 40 years ago, occurred from around the Sydney area right through Victoria where there were more than 100 documented localities, into South Australia. Today there are only two viable populations - one in western Victoria near Nhill and one right here in Canberra.

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27 *Submission* No. 5, p. 20.

28 *Submission* Nos. 9, 117, 209, 188, 220; *Evidence*, Brisbane, 13 January 1992, p. 9; Canberra, 27 March 1992, pp. 455-456; Adelaide, 10 April 1992, p. 576.

> ... The other thing I would like to comment on is that our quarantine restrictions are quite different for plants and animals. I believe our animal quarantine regulations are pretty adequate and pretty strict whereas we have to say that for plants they are quite different. It is much easier to bring in seeds, plant material and what have you and I think that needs to be looked into.[29]

5.36 A supplementary submission[30] by the CSIRO emphasised the need for a review of, and improved control measures, preparedness and regulations for, adequate quarantine and customs control over the intentional or accidental import of exotic animals, plants or other organisms into Australia. The submission suggests that major issues which relate to quarantine and customs preparedness and regulation by the various State and Federal Authorities include the following:

- the risks of further introductions of exotic animals, plants and diseases to Australia;
- estimating those risks and rates of spread, and putting in place appropriate control measures of exotic organisms once here;
- the threats to natural ecosystems, agriculture and people if some exotic animals currently captive in Australia escaped to the wild; and
- the push by vested interests for the import of exotic fauna, and for lowering the regulatory conditions for their keeping in captivity.

5.37 The Committee recommends:

> **(28) that the Commonwealth initiate an inquiry into the adequacy of risk assessment procedures and subsequent controls of imported exotic plants, animals and other organisms.**

5.38 A thorough review titled, *Plant Invasions - The incidence of environmental weeds in Australia,* has recently been published by ANPWS.[31] It brings together an enormous amount of expertise from throughout Australia and makes a number of pertinent recommendations. These include the need for a national approach, co-ordinated national database and weed management strategies. The Committee considers that the merit of these recommendations should not be lost and that they could form the basis for action on the issue of invasive exotic plants, as one initiative in the implementation of a national biodiversity strategy.

5.39 The matters discussed here and emphasised to the Committee, as issues of tremendous importance and influence on 'grass roots' community-based action to maintain biodiversity and ecosystem processes, should be considered priority issues in the implementation of a national biodiversity strategy for Australia.

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29 *Evidence,* Canberra, 27 March 1992, pp. 455-456.

30 *Submission* No. 220.

31 'Plant Invasions - The incidence of environmental weeds in Australia' - *Kowari* No. 2, (ANPWS, 1991).

5.40 Accordingly, the Committee recommends:

(29) that the Commonwealth and ANZECC, in considering the implementation of a national biodiversity strategy, give priority to the following issues:

i) public awareness and education;

ii) eradication strategies for feral animals, particularly rabbits, cats and foxes, and invasive exotic plants;

iii) assessment and management of vegetation clearing;

iv) improving the knowledge base on Australia's biodiversity; and

v) long term ecological monitoring.

CHAPTER 6. A MARINE-COASTAL COMMUNITY-BASED PROGRAM

6.1 More than 75% of the Australian population live in the coastal zone and the majority of these people live in urban areas. The success of the STB, OBT, NSCP, Landcare, and NRMS programs in motivating and supporting enthusiastic 'grass roots' community action and ownership of environmental concerns and positive action suggests that such a program along similar lines might be successful for Australia's marine-coastal provinces.

6.2 One example of the community enthusiasm which might be generated is the 'Clean Up Australia Day' which started as a one-off day to clean up the foreshores of Sydney Harbour. The promotion by solo yachtsman Ian Kiernan for public participation in cleaning up their 'backyard', Sydney Harbour, became a huge success. He formed a committee of friends and supporters to plan a 'Clean Up the Harbour Day'. One Sunday, January 8 1989, some 40,000 Sydney residents took to the foreshores of Sydney Harbour and collected 5,000 tonnes of rubbish. The tremendous response and community spirit generated in Sydney was the catalyst for similar clean-up days in Hobart, Adelaide, Darwin, the Illawarra coast, and central NSW coastal regions.[1] It is now an Australia-wide activity which is being used as a model overseas.

6.3 A submission to the ERA Commitee's inquiry into protection of the coastal environment stated:

> We live in one of the most beautiful areas of Queensland, an area of great environmental significance, with World Heritage Rainforest and the Great Barrier Reef as part of our environment and we hope that future generations will be able to enjoy this beautiful area as we do. The long term effect of ill planned development can already be seen in North Queensland ... we hope that with careful planning and community involvement our unique environment will not become another victim.[2]

6.4 It is clear that many in the Australian community are concerned about the welfare of the coastal-marine realm. Community enthusiasm to maintain the unique biodiversity of this environment might be harnessed through a Commonwealth assisted, community-based program.

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1 *Submission* No. 48 to the ERA Standing Committee inquiry into the protection of the coastal environment, 1989-1991.

2 *Submission* No. 177 to the ERA Standing Committee inquiry into the protection of the coastal environment, 1989-1991.

Marine biodiversity

Consider a high level of classification, that of the phylum (phyla - plural); humans, koalas, kangaroos, lizards, birds, toads, fish, whales and sea-squirts belong in a single phylum (the chordates).

Scientists currently recognise 70 phyla representing all known life, from bacteria to vertebrates. About 20 of these occur exclusively in the marine environment and 18 are exclusively terrestrial. Of the remaining phyla, 23 contain marine species, whereas only 10 more contain terrestrial species.

Therefore, at the phylum level, the biodiversity of the oceans is about double that of the land. At the species level the difference is likely to be greater. In terms of ecological community composition, land and sea environments are vastly different.[3]

6.5 In the report, *The Injured Coastline,* the ERA Committee recommended that:

> Effective public participation in coastal zone management be encouraged at the local government level by a variety of mechanisms, such as: the preparation of local zoning plans in consultation with the community, environment mediation procedures and the establishment of local consultative committees on specific projects and issues.[4]

6.6 The key recommendation stemming from the inquiry was that:

> The Commonwealth develop without further delay a national coastal zone management strategy in cooperation with the States and Territories and local governments to provide a framework for the coordination of coastal management throughout Australia. The strategy should incorporate agreed national objectives, goals, priorities, implementation and funding programs and performance criteria.[5]

6.7 In response to that report, the Commonwealth Government has committed itself to the development of a national marine coastal zone management strategy as a component of the decade-long 'Ocean Rescue 2000' program. This program includes the development of a state of the marine environment report co-ordinated by the Great Barrier Reef Marine Park Authority (GBRMPA), and a national system of marine protected areas (co-ordinated by GBRMPA and ANPWS). A marine-coastal community-based program could be implemented as a component of a national coastal zone management strategy under the Ocean Resue 2000 program.

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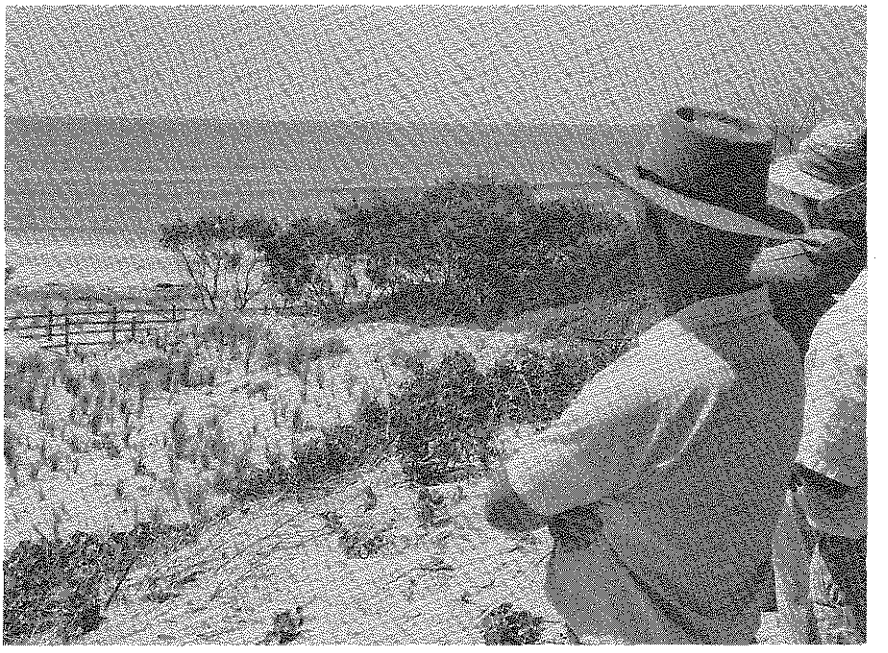
3 G. Carleton-Ray in *Biodiversity* (E. O. Wilson, ed.), National Academy Press, Washington DC 1988, pp. 38-41.

4 *'The Injured Coastline'*, April 1991, recommendation 1, paragraph 4.72.

5 *The Injured Coastline,* April 1991, recommendation 8, paragraph 6.24.

6.8 Submissions to the current inquiry identified the marine-coastal realm as having a paucity of community-based programs such as those being considered here.[6] Dune Care is a component of NSCP and the Committee has observed it to be a very successful and effective community-based program.[7]



Mr Peter Fisher MP and other Members view NSCP funded rehabilitation and revegetation work undertaken by the Angourie Point Dune Care Group, during inspections in northern New South Wales, 24 January 1992.

6.9 The Committee believes that a marine oriented, Commonwealth funded community-based program could be a key component in the national coastal zone management strategy and the coastal-marine component of a national biodiversity strategy. Community group projects might be directed at clean-up action or management of estuarine, mangrove-wetland areas, beaches, rocky intertidal zones and could include co-ordinated ecological monitoring. Public awareness and education programs or 'adopt a beach/headland' initiatives would help foster community ownership and enthusiasm. Community-based marine-coastal monitoring projects might be modelled after 'Streamwatch' (co-ordinated by the Sydney Water Board) or 'Ribbons of Blue' (co-ordinated by the Office of Catchment Management, Western Australia).

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6 for example, *Submission* Nos. 161, 199, 207.

7 *Inspections,* northern NSW, 23-24 January 1992.

6.10 The ERA Committee received unanimous support when it canvassed the idea of a Commonwealth funded community-based program for the marine-coastal zone.[8]

6.11 In conclusion, the ERA Committee considers that the Dune Care component of the NSCP should be retained and identifies the need for, and potential of, a community-based program that focuses specifically on the maritime coastal environment.

6.12 Accordingly, the Committee recommends:

> **(30) that the Commonwealth, in the implementation of a national coastal zone management strategy and national biodiversity strategy, develop and implement a Commonwealth funded community-based program that focuses on the maintenance of biodiversity and ecological processes in the maritime, coastal environment.**

6.13 The Committee envisages that Aboriginal and Islander communities might like to be involved, and would make a considerable contribution to such a program. To this end, the Commonwealth should ensure that there is extensive consultation with Aboriginal and Islander people throughout the development of the program.

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8 *Evidence:* Brisbane, 31 January 1992, pp. 77-78; Melbourne, 21 February 1992, p. 260; Canberra, 27 March 1992, p. 409; Canberra, 3 April 1992, p. 549.

CHAPTER 7. COMMUNITY INVOLVEMENT: THE BASIC INGREDIENT FOR A NATIONAL STRATEGY

> Maintenance and management of biodiversity are a part of the means to achieve the primary goal of the protection of natural resource systems and the ecological health of the biosphere. Programs to protect the biodiversity of Australia must not lose sight of that primary goal. Science can provide the knowledge for maintenance and management of biodiversity. Legislation can give legitimacy to implementation and evaluation of programs and policies. Only a commitment from people can protect the natural resource systems and maintain the ecological health of Australia. Government forces have less to govern and market forces have less to market if the forces of living systems are diminished. We must not be left with Time's Arrow and a voice crying from what once was a wilderness.[1]

7.1 The introductory remarks to this report indicated the importance the ERA Committee places on human activities for the maintenance of ecological sustainability. It is clear that in many areas not enough resources are being put into the necessary tasks. A greater commitment to common goals and aspirations is needed by Commonwealth, State/Territory and local governments, yet it is unlikely that funding will ever be adequate. In fact, it is doubtful that unlimited funds could provide all the solutions to environmental degradation, the conservation of species, ecosystems and maintaining ecological services. Nonetheless, increased financial resources will be required in the future and a balance must be maintained between research, the dissemination of knowledge and information, and support for 'on the ground' community action.

7.2 By far the greatest resource is people. At the local level, in any part of Australia, groups of people with common concerns or interests, whether they be Landcare groups, bush walking groups, birdwatchers, national parks volunteers or simply volunteer 'working bee' groups, are the most valuable and efficient resource. There are many reasons for this and these will differ regionally and with each group's interest and motivation. Essentially, community groups are on the spot, implementing works on the ground in their local area. They are extremely cost effective and efficient, giving large amounts of valuable time and often, personal resources as well. Various estimates suggest that community-based action multiplies each government dollar several fold. The 'grass roots' identification of concerns at a local or district level, the seeking of technical advice, planning of the project, and initiation of action develops a significiant sense of community ownership and pride. The Committee believes this to be extremely important and recognises additional benefits such as increased local community awareness and the provision of constructive peer pressure which acts as a catalyst for further action or the formation of other groups. The development of community spirit and of a longer term ethos which carries on to the next generation is also important.

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1 Dr P Bridgewater, address to IUCN General Assembly, Biodiversity Workshop, Perth, December 1990.

> People form the foundation for the sustainable use of biological resources. Indeed, initiatives that do not involve local communities generally are doomed to fail. In particular, indigenous people in many parts of the world are especially reliant on natural resources for their cultural continuity and economic well-being. Their role in conservation should be given particular attention and they should be given opportunities to participate as major players in the design of conservation programs affecting their resources. Local people should be closely associated with the authorities responsible for the management of biological resources and for the establishment and management of protected areas.[2]

7.3 Engaging community support and empowering community-based action is critical to the implementation of a national strategy for the conservation of Australia's biodiversity. The Committee hopes that this report emphasises the necessity of all governments to acknowledge this requirement and to look at innovative strategies for increasing community awareness and engagement. Effective empowering of community-based projects involves the provision of:

- seeding funds for projects;
- local facilitation and encouragement;
- extension and dissemination of practical technical advice based on research, scientific knowledge and methodologies;
- bioregional planning and management, which make community action more effective and through which community members can see their contribution to the 'bigger picture';
- practical equipment may sometimes be needed although innovative 'grass-roots' groups may design and build their own.

7.4 The Committee considers that flexibility and innovation are valuable characteristics of community groups in undertaking environmental projects. The government should also be as flexible as possible in developing or revising programs to engage or support community-based activities. One development the Committee envisages is the evolution of 'specialist' community groups which have developed some expertise in a particular area. These people might be involved in advising other community groups or be delegated sub-components of research or monitoring programs. This would encourage agency and community projects to be developed in concert so that scientific results are readily understood and of practical value to other community-based groups. In turn, community understanding can result in action and support in meeting biodiversity objectives.[3]

7.5 A national strategy for the conservation of biodiversity should build upon a national resource - the communities of people at the 'grass roots'. Several successful precedents, such as the Landcare programs, exist. The incorporation of biodiversity

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2 Final proceedings - *The Interparliamentary Conference on the Global Environment*, 1990, p. 107.

3 *Submission* No. 47.

objectives into community-based projects, coupled with the involvement of State/Territory and local government, and the scientific community should assist and encourage effective projects so that they contribute, both on a local and regional scale, to the preservation of biodiversity and the maintenance of ecological processes.

7.6 Implementation of a national biodiversity strategy should build community initiatives of local projects, in a bioregional planning framework, so that funding is catalytic. The Committee has observed that funding of small, local community projects often becomes symbolic of the fact that a local community can take on something which has national significance.

7.7 The ERA Committee firmly believes that community involvement right across Australia is the basic ingredient for the implementation of a national biodiversity strategy. Raising public awareness and understanding of human dependence on biodiversity for ecologically sustainable development and a high standard of living, with a variety of present and future options for a diversity of foods, shelter, clothing and recreational opportunities, might be the key to engaging community action.

JOHN LANGMORE
Chair

4 June 1992

APPENDICES

APPENDIX A

INDEX OF SUBMISSIONS AND EXHIBITS

SUBMISSIONS

1	Trees for Life
2	The Colong Foundation for Wilderness Ltd
3	Mr L P Butt Yeronga QLD
4	Dr A C Robinson National Parks and Wildlife Service, SA
5	Dr B D Morley International Association of Botanic Gardens
6	Dr G J Webb Wildlife Research and Management Consultant
7	Dr R F Parsons LaTrobe University
8	Natural History Society of SA Inc.
9	Dr M Denny Mount King Ecological Surveys
10	Topar Area Rangecare Group
11	Berrima District Branch National Parks Association of NSW
12	Barinsdale Farm Trees
13	Mid-Loddon Tree Group
14	Yeerung Tree Farm Group
15	Nature Education Centre, SA

16	Mr H Suttor NSW Department of Water Resources
17	Southern Mallee Trees on Farms Group
18	Shire of Euroa, VIC
19	Murrabit Advancement Association Inc.
20	Longwood East Landcare Group
21	City of Hamilton, VIC
22	Shire of Oxley, VIC
23	Red Cap Dergholm Land Protection Group
24	Ovens River Management Board
25	Mid-North Coast Branch National Parks Association of NSW
26	Mr M Smith NSW National Parks and Wildlife Service
27	Mr J A Berger, Mindarie, SA
28	Barwon Valley Farm Trees Group
29	Archies Creek Reafforestation Group
30	Curdies Farm Tree Group
31	Methodist Ladies College, Kew, VIC
32	Dundas-Black Range Landcare Group
33	Carboor/Bobinawarrah Landcare Group
34	Mansfield and District Farm Tree Group
35	Caddens Flat Landcare Group
36	Stradbroke Woodside Farm Trees Group
37	Friends of the Koalas Inc.
38	Burrowe Guys Forest Landcare Group

39	Girgarre Stanhope Landcare Group
40	Anakie Tree Planting Group
41	Seven Creeks Catchment Group Inc.
42	Avon Trees on Farms Group
43	Moyston Landcare Group
44	Bamganie Landcare Group
45	J J Mott and J B Hacker Division of Tropical Crops and Pastures CSIRO
46	Walpeup Shire Landcare Group
47	SA Department of Fisheries
48	Upper Wimmera Catchment Farm Trees Group
49	Pakenham Secondary College
50	Mr T A Irvine Tropical Forest Research Centre CSIRO
51	Lower Franklin River Land Protection Group
52	Moolort Plains Farm Trees Group
53	Northern Grampians Landcare Group
54	Armidale Branch National Parks Association of NSW
55	United Farmers and Stockowners of SA Inc.
56	Western Australian Branch The Men of the Trees Inc.
57	Brenda Park Leaseholders Inc.
58	Topar Area Rangecare Group
59	Mr L Fairweather Capricorn Conservation Council

60	National Trust of South Australia
61	Professor R D B Whalley The University of New England
62	Mr R Swinton Blighty Tree and Salinity Group, and Berriquin Salinity Group
63	Lachlan Valley Branch National Parks Association of NSW
64	Mackay Conservation Group Inc.
65	North Coast Environment Council
66	Darling Range Forum Association
67	Friends of Kororoit Creek, West Sunshine
68	Doncaster and Templestowe Planters
69	Darebin Parklands Committee of Management Inc.
70	Murphys Creek Landcare Group
71	Coolart Committee Landcare Group
72	Friends of the Yarra
73	Sutton Grange Landcare Group
74	Millewa Farm Trees Group
75	Kiewa Catchment Farm Tree and Land Protection Group
76	Field and Game Federation of Australia
77	Australian Society of Soil Science
78	Dr B York Main University of Western Australia
79	Mr D Goodwins SA Dept of Environment and Planning
80	Attwood Residents Group

81	Geoghegan College
82	Greening Knox Inc.
83	Wando River Landcare Group
84	Amphitheatre Landcare Group
85	Moonee Ponds Creek Association Inc.
86	Reedy Creek Conservation Group
87	Victorian Institute of Marine Sciences
88	Blighty Tree and Salinity Group
89	Ancona Valley Landcare Group
90	Eaglehawk Environment Group
91	Friends of Tootgarook Wetlands Inc.
92	Mr/Ms Wallace Best Plant Brokers
93	Hodgson and Horshoe Creeks Landcare Group
94	Black Range Landcare Group
95	Timor West Landcare Project
96	North Central Plains Farm Trees Group
97	Shire of Flinders, VIC
98	Ballarat University College
99	Yarrawalla and District Tree Planting Group
100	Kings Park and Botanic Gardens
101	Gosford District Wildlife Conservation Society
102	Kiewa Valley Water Authority
103	Dr K Atkins University of Western Australia
104	Professor A Beattie

	Macquarie University
105	Australian Trust for Conservation Volunteers
106	Herring Island Committee of Management
107	John Gardiner Community Recreation Centre Committee
108	River Watch Inc.
109	West Marong Land Management and Farm Trees Group
110	Melville Forest Landcare Group
111	Boweya/Lake Rowan Landcare Group
112	Molyullah Tatong Tree and Land Protection Group Inc.
113	Rifle Downs Landcare Group
114	Rifle Downs Landcare Group
115	Wimmera Farm Trees Group
116	World Wide Fund for Nature
117	Mr B B Nobbs Administration of Norfolk Island
118	Indigo Valley Landcare Group
119	Barwon Heads Park Committee of Management Inc.
120	Vasey Land Protection Group
121	Nathalia Farm Trees Group
122	Lexton Landcare Group
123	Fish Point Land Management and Farm Trees Group
124	Moonambel-Frenchman's Landcare Group
125	Mornington Railway Preservation Society Inc.
126	Whiteheads Creek Landcare Group
127	Clarence Valley Branch National Parks Association of NSW Inc.

128	The WA Farmers Federation Inc.
129	HOC Tree Group
130	National Farmers Federation
131	Dr J G Mosley Peak Environmental Enterprises
132	North Coast Environment Council Inc.
133	Hopkins Moyne Farm Tree and Land Management Group
134	ACT Government
135	Kiewa Catchment Farm Tree and Land Protection Group
136	Kyneton District Farm Trees Group
137	Bellarine Tree Group
138	Warringal Conservation Society Inc.
139	Clarence Environment Centre
140	Mr C B Banks Royal Melbourne Zoological Gardens
141	Albury-Wodonga Development Corporation
142	Horseshoe Lagoon Reserve Committee of Management
143	Sheep Pen Creek Landcare Group
144	Community Advisory Committee of the Murray-Darling Basin Ministerial Council
145	Natte Yallockm Pyrenees Revegetation Project
146	Natural Resources Conservation League of Victoria
147	Balnarring Foreshore and Parks Reserve Committee of Management Inc.
148	Burnt Creek Landcare Group
149	Nature Conservation Council of NSW
150	WA Government

151	Action Sweet Water Creek Inc.
152	Kangderaar Landcare Group
153	Mr M House, MLA Member for Stirling (WA)
154	SA Pastoral Board
155	Great Barrier Reef Marine Park Authority
156	Victoria University of Technology
157	Springhurst/Byawatha Hills Landcare Group
158	Albert River Farm Tree Group
159	Hovells Creek Revegetation Group
160	Mr D Shave, MLA Member for Melville (WA)
161	Australian National Parks and Wildlife Service
162	Australian Orchid Foundation
163	Bunnugal Landcare Group
164	Tallangatta Farm Trees Group
165	Professor R Buckley Griffith University
166	Manangatang Landcare Group
167	Indigenous Flora and Fauna Association
168	Devenish/Goorambat Landcare Group
169	Mid Goulburn Catchment Coordinating Group
170	Dr J Wamsley Warrawong Sanctuary
171	Victorian Government
172	Greening Australia (WA)
173	South Australian Museum

174	Rowsley Landcare Group
175	Yarra Bend Park Trust
176	Australian Conservation Foundation
177	Friends of Mallacoota
178	National Parks Assocation of NSW Inc.
179	Western Plains Farm Trees Group
180	Bengworden Landcare Group
181	Ravenswood Valley Landcare Group Inc.
182	Peechelba/Wilby and Boomahnoomoonah
183	South Australian Government
184	Nursery Industry Association of Australia
185	Phillip Island Landcare Group
186	Canberra Ornithologists Group
187	Mr J Rolls, Prospect, SA
188	CSIRO
189	Murray-Darling Freshwater Research Centre
190	North West Farm Trees Group
191	Office of the Supervising Scientist for the Alligator Rivers Region
192	The Hamilton Environmental Awareness and Learning Project
193	Department of Primary Industries and Energy
194	Drs G Cook and R Braithwaite Tropical Ecosystems Research Centre CSIRO
195	New South Wales Government
196	Tasmanian Government

197	Goulburn Valley Farm Trees Group
198	Burgoigee Creek Landcare
199	Department of Agriculture, Western Australia
200	Trees for Life - Murray Bridge
201	Nyah to SA Border Salinity Working Group
202	Queensland Government
203	NSW Aboriginal Land Council
204	Australian Heritage Commission
205	The District Council of Murray Bridge
206	Communication Research Institute of Australia
207	Greening Australia Ltd
208	Department of the Arts, Sport, the Environment, Tourism and Territories
209	Greening Australia Queensland Inc.
210	Dr B Stone The Scout Association of Australia
211	Professor R Buckley Griffith University
212	Mr A Irvine Division of Wildlife and Ecology, CSIRO
213	Dr G J Webb Wildlife Research and Management Consultant
214	Friend of Hattah Inc.
215	Dr H A Ford University of New England
216	United Graziers' Association of Queensland
217	Local Government Training Council Inc.
218	Greening Australia NSW Inc.

219	Mr J Bradsen University of Adelaide
220	Dr B Walker Division of Wildlife and Ecology CSIRO

EXHIBITS

Exhibit No. 1:

Information on conservation initiatives

Exhibit No. 2:

Community Nature Conservation Course material

Exhibit No. 3:

Nine Brochures on Habitat and Wildlife in Central Queensland

Exhibit No. 4:

Queensland Decade of Landcare Program

Exhibit No. 5:

Flora and Fauna Guarantee Act 1988
Flora and Fauna Guarantee Regulations 1991
Questions and Answers on the Flora and Fauna Guarantee Act 1988
Flora and Fauna Guarantee Information Paper Nos. 1 and 2
Native Vegetation Protection Bill
Friends of Flora and Fauna Groups
Looking after Victoria: Protecting our trees and bushland
Amendment S5 to all Planning Schemes: Submission to Panel
All Planning Schemes in Victoria Amendment S16: Explanatory Report
Victoria's Decade of Landcare Plan: Summary
Salt Action: Joint Action
Protecting the Environment: A Conservation Strategy for Victoria
Goulburn Broken Salinity Program Annual Report 1990-91
Coordinated Salinity Budget 1991-92
Wetlands Conservation Program for Victoria

Exhibit No. 6:

Murray Valley Irrigation Areas (Map)
Safeguarding our Future (paper by Berriquin Group)
Land and Water Management Plans (Department of Agriculture publication)

Exhibit No. 7:

How to Collect Native Tree Seed Easily (brochure published by Greening Australia)
Guidelines for Bush Corridors by B M J Hussey, R J Hobbs and D A Saunders
Revegetation Guide to the Central Wheatbelt by E C Lefroy, R J Hobbs and L J Atkins
Recommended Native Species for Planting in the Yass Valley by J R Ive
Information sheet on the Yass River Valley Revegetation Project
Information sheet on the ecology and conservation of remnant white box woodlands
'A Close look at Biological Diversity', *Ecos,* Autumn 1992, pp. 29-31
'*Synemon plana* - a grasslands case history' by Dr Ted Edwards,
The ACT's Native Grasslands: proceedings of a workshop held at the Conference Room of the National Museum of Australian, Canberra 17 February 1991
'*Synemon's* last stand' by R Falconer, *Bogong,* Vol 12, No 1, 1991

Exhibit No. 8:

Draft Species Selection Policy, Greening Australia Limited

Exhibit No. 9:

Map: Environmental Regionalisation of Australia

Exhibit No. 10:

The Conservation of Biodiversity as it relates to Ecologically Sustainable Development: Report of Working Party. Report prepared for ESD Working Groups, August 1991.

PROGRAM OF PUBLIC HEARINGS, INSPECTIONS AND INFORMAL DISCUSSIONS

Thursday 21 June 1991, Canberra

Briefing - By the Department of the Arts, Sport, the Environment, Tourism and Territories on the United Nations Conference on Environment and Development

Thursday 22 August 1991, Canberra

Briefing - By the Australian National Parks and Wildlife Service on the Save the Bush Program, the Endangered Species Program and the Endangered Species Advisory Committee

Thursday 5 September 1991, Canberra

Briefing - By the Department of Primary Industries and Energy on the National Soil Conservation Program

Thursday 12 September 1991, Canberra

Briefing - By the Murray-Darling Basin Commission on the concept and operations of the Natural Resources Management Strategy Program

Thursday 10 October 1991, Canberra

Briefing - By Greening Australia Inc.

Thursday 23 - Friday 24 January 1992, Northern NSW

Inspections - Gunnedah, Armidale, Grafton, Maclean, Angourie

Friday 31 January 1992, Brisbane

Public Hearing - Parliament House

Tuesday 11 February 1992, South Australia

Inspections - Mt Barker, Murray Bridge

Friday 21 February 1992, Melbourne

Public Hearing - Parliament House

Friday 28 February 1992, Sydney

Public Hearing - Commonwealth Parliament Offices

Monday 9 - Tuesday 10 March 1992, Western Australia

Inspections - Darlington, Kellerberrin and Tammin

Informal discussions - Department of Conservation and Land Management, and Kings Park Botanic Gardens, Perth

Tuesday 17 - Wednesday 18 March 1992, Western Victoria

Inspections - Stawell, Jallukar, Halls Gap, Grampians - Gariwerd, Horsham, Little Desert, Nhill

Friday 27 March 1992, Canberra

Public Hearing - Parliament House

Thursday 2 April 1992, Canberra

Briefing - By the Murray-Darling Basin Commission

Friday 3 April 1992, Canberra

Public Hearing - Parliament House

Friday 10 April 1992, Adelaide

Public Hearing - Barron Townhouse

Tuesday 12 - Wednesday 13 May 1992, Queensland

Inspections - Taroom, Charleville, Goondiwindi

Wednesday 20 May 1992, Sydney

Inspections - Macquarie University, Research Unit for Biodiversity and Bioresources

APPENDIX C

LIST OF WITNESSES AT PUBLIC HEARINGS

Brisbane, Friday, 31 January 1992

Greening Australia (Queensland) Inc.
Mr Peter Johnston, President

Griffith University
Professor Ralf Buckley, Division of Science and Technology

IUCN Species Survival Commission
Mr Anthony Irvine

Scout Association of Australia
Dr Bernard Stone, National Environmental Adviser

Queensland Department of Environment and Heritage
Mr Alan Don, Queensland National Parks and Wildlife Service
Mr Danny Gillespie, Division of Conservation
Ms Rebecca Williams, Division of Conservation

Queensland Department of Primary Industries
Mr Keith Jennings, Queensland Forest Service
Mr Brian Venz, Integrated Resource Planning Division

Sydney, Friday, 28 February 1992

Macquarie University School of Biological Sciences
Professor Andrew Beattie, Research Unit for Biodiversity and Bioresources
Professor Mark Westoby, Research Unit for Biodiversity and Bioresources

New South Wales Aboriginal Land Council
Mr John Fraser, Rural Properties Section
Ms Cindy Johnson, Research Officer
Ms Delia Lowe, Aboriginal Heritage and Culture
Mr Mervyn Penrith, Aboriginal Heritage and Culture

Blighty Tree and Salinity Group
Mr Richard Swinton, Technical Co-ordinator

World Wide Fund for Nature Australia
Dr Raymond Nias, Conservation Manager

Melbourne, Friday, 21 February 1992

Australian Conservation Foundation
Mr Jason Alexandra, Natural Resources Unit
Mr John Amos, Ecologically Sustainable Development Unit
Ms Margaret McDonald, Biodiversity Unit

Australian Trust for Conservation Volunteers
Mr David Clark, National President

Indigenous Flora and Fauna Association
Mr Peter Tucker

Latrobe University
Dr Robert Parsons, Reader in Plant Ecology

Melbourne Zoo
Mr Christopher Banks, Herpetology and Education Animals

Victorian Government
Mr Neil Barr, Sustainable Development Unit, Department of Food and Agriculture
Ms Margaret Blakers, Office of the Environment
Mr Russell Costello, Soil, Salinity and Vegetation Section, Department of Conservation and Environment
Mr Danny O'Neill, Salinity Bureau, Department of the Premier and Cabinet

Canberra, Friday, 27 March 1992

Community Advisory Committee of the Murray-Darling Basin Ministerial Council
Dr Geoffrey Evans
Ms Fran Sheldon
Ms Jill Tukian

Department of the Arts, Sport, the Environment and Territories
Mr Wayne Fletcher, Biodiversity Section
Dr Andrew Turner, Nature Conservation Branch

Commonwealth Scientific and Industrial Research Organisation
Mr John Ive, Division of Wildlife and Ecology, Decision Support Systems for Land Use Planners and Managers
Dr Glen Kile, Division of Forestry
Dr Ebbe Nielsen, Division of Entomology, Australian National Insect Collection
Dr Suzanne Prober, Division of Plant Industry
Dr John Williams, Division of Soils

Canberra Friday, 3 April 1992

Australian National Parks and Wildlife Service
Dr Peter Bridgewater, Chief Executive
Mr Malcolm Forbes, Landscape and Marine Conservation Section
Dr Dan Walton, Scientific Audit Unit

Communication Research Institute of Australia
Dr Robyn Penman, Research Director

Department of Primary Industries and Energy
Mr Bernard Wonder, Land Resources Division

Greening Australia Inc.
Mr Michael Adams
Mrs Valerie Wiseman
Mr Robin Youl

Adelaide, Friday, 10 April 1992

Australian Society of Soil Science Incorporated
Dr Kenneth Lee
Mr Mark Seeliger

International Association of Botanic Gardens
Dr Brian Morley

Pastoral Board of South Australia
Mr Leith Yelland

South Australian Department of Fisheries
Mr John Johnson, Research Branch
Mr Bryan Pierce, Inland Fisheries Research

South Australian National Parks and Wildlife Service
Dr Anthony Robinson, Biological Conservation
Mr David Goodwins, Geographic Information Systems

United Farmers and Stockowners Association of South Australia Inc.
Mr Peter Day, Natural Resources Branch

EXTRACT FROM *ECOLOGICALLY SUSTAINABLE DEVELOPMENT WORKING GROUP FINAL REPORT - AGRICULTURE,* EXECUTIVE SUMMARY

Vegetation removal and Nature Conservation

Awareness and understanding of detrimental effects of vegetation removal, such as loss in biodiversity and land degradation, have increased significantly in recent years. Nevertheless, the Working Group believes that a more careful assessment and much closer control must be exercised by State Governments over this form of agricultural development.

Permission to clear land in the future must not be considered an unnecessary formality. Policy options include the imposition of bans or the application of a more thorough process of authorisation and assessment before clearing takes place, and if clearing is permitted, subsequent monitoring to ensure that it is undertaken with regard to environmental factors.

The possibility of imposing an immediate moratorium on the clearing of native vegetation was raised in the draft report. A number of public submissions were received on this question, both for and against a moratorium. A major difficulty is that even the threat of the imposition of clearing bans or controls in the past has been sufficient to encourage immediate large-scale clearing by landholders concerned that this option for future development may be denied them.

The Working Group believes that management of removal of remnant native vegetation in the future should be against clearly defined criteria which take into account environmental and economic aspects, including the potential for land degradation, the need to maintain the integrity of ecosystems and biodiversity, and long-term land capability.

Recommendation 8 - **that:**

(a) **private landholders be encouraged to protect remnant vegetation by education and peer pressure;**

(b) **State and Territory Governments review regulatory procedures in this area to ensure strict application of the criteria by requiring authorisations for clearing;**

(c) **these measures be underpinned by appropriate sanctions and that these sanctions be applied rigorously; and**

(d) **all herbivores (wild and domestic) be managed to maintain vegetation in an ecologically sustainable state.**

Some members of the Working Group support an immediate moratorium on clearing in all States and Territories, except South Australia, pending the implementation of the controls referred to in Recommendation 8 (b). Other members oppose such a moratorium.

Revegetation and the protection of remnant vegetation are also important as a means of making up some of the ground lost over the years of agricultural expansion. In this respect, the Working Group supports programs such as One Billion Trees and Save the Bush, and recognises the need to ensure that these programs are effectively integrated with production-based programs such as the National Soil Conservation Program.