

NATIVE VEGETATION

NATIONAL OVERVIEW

**States/Territories/Commonwealth
Stocktake of Native Vegetation Management**

August 1999

Griffin nrm P/L ACN 088 471 523

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Prepared for

ANZECC - Environment and Conservation Ministerial Council
and
Native vegetation managers in all Australian jurisdictions

Purpose

Within the context of the July 1999 *DRAFT National Framework for the Management and Monitoring of Australia's Native Vegetation*, describe the current status of efforts in each Australian jurisdiction

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The views expressed in this report are not necessarily those of the Commonwealth of Australia. The Commonwealth does not accept responsibility for any advice or information in relation to this material.

Report contents:

The information contained in this report has been assembled by the consultants, working in cooperation with Commonwealth, State and Territory agency officials. Whilst a public document, the report is intended to be used as a general information source for native vegetation managers, principally within the bureaucracy, by providing a snapshot of the present situation. It is expected that the document will be used as one source of information by each jurisdiction as they develop native vegetation forward work plans in the latter half of 1999. The writers have endeavoured to accurately capture the situation in each jurisdiction. Drafts of each chapter of the report have been made available to the relevant jurisdiction for comment and input. The report reflects a view of the strengths of each jurisdiction and, perhaps of greater interest, the key challenges being confronted at the time of writing in June 1999.

Acknowledgment:

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Consulting team:

The team leader for this project has been John Dore (Griffin nrm) who has undertaken the analysis in all jurisdictions with Carl Binning (CSIRO Division of Wildlife & Ecology) and Greg Hayes (Virtual Consulting Group). Colma Keating (Dinkum Results) joined the team for the WA component of the task.

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EXECUTIVE SUMMARY	I
Introduction	i
Generic Challenges with Mechanisms	v
Stocktake	viii
COMMONWEALTH	1
Context	1
Legislation, Policies & Institutions	4
Evaluation of Mechanisms	9
Commonwealth Stocktake	18
AUSTRALIAN CAPITAL TERRITORY	21
Context	21
Legislation, Policies & Institutions	23
Evaluation of Mechanisms	25
Australian Capital Territory Stocktake	28
NEW SOUTH WALES	31
Context	31
Legislation, Policies & Institutions	32
Evaluation of Mechanisms	35
New South Wales Stocktake	39
NORTHERN TERRITORY	41
Context	41
Legislation, Policies & Institutions	42
Evaluation of Mechanisms	46
Northern Territory Stocktake	51
QUEENSLAND	53
Context	53
Legislation, Policies & Institutions	54
Evaluation of Mechanisms	58
Queensland Stocktake	63
SOUTH AUSTRALIA	65
Context	65
Legislation, Policies & Institutions	67
Evaluation of Mechanisms	71
South Australia Stocktake	75
TASMANIA	77
Context	77
Legislation, Policies & Institutions	79
Evaluation of Mechanisms	82
Tasmania Stocktake	86
VICTORIA	89
Context	89
Legislation, Policies & Institutions	91
Evaluation of Mechanisms	93
Victoria Stocktake	99
WESTERN AUSTRALIA	101
Context	101
Legislation, Policies & Institutions	104
Evaluation of Mechanisms	108
Western Australia Stocktake	116

Abbreviations

ANZECC	Australian New Zealand Environment Conservation Council
BRS/ALCC	Bureau of Rural Sciences Agricultural Land Cover Change (project)
CAR	Comprehensive Adequate and Representative (criteria for Reserve systems)
IBRA	Interim Biogeographic Regionalisation for Australia
M&E	Monitoring and Evaluation
NHT	Natural Heritage Trust
NLWRA	National Land and Water Resources Audit
NRM	Natural Resources Management
NVIS	National Vegetation Information System
R&D	Research and Development
RFA	Regional Forest Agreement

Executive Summary

INTRODUCTION

Native Vegetation Vision

The overarching national native vegetation goal is to reverse the long-term decline in the quality and extent of Australia's native vegetation by June 2001.

This national goal is articulated in each of the bilateral Natural Heritage Trust (NHT) Partnership Agreements which have been signed between the Commonwealth government and each State/Territory government.

Native Vegetation Context

In reading this report, a number of contextual issues need to be acknowledged. These include recognition that:

- whilst difficult to quantify, it is clear that, in a national sense, the extent of native vegetation continues to decline
- available data confirms that the existing national native vegetation goal is ambitious and will not be achieved without further reforms in several key jurisdictions
- native vegetation needs to be considered within the wider context of the role it plays in the sustainable management of all natural resources
- native vegetation has economic, social and environmental values
- the extent and status of native vegetation varies widely between States and Territories
- each jurisdiction has a different operating context which has contributed to the present institutional arrangements
- clarifying the roles and responsibilities of the many participants in native vegetation management is very important
- native vegetation management and monitoring activity is seeking wide-ranging outcomes relating to: biodiversity conservation; 'health' of soil and water resources; amelioration of hydrology-related problems; land productivity; sustainable land use; natural and cultural heritage; indigenous peoples; climate change and carbon sequestration

National Overview Context

A wide range of linked activities have already occurred at a national scale and these are often complemented at State, regional and local scales.

Working via ANZECC processes, the Commonwealth in cooperation with the States and Territories, has developed the 'first draft' of best practice attributes for management and monitoring mechanisms. Articulating these in the *DRAFT National Framework for Management and Monitoring of Australia's Native Vegetation July 1999* (the DRAFT National Framework) represents a consolidation of existing principles which can be used by each jurisdiction when periodically reassessing their management and monitoring approaches.

This report, the *Native Vegetation National Overview August 1999*, is intended to be used as one source of information by each jurisdiction as they develop native vegetation forward work plans in the latter half of 1999. The report uses the same basic structure as the DRAFT National Framework, but contains much more current information, providing a snapshot of each jurisdiction.

Key Policies, Strategies and Plans relevant to Native Vegetation (plus this report)

1989	Murray-Darling Basin's NRM Strategy
1992	Decade of Landcare Plan Convention on Biological Diversity Inter Governmental Agreement on the Environment National Forest Policy Statement National Strategy for Ecologically Sustainable Development United Nations Framework Convention on Climate Change
1993	National Landcare Program Framework Partnership Agreements
1994	COAG Water Reform Framework
1995	Wood and Paper Industries Strategy (including commencement of the Regional Forest Agreements processes)
1996	Murray-Darling Basin Sustainability Plan National Strategy for the Conservation of Australia's Biodiversity
1997	COAG Heads of Agreement on Roles & Responsibilities for Environment Decade of Landcare Plan: National Overview Kyoto Protocol to the United Nations Framework Convention on Climate Change National Weeds Strategy Nationally Agreed Criteria for the Establishment of a Comprehensive Adequate and Representative Reserve System for Forests in Australia Natural Heritage Trust Partnership Agreements Plantations 2020 Vision Wetlands Policy of the Commonwealth Government of Australia
1998	National Greenhouse Strategy
1999	Great Artesian Basin Sustainability Initiative National Principles and Guidelines for Rangeland Management Conservation of Australian Species and Ecological Communities Threatened with Extinction: A National Strategy (ANZECC Working Document)
July 99	DRAFT National Framework for the Management and Monitoring of Australia's Native Vegetation (prepared and circulated by ANZECC)
Aug 99	Native Vegetation National Overview (prepared by Griffin nrm P/L at the request of ANZECC) – an information document

Consultancy Context

This consultancy emerged as an outcome of the Standing Committee on Conservation workshop held in Canberra 25-26 February 1999 to consider an early version of the DRAFT National Framework. It was agreed at the workshop that it would be helpful to commission a consultancy to develop and implement a cooperative process to investigate the impact of policies and mechanisms for native vegetation management and monitoring in each Australian jurisdiction.

We were contracted to work in cooperation with each of the nine (9) Australian jurisdictions (Commonwealth, States and Territories) to:

- **Describe** current native vegetation management and monitoring practice, using the Draft National Framework as a guide;
- **Assess**, with representatives from each jurisdiction, current vegetation management and monitoring practice;
- **Suggest** possible improvements to current practice, taking into account the circumstances in each jurisdiction.

The focus of the consultancy has been on **collaborative review**, rather than 'audit' of the state of play in each jurisdiction. Moreover, the consultancy has focused on providing a **stocktake** of the situation, albeit with an emphasis on the **challenges**. The process has focused on terrestrial native vegetation. As instructed, there has been no focus on commercially-harvested forests as they are the subject of more intensive Regional Forest Agreement processes (however, in Tasmania the forests became an inextricable component of the debate).

The consultants, hosted by nominated representatives of the Standing Committee on Conservation, visited each jurisdiction during April-May 1999, to facilitate and undertake the review process with key agency representatives in each place.

The process involved pre-visit circulation of background material, followed by intensive 2 day workshops in each capital city with a range of people from within either State, Territory or Commonwealth government.

The consultants have brought to this task knowledge and experience of the circumstances in each jurisdiction which has assisted the process. However, we have not as a part of this process consulted with the wider public, nor have we attempted to conduct open-to-all 'Native Vegetation Policy Forums' in each jurisdiction. To do so would have exceeded the limits of the Terms of Reference negotiated between the ANZECC members.

The process has concentrated on constructively examining:

- the native vegetation and wider **context** in each jurisdiction
- the **legislation, policies and institutions** involved in native vegetation and natural resources management (NRM)
- the **mechanisms** used in each jurisdiction
- the **key strengths** and **key challenges** (or the Forward Agenda) for each jurisdiction

Therefore in summary, the process has been collaborative and reliant on interviews and workshops with representatives from each jurisdiction. It is unlikely to have been completely objective, but it has tried to be. The brief timeframe for the project has not allowed for independent verification or ground-truthing of the performance of specific policies and programs. It is 'big picture' rather than comprehensive. Nevertheless, despite the acknowledged limitations, it is considered to have succeeded in distilling key strengths and challenges and assisting in informing the development of the forward agenda for each jurisdiction.

All jurisdictions have cooperated fully in the process.

All jurisdictions received *First Draft Discussion Papers* for their own situation, which attempted to fairly capture the current state of play. Each jurisdiction provided significant feedback to the consultants on the First Draft Discussion. *Second Draft Discussion Papers* were included in an Interim Report submitted to ANZECC in June 1999. *Third Draft Discussion Papers* for each jurisdiction has now been prepared following further exchange between the consultants and cooperators. These have formed the basis of this report.

The Stocktake sections from each individual jurisdiction chapter, have been lifted out and brought forward into the Executive Summary of this Final Report to provide an abbreviated snapshot of the key strengths and challenges. However, they should be read in the context of the more detailed discussion in each chapter.

This is the **Final Report** arising from the consultancy.

Mechanisms

There is an array of mechanisms all or some of which are applicable in any jurisdiction. These mechanisms are the subject of this report.

Mechanisms for Pursuing the Native Vegetation Vision

Policies	Overarching and more specific, which may or may not be supported by legislation
Institutions	National, State/Territory, Regional, Sub-regional, Local Government Government/community
Planning and assessment	Vegetation inventory, data collection & mapping Biodiversity status assessment Regional vegetation management planning
Reserve system	Public land reserves Private land reserves
Communication and capacity building	Community education Landholder support (extension) Research and development (R&D) Revegetation 'hardware' (tools, seed etc.. to do the job)
Incentives	Grants Market-based (e.g. property right measures, revolving funds, differential rating and taxation measures, offsets and performance/assurance bonds)
Regulatory mechanisms	Threatened species/ecological communities protection Land clearance regulation Codes of practice
Monitoring and evaluation	Cover (quantity) Condition (quality)

GENERIC CHALLENGES WITH MECHANISMS

INSTITUTIONAL AND POLICY FRAMEWORK

NRM Policy and Institutions

Perhaps the most important national challenge is to establish secure – but experimental and evolving – institutional arrangements for NRM, that extend beyond political and budgetary cycles. A paradigm shift is required that views government investment in NRM as a core element of government business requiring strong ongoing commitment, akin to health and education. To achieve this outcome there is an urgent need to clarify the criteria through which responsibilities for program management are allocated, shared or devolved between Commonwealth, State, Territory and Local governments and other regional or catchment based organisations. The National NRM Statement planned for 1999, the shape of which is presently being actively debated, needs to address these issues.

Policy Learning

Given the breadth of activity and experimentation, a real challenge within and between all jurisdictions is to ensure that lessons from experience are captured and fed back into the policy development process.

NRM Funding

Closely related to institutional arrangements is the issue of funding – both public and private. New formulae for revenue sharing proposed as a part of the Goods and Services Tax system could significantly alter the present balance for public NRM funding. Also very important is the challenge of encouraging more private investment in vegetation initiatives – both commercial and philanthropic.

PLANNING AND ASSESSMENT

Base Data

It is still apparent that most jurisdictions have insufficient base information from which to seek clear, near to real time, information for evidence-based policy and ongoing management adjustments. If the nation wishes to effectively manage and monitor its native vegetation, further investment is required to enhance existing knowledge. Providing a framework for the coordination of data will also require further investment beyond the National Land and Water Resources Audit (NLWRA).

Regional Planning

Regional planning and government/community partnerships are recognised by all jurisdictions as being integral to the sustainable management of native vegetation. However, different models are being pursued. There is a need for review and learning to identify the strengths and weaknesses of the various approaches.

RESERVE SYSTEM

Achieving a National Reserve System which is Comprehensive Adequate and Representative (CAR) is a major national challenge. There is a recognised need for further development of mechanisms which will attract private and leasehold lands into a 'protected areas' system.

COMMUNICATION AND CAPACITY BUILDING

Community Education

Awareness of land and water issues, including the importance of native vegetation management, is undoubtedly higher than it was prior to the establishment of Landcare. However, it is questionable whether the broad community (rural and urban) has an adequate appreciation of the size, scale and long time lags associated with the many NRM problems, many of which are related to native vegetation. To secure future resources and effect change more effective engagement of the broader community – rural and urban/metropolitan – is required.

Landholder Support – Coordinating the Green Workforce

Many people are involved in providing support to the wider community and landholders. Optimising the outcomes from the Bushcare, Landcare and other networks is a common challenge. To avoid inefficiencies and confused messages, continued effort is required to coordinate, as required, across the full spectrum of programs relevant to the management of native vegetation – ranging from commercial forestry, agroforestry, biodiversity conservation and environmental plantings.

Research and Development (R&D) – Maintaining and Building the Knowledge Base

For a young nation, Australia has an impressive set of baseline knowledge of its natural environment including native vegetation. However, many gaps in our knowledge remain, particularly at the finer scales required for effective regional planning. It is important that we continue to support the funding of R&D that develops the basic understanding of the ecology of native vegetation, including the functional role of native vegetation in landscapes and the basic technologies required for successful retention, protection, use and general management. However, also of great importance is the challenge for continued national support of R&D examining the social, economic, legal, policy and institutional aspects of Australian behaviour which impacts on native vegetation and NRM.

INCENTIVES

Grants

There is a wide range of grant programs which have been developed in an attempt to meet the range of policy objectives for native vegetation. Prioritising funding remains difficult (e.g. needs-based, return-based, equity-based). Also, decision making about whether fundamental land use change is required – and hence whether support for industry and community adjustment is necessary – remains sensitive. Another challenge is agreeing on how much decision making should be devolved to regional, sub-regional and local levels.

Scale of Program Approaches

Future delivery of native vegetation grants or cost-sharing programs will have to achieve an appropriate balance between funding individual, community-based initiatives and targeting funding toward larger scale strategic investments that build community capacity and facilitate structural change, as required.

Market-Based

Development of market-based mechanisms, which provide genuine incentives to protect and conserve native vegetation in broadacre situations, remains a major challenge for all jurisdictions. There is an urgent need to determine the criteria against which incentives for vegetation management will be provided, particularly for private lands.

Important challenges remain related to the creation of markets that reflect a commercial value for native vegetation. Areas of opportunity include:

- development of functional property right systems
- development of a native vegetation market for carbon sequestration
- development of commercial and farm forestry opportunities
- improving understanding of the value of native vegetation in maintaining agricultural productivity

- encouraging land markets to reflect a premium for sustainably managed agricultural lands
- creating incentives for corporate and private investment in nature conservation

Compensation vs Cost-Sharing vs Incentives

When private landholders feel aggrieved that their rights are being restricted by regulatory arrangements, there is an emerging trend to talk about compensation rather than cost-sharing. Managing expectations in such situations is a widespread challenge. Preference should be given to incentives that provide transitional assistance for improved and active management of native vegetation.

REGULATORY ARRANGEMENTS

Threatened Species / Ecosystem Protection

Most jurisdictions are grappling with the challenge of having a dual focus on recovery planning for individual threatened species and ameliorating threats to ecological communities.

Land Clearance Regulation

Australia now has significant experience with the introduction of land clearance regulations. However, sharing this experience has been a challenge presumably due to the political sensitivity of the subject. Some jurisdictions are still experiencing difficulty with the introduction of regulatory controls and associated assessment processes. Learning from the experience of others would help. Moreover, for most jurisdictions it is still very difficult to obtain regular, objective data on rates of vegetation clearance, protection (and establishment). Without improved data it is not possible to assess the effectiveness of existing efforts.

Integrating Land Use Planning and Vegetation Policies

Most jurisdictions are still experiencing difficulty integrating, where appropriate, statutory land use planning with vegetation management policies. This remains a particular problem in rural areas, but also close to major urban centres and along the coast, where development and land use intensification pressures are most acute.

MONITORING AND EVALUATION (M&E)

Indicators

It is a generic challenge to develop cost-effective methods which allow rapid updating of information relating to extent (cover) and quality (condition) so as to inform policy makers and land managers. A significant investment in data relevant to the management of native vegetation has and is being made. However, there remains a common need to develop a limited set of cost effective and repeatable indicators of the extent and quality of Australia's native vegetation. For all its limitations, the 1999 Bureau of Rural Sciences/Agricultural Land Cover Change (BRS/ALCC) aggregation of data is the closest we have to a national picture for certain types of vegetation. At finer scales, including those required for effective regional planning, a long term program of strategic investment in improving our basic knowledge of our natural environment is required.

Operationalising the Native Vegetation Goal of 'No Net Loss'

Developing practical systems to allow effective operationalising of the 'no net loss' concept remains elusive. 'Accounting' systems which take account of different policy objectives such as biodiversity 'quality', carbon sink value etc.. are required.

STOCKTAKE

N.B For more detail see the individual chapters for each jurisdiction in the body of this report.

Commonwealth Stocktake

KEY STRENGTHS

The Commonwealth government has worked to put in place strong institutional structures to support native vegetation management. Key achievements include its efforts in clarifying roles and responsibilities between itself and State/Territory governments and the establishment of the NHT to coordinate and fund the delivery of programs relevant to the management of natural resources.

The Commonwealth government has made a significant and growing contribution to the management and monitoring of native vegetation over the last 10–15 years.

Community awareness and capacity to address native vegetation management issues has been significantly boosted through the Commonwealth support of the Landcare and Bushcare networks.

The Commonwealth jurisdiction has coordinated the development and implementation of a nationally agreed framework for the creation of a National Reserve System which is intended to be comprehensive, adequate and representative.

The Commonwealth jurisdiction either funds or directly undertakes a wide range of research on native vegetation management. There is an impressive knowledge base, although this needs to be maintained and enhanced.

Looking beyond grants, there has been strong Commonwealth support for the development and promotion of incentives and the creation of new markets. Notable examples include conservation covenants, revolving funds and the Bush for Greenhouse and Farm Forestry programs.

There is strong Commonwealth commitment to the development of efficient and useful national monitoring and evaluation systems to provide timely information about the extent and status of native vegetation.

KEY CHALLENGES

National coordination: Continuing to take a leading role in coordinating and contributing to the development of many national strategies and approaches of direct relevance to native vegetation.

Capacity building: Continuing to identify needs and support the development of national capacity to address emerging policy imperatives that involve native vegetation management, such as the response to climate change (the National Greenhouse Strategy) which is perhaps the most significant example of an emerging native vegetation issue.

Securing long-term institutional arrangements for NRM: Perhaps the most important national challenge is to establish secure – but experimental and evolving – institutional arrangements for NRM, that extend beyond political and budgetary cycles. A paradigm shift is required that views government investment in NRM as a core element of government business requiring strong ongoing commitment, akin to health and education. To achieve this outcome there is an urgent need to clarify the criteria through which responsibilities for program management to be allocated, shared or devolved between Commonwealth, State, Territory and Local governments and other regional or catchment based organisations. The National NRM Statement planned for 1999, the shape of which is presently being actively debated, needs to address these issues.

Funding: Closely related to institutional arrangements is the issue of funding – both public and private. New formulae for revenue sharing proposed as a part of the Goods and Services Tax system could significantly alter the present balance for public NRM funding. In relation to native vegetation this could be seen as either an opportunity or a ‘threat’ depending on perceptions of the Commonwealth’s funding role in achieving the leverage required to change attitudes at a State/Territory level for the protection and management of native vegetation. However, also very important is the challenge of encouraging more private investment in vegetation initiatives – both commercial and philanthropic.

R&D: Continuing to support the funding of R&D that develops the basic understanding of the ecology of native vegetation, including the functional role of native vegetation in landscapes and the basic technologies required for successful retention, protection, use and general management. However, also of great importance is the challenge for continued national support of R&D examining the social, economic, legal, policy and institutional aspects of Australian behaviour which impacts on native vegetation and NRM.

Coordinating native vegetation programs: To avoid inefficiencies and confused messages, continued effort is required to coordinate, as required, across the full spectrum of programs relevant to the management of native vegetation – ranging from commercial forestry, agroforestry biodiversity conservation and environmental plantings.

Scale of program approaches: Future delivery of native vegetation programs will have to achieve an appropriate balance between funding individual, community-based initiatives and targeting funding toward larger scale strategic investments that build community capacity and facilitate structural change, as required.

Legislation: The breadth of relevant legislation makes challenge identification difficult. However, two examples will suffice. With the passage of the *Environment Protection and Biodiversity Conservation Act 1999* (‘the EPBC Act’) ensuring that adequate resources are devoted to the development of bilateral agreements and supporting policies and programs for the effective implementation of the Act. Also, continuing to improve the implementation of the objectives of the *Endangered Species Protection Act 1992* – even though the Act itself will be subsumed and replaced by the EPBC Act in July 2000 – and associated programs by placing greater emphasis on endangered ecological communities, rather than individual species.

Data: Ensuring that the newly established processes for drawing together and establishing baseline data on the extent and status of native vegetation are adequately supported to deliver against their objectives. This challenge particularly relates to the National Land and Water Resources Audit (NLWRA), a key part of which is the National Vegetation Information System (NVIS). This will require ongoing leadership and support to ensure we continue to fill the glaring gaps in our knowledge base. It should be possible to draw together – or at least allow easy access to – existing information to enable clarification of the baseline status of native vegetation. Agreeing, resourcing and putting in place a small number of national scale indicators for the assessment of performance in relation to both the extent (cover) and quality (condition) of native vegetation would be another significant step forward.

Policy learning: Given the breadth of activity and learning, a real challenge at the national level (and within individual jurisdictions) is to ensure that lessons from experience are captured and fed back into the policy development process.

Australian Capital Territory Stocktake

KEY STRENGTHS

Relatively strong scientific underpinning.

Strategic approach to native vegetation linking into the surrounding NSW region.

Process for implementing the ACT Nature Conservation Strategy.

Extensive Reserve system.

Action plans for endangered ecological communities.

High-level of community engagement in conservation issues.

Linkages between PALM and Environment ACT ensuring conservation linkages to statutory planning.

KEY CHALLENGES

Legislation: Completing the legislative process for rural lease administration.

Mapping: Completing the ACT Vegetation Map.

Policy: Continuing implementation of the ACT Nature Conservation Strategy.

Institutional arrangements: Acknowledging the splintered institutional arrangements and acting to clarify roles and responsibilities and to coordinate related functions e.g. Environment Section of PALM, WRE, ACT Forests, semi-autonomous District Offices etc.

Community education: Developing a 'whole-of-jurisdiction' strategy for community NRM education.

Landholder extension: Lifting landholder understanding of the purpose of PMAs and the reasons for an overhaul of the leasehold system.

Leasehold overhaul: Successfully rejigging the entire leasehold system to provide greater security, obligations and incentives for stewardship.

Incentives: Developing stronger conservation incentives.

Property Management Agreements: Successfully establishing the PMA system including clarifying quality, obligations and compliance.

Implementing management plans: Meeting, in a coordinated way, the implementation commitments contained in the range of management plans for the Reserve system, surrounding catchments and associated rural districts.

New South Wales Stocktake

KEY STRENGTHS

A new system which has built upon previous experience of other jurisdictions, such as South Australia and Victoria. The system includes a reshaped policy framework, new institutions and many different mechanisms for implementation of policy.

Effort is being directed at getting genuine community involvement in government/community partnerships via institutions such as the Native Vegetation Advisory Council and the Regional Vegetation Committees.

A comprehensive legislative basis, founded on the *Native Vegetation Conservation Act 1997*.

A gradual evolution of a genuine whole-of-government approach at the State level, directed from the Native Vegetation Implementation Group.

KEY CHALLENGES

Completing and the acting upon the findings of the review of institutional arrangements for NRM, including the native vegetation component: There is a need and a challenge to clarify roles of the various State agencies and the future roles, beyond RVMP preparation, of the Regional Vegetation Committees and their relationship to the Total Catchment Management movement, Water Management Committees, Landcare groups etc. Critics can easily argue that the present parallel systems for NRM are unnecessarily complex.

Community confidence: Earning, obtaining and retaining community confidence in new approaches to native vegetation management and monitoring is a major challenge.

State agencies and Local government confidence: Earning, obtaining and maintaining genuine confidence and support of the range of agencies and Local governments involved in the preparation of statutory Regional Vegetation Management Plans (RVMPs) and/or more native vegetation conscious Local Environment Plans.

Resourcing RVCs and RVMPs: Resourcing and supporting Regional Vegetation Committees to ensure they successfully complete RVMPs; or resourcing and supporting Local governments to ensure they successfully incorporate satisfactory native vegetation measures into their Local Environment Plans is a major challenge. The mid-Lachlan pilot RVMP has shown that significant resources need to be allocated to underpin the creation of credible RVMPs.

Quality control of RVMPs: A challenge for the State is to develop benchmarks against which to assess RVMPs to ensure they all meet required standards.

Policy complementarity: Ensuring the State Native Vegetation Conservation Strategy complements the existing State Biodiversity Strategy.

Land clearance: The BRS/ALCC data indicates there was still extensive clearing of woody vegetation in NSW between 1990 and 1995. The previously discussed deficiencies of this data include the fact that it does not provide any information on non-woody ecosystems such as grasslands. The current NSW system finds it difficult to monitor land clearance. Reducing further the extent of land clearing, and being able to monitor progress against this objective remains a high priority.

Lack of information: Resolving underpinning knowledge gaps and consequent problems with biodiversity status assessment, classification standards and data aggregation and reporting. This also applies to current problems with regular monitoring of land clearance applications versus actual clearance activity etc. Naturally, these information gaps makes policy and program evaluation difficult.

Future Reserve investment: For the Reserve system, working out the best way to target further investments, via expansion of formal reserves or by resourcing of more off-park protected areas.

Property Agreements: For rural lands, developing widespread acceptance of the legitimacy of the Property Agreements (PAs), over and above their usefulness in obtaining a government 'payout' from the Native Vegetation Management Fund. Moreover, there is a need to ensure that the PAs are linked to and informed by the RVMPs.

General streamlining: Streamlining the processes within and between governments, regional organisations, Reserve managers, other land managers, and the general community.

Northern Territory Stocktake

KEY STRENGTHS

A largely intact representation of the native vegetation, some of which is unique and internationally recognised to be of high conservation value.

A strong and growing ecotourism industry which relies on sound vegetation management and provides a viable alternative to some forms of agriculture.

The basis of a Reserve system with scope for expansion using emerging mechanisms for joint management of Aboriginal and other land.

Commitment to improve the policy framework and the integration of activities between agencies.

A process for managing leasehold land, monitoring its condition and guiding leaseholders in its sustainable use.

KEY CHALLENGES

Managing the pressures on vegetation: In the past the main pressures have been fire, feral animals, weeds and grazing livestock. Land use intensification for agriculture/horticulture and urban growth/subdivision is meaning that particular locations are now being, or will be, subject to increasing pressures. Managing the old and new pressures is a significant challenge.

Developing an effective NRM strategy: The NT is developing an NRM strategy, which will have a vegetation component. The strategy will presumably outline the NRM model or approach to be followed. Ensuring that this leads to enhanced NRM outcomes is the challenge.

Developing a sound base for planning: Providing the basis for sound native vegetation management as part of integrated NRM is a large task for the NT given the extensive area of the Territory, and limited revenue and human resources. Part of the challenge lies in finding cost-effective means to conduct the finer scale vegetation mapping needed in critical locations in advance of development pressures or loss of habitat. Part also lies in finding mechanisms to resolve conflicts between development and conservation and biodiversity objectives. Issues associated with the greenhouse also need to be considered in the planning context.

Legislation: The present legislative system provides a basis for effective management and monitoring of native vegetation, although there are some weaknesses reported in consistent implementation across all forms of tenure. The challenge for the NT, as with some other jurisdictions, is to see that the legislative processes are sufficiently resourced to be applied. A related challenge is the further refinement and/or regular application of an open and robust environmental assessment process which ensures the critical evaluation of development proposals – particularly in areas earmarked for agriculture/horticulture intensification, but also in urban and peri-urban areas. There are loopholes in existing legislation which allow some developments to avoid controls. These need to be addressed. Legislation is not seen as the sole answer to native vegetation management, but it will continue to form part of the 'operating environment' that will be needed to bring about the desired outcomes.

Developing non-legislative means to achieve desired NRM outcomes: Perhaps the only way that the desired NRM outcomes will be achieved in the NT is by having all those who use or impact on the resources manage them in a manner consistent with those outcomes. Such management practices cannot be prescribed through legislation because it will be impractical and unduly costly to attempt to enforce such legislation. Efforts are needed to inculcate a new ethos based on duty of care and moral persuasion to influence changes in management approaches needed from pastoralists, miners, tour operators, Aboriginals and urban dwellers who have the capacity to impact on the natural resources of the NT.

Improving representation of ecosystems in parks and reserves: The challenge here is significant since the Reserve system as it now stands is neither fully comprehensive, adequate nor representative. Some of the unreserved elements are becoming increasingly scarce. Improving representation will probably have to rely on non-formal reserves via initiatives such as joint management arrangements since the NT will not have the resources to acquire and manage sufficient formal reserves.

Queensland Stocktake

KEY STRENGTHS

An existing native vegetation base that is rich in biodiversity and contributes substantially to the economy through ecotourism.

A sound foundation for the formal Reserve System.

An administratively simple system for State oversight of native vegetation management that has the potential to be broadened and made more effective.

A strong sense of ownership and a sound basis for involving local communities in the consultation process associated with vegetation management.

A strong system of Local government that provides scope for effective controls through statutory planning systems.

State government commitment to improved vegetation management.

KEY CHALLENGES

Increasing the appreciation of the role of native vegetation: There is a lack of appreciation of the contribution that native vegetation makes to the economy and to the overall sustainability of both agricultural and natural ecosystems. Queensland is yet to see evidence of the widespread degradation that has accompanied excessive clearing in other States and hence it is more difficult to persuade land managers to take the necessary pre-emptive action to preserve the integrity of ecosystems of long term importance to the community and economy. There is a major challenge to build support in the wider community for a changed approach to native vegetation management.

Controlling land clearing: This is a major challenge in a State which is still extending its agricultural base and where there has been a long tradition of no control over operations on freehold land and limited controls on leasehold. It is made even more challenging by its juxtaposition with a range of other issues that are perceived to impact adversely on rural voters, particularly in forest management and water reform. The pressures on vegetation in the past have been primarily those associated with land clearing and there are no signs that this pressure is abating. At present Queensland accounts for more than 80% of all current clearing in Australia and there is an expectation amongst land managers that they should be able to continue to develop their properties by clearing. In the more developed and fertile areas, the remaining areas of native vegetation are extremely limited and some ecosystems have already been lost.

Contributing to the attainment of the national Bushcare goal: Queensland does not believe that it can meet an objective of no net loss of native vegetation within the State. From a land degradation and biodiversity perspective, it argues that unlike other jurisdictions there is more to be gained in managing existing vegetation better and less to be gained from revegetation activities with the result that even with minimal clearing, the no net loss goal will be unattainable for Queensland.

Reforming legislation and its administration to achieve desired environmental outcomes without excessive costs: The government recognises that a more comprehensive approach to vegetation management is required. This will include the further development of incentives and participatory approaches. This will also include developing improved legislation for vegetation management in the 20% of the State currently without any form of control. Moreover, the controls which operate elsewhere, such as via the clauses of the Broadscale Tree Clearing Policy on leasehold lands, are being reviewed to facilitate the delivery of environmental outcomes sought by the State. The State government is seeking ways to amend the existing legislation and support it with structural adjustment and other mechanisms so that land managers will not be disproportionately disadvantaged by measures that improve vegetation management.

Improving representation of ecosystems in parks and reserves: Although Queensland does have almost half of its native vegetation still intact, the remnant vegetation is not well distributed across all bioregions or ecosystems. For example, the ecosystems based on the more fertile soils in the Brigalow belt and the coastal areas are largely unrepresented in the Reserve system and urgent action will be needed to prevent further losses. The challenge here is urgent and substantial since the Reserve system as it now stands is neither fully comprehensive, adequate nor representative. It is urgent because some of the unreserved elements are becoming increasingly scarce. It is substantial because it must rely on non-formal reserves since Queensland does not have the resources to acquire and manage additional formal reserves.

Developing a better base for planning: Providing the basis for sound native vegetation management as part of integrated NRM will be a continuing task. Queensland has an active policy development process underway, but still has to develop a biodiversity strategy and to consolidate its integrated catchment management and NRM strategies. At present there is no explicit process for developing regional vegetation management plans and these need to be incorporated into the process with an appropriate level of emphasis. All planning efforts at each level need to be more closely integrated and coordinated. Achieving the objectives of the *Integrated Planning Act 1998* and the Integrated Development Assessment System remain a challenge.

South Australia Stocktake

KEY STRENGTHS

A comprehensive legislative framework, including effective regulation of broadscale land clearing.

Development of various forms of 'district land management plans' that include native vegetation management as an important component of property management planning.

Effective regulation and management of rangeland areas by the Pastoral Board, including reduced stocking rates, improved pasture condition and strengthened willingness to use enforcement and compliance mechanisms.

The Biological Survey and associated institutional arrangements that have achieved cooperation and consistency in the collection and management of biological and resource data.

The development of a diverse Reserve system across different land tenures including dedicated conservation reserves, regional reserves and Heritage Agreements on private land.

Commitment to the development of integrated approaches to NRM that acknowledge the central role of native vegetation in achieving sustainable outcomes.

KEY CHALLENGES

Significant threatening processes: The major challenges facing SA relate to the management of processes that threaten the condition of native vegetation, associated natural resources and the communities who presently depend upon them for their livelihoods.

Integrated institutional response to NRM: Supporting existing policy commitments by establishing institutional and policy structures that improve the coordination and delivery of native vegetation programs at regional and local scales is a major challenge.

Reserves: Continuing to improve the conservation of poorly reserved ecological communities through public reservation and complementary off-Reserve mechanisms.

Management of Heritage Agreements: Improving the management of high conservation value Heritage Agreements by targeting and promoting the newly established management fund to these landholders.

Extension services: Coordinating the delivery of conservation and agricultural extension services, and building the dual competencies of extension officers. Also ensuring all extension work promotes the full range of land management options, incentive programs etc.

Cost sharing: Extending and targeting larger scale incentive programs to areas of greatest priority. Supporting these programs with a clear definition of landholders' duty of care for native vegetation management.

Data, monitoring and evaluation: Developing formal links between data collection, management and state-wide indicators, including the establishment of baseline indicators that are supported by data.

Aboriginal lands: Development and implementation of sustainable land management practices, restoration of degraded land and creation of ecotourism opportunities.

Tasmania Stocktake

KEY STRENGTHS

The formal Reserve system is a clear strength, particularly with forest vegetation types and ecosystems.

An active process which is working to improve the policy framework and the integration of activities across government.

A Resource Management Planning System (RMPS) which, if enhanced, could allow integrated NRM to be linked to statutory planning schemes of Local government.

A Forest Practices System (FPS) in which roles and responsibilities are clearly articulated, which has been further strengthened by the Tasmanian Regional Forest Agreement (RFA) process.

KEY CHALLENGES

Balancing conservation and development: Efforts to simultaneously achieve economic and conservation targets usually involve tradeoffs which are, to a greater or lesser extent, unpalatable depending upon your priorities. This is very true in Tasmania which is heavily dependent on utilisation of its natural resource assets. Striking a sustainable balance is a key challenge.

NRM policy development: Tasmania is yet to develop an integrated institutional approach to NRM at the State, regional or local levels. State policy is yet to be developed for NRM, Biodiversity, Remnant Vegetation or Native Vegetation (other than for forests).

Natural resource issues: There are important plant communities that have been lost and others that are threatened. Extensive tree decline, habitat fragmentation and emerging salinity are other realities. Responding to these issues is an overarching challenge for NRM policymakers.

Regulatory framework: As one element of an integrated approach to NRM there is a great challenge for Tasmania to finalise a comprehensive, consistent and logical regulatory framework including Acts, regulations, policies and plans which take account of different land uses, but aim for a 'whole-of-catchment' or 'regional' or 'sustainable landscapes' view. The role of the RMPS in relation to NRM should be further clarified.

Controlling land clearing on private lands: The major pressures on native vegetation arise through land clearing and agricultural use of some grasslands and riparian areas. Therefore, it is logical, if wishing to reduce this pressure, that land clearing should be controlled. Assessing the nature and degree of resistance to regulatory controls, and the most effective way to introduce such a system, is a fundamental challenge Tasmania is yet to overcome.

Addressing concerns about loss of biodiversity associated with plantation establishment: This issue is related to the more general previous point and is made in full understanding of the implications of the 'intensification clause' of the Tasmanian RFA. There remains a challenge for the jurisdiction to genuinely assess and ensure the Interim Biogeographic Regionalisation of Australia (IBRA) regional biodiversity 'minimum levels' are not breached given the current clearing of native forests, particularly on private lands, prior to plantation establishment. The FPS has mechanisms in place when the native forest is being commercially harvested; however, there appear to be few controls if simply wishing to remove the existing native forest in order to make way for a plantation.

Local planning schemes: Building effective NRM (encompassing biodiversity and native vegetation considerations) into enforceable Local government planning schemes is an essential part of a planning and regulatory framework. With the exception of a few Local governments, this has thus far proved to be a difficult task in Tasmania.

Obtaining a CAR Reserve system: Another element of integrated NRM involves the CAR objectives for the Reserve system. Attaining these will require the development and application of mechanisms that will protect native vegetation on private land. This includes, but is not restricted to, the judicious use of the \$30 million Private Land Reserve Program fund which is yet to prove itself as a successful mechanism.

Compensation versus duty of care: Managing possible expectations by landholders for compensation for any externally imposed constraints on their use of native vegetation is a challenge, whilst at the same time seeking to develop an ethos of 'duty of care' by the community and landholders for managing native vegetation.

Victoria Stocktake

KEY STRENGTHS

Institutionally straightforward coherent and comprehensive.

Well-developed, sophisticated and integrated information base for planning and assessment.

Legislation has very strong protection mechanisms, particularly via the Native Vegetation Retention (NVR) controls and the *Flora and Fauna Guarantee Act 1988*.

Strong links between State policy and legislation and regional/local administration and implementation via Local governments.

Strong extension and incentives infrastructure.

New and evolving regional structures for NRM, ie. the nine Catchment Management Authorities plus the Port Phillip and Westernport Catchment and Land Protection Board. Regional Catchment Strategies and the Regional Vegetation Plans (currently in preparation) represent progress being made by these institutions.

A well-established Reserve system which, while there are significant gaps, provides representation for a variety of vegetation types.

Development of Regional Vegetation Plans that meet the best practice attributes identified in the National Framework.

KEY CHALLENGES

Biodiversity accounting for operationalising 'no net loss': Operationalising the 'no net loss' policy is a key challenge for Victoria. As with other jurisdictions, there is a need to further clarify the ways in which 'no net loss' is to be measured. For example, if negotiating trade-offs, how much revegetation is needed per unit of intact remnant vegetation? How is the condition of various remnants of native vegetation reflected in the value? The challenge is to develop and implement a measuring and accounting system. The overarching policy principle is clear; however, the devil is in the detail of implementation.

Cost-sharing: Quantifying landholder benefits foregone (if any) in order to serve the public good will have public policy and possibly budgetary implications if it raises the issue of cost-sharing. Managing the development of a conservation ethic via voluntary programs such as Land for Wildlife can be undermined if a compensation mindset develops. There is a need to develop market-based mechanisms applicable to larger, commercially operated properties where most of the larger remnants occur. There is a challenge to develop long-term rewards for remnant protection and management via market mechanisms such as rate relief, removal of some taxes and charges, concessions etc.

Roles and responsibilities: Clarifying the roles of various institutions is important. A current example issue is the expansion of farm forestry and plantations throughout the State which is testing the roles of Local governments, Catchment Management Authorities and the Department of Natural Resources and Environment.

Power devolution: There is a significant difference between devolving responsibility and truly devolving power. Clarifying – in practice – the powers being devolved to regional organisations and/or Local governments is an ongoing challenge.

Threatened species and ecosystem protection: Challenges include obtaining adequate resources to prepare and ensure implementation of Action Statements. This may also involve developing more efficient ways of preparing Action Statements, perhaps by reducing the size and complexity of the plans or by considering multi-species or bioregional approaches. It may also involve building in a monitoring and evaluation component to assess the effectiveness of Action Statements and actions.

Native Vegetation Retention (NVR) controls: Challenges remain in developing cost effective, rapid monitoring procedures to measure land clearing activities. Retaining, regaining or obtaining widespread support for the NVR controls particularly by Local governments is also an ongoing challenge. An objective review of the past and present effectiveness of NVR controls would assist.

Integrating agriculture with biodiversity conservation: A major challenge for the Regional Vegetation Plans is to ensure they effectively integrate agricultural production objectives with biodiversity conservation objectives. This is far from straightforward and will rely upon continued efforts by policymakers, researchers and the community in the quest for sustainable rural communities. To an extent this remains a universal tension, as real and perceived short-term imperatives conflict with longer-term sustainability and conservation pursuits.

Local government performance: Inevitable on-going challenges involve obtaining and retaining the genuine support of Local government to 'make the system work'. It is important to ensure that there is sufficient resourcing of Local government to ensure these responsibilities are adequately discharged given rate-capping, etc. Local government challenges include ensuring there is support for the technical assessment of clearing applications. Local government also need encouragement and support if they are to pursue NVR control breaches.

Information management: The challenge here is not so much the amount of information or its analysis, but coordinating and facilitating its use by the large number of stakeholders around the State – getting the various players to use the latest available information in a consistent manner.

Western Australia Stocktake

KEY STRENGTHS

Commitment to the development of more integrated approaches to NRM.

Marked reduction in the level of vegetation clearing.

Extensive revegetation activity.

Commitment to the development of a CAR Reserve system.

Memorandum of Understanding between agencies for the protection of remnant vegetation on private land in the south-west agricultural area.

Grant programs that balance the need for community-based and targeted delivery. Examples include the incentive and stewardship programs such as the Remnant Vegetation Protection Scheme and Land for Wildlife, which support landholders to make long-term commitments to the conservation of native vegetation.

Urban Bushland Strategy and Perth's Bushplan, which can be extended state-wide.

Increasing focus on the pastoral rangelands, for example through the 'Managing the Rangelands' policy and the Gascoyne-Murchison Strategy.

KEY CHALLENGES

Threat to natural resource base, including native vegetation: The key overarching issue confronting WA is to address land degradation processes, some consequences of which include the loss and fragmentation of remaining native vegetation, particularly within agricultural regions. Long-term, large-scale policy and program responses are required. WA is progressing and putting in place many mechanisms. However, in common with other jurisdictions it will take a sustained and increased commitment over a long period of time to adequately address the NRM issues confronting the State. The State Salinity Action Plan is endeavouring to coordinate and target agency and community resources and effort to address major degradation associated with dryland salinity in the south-west agricultural area.

Integrated NRM within and between government and agencies: An acknowledged challenge is to integrate statutory processes and activities of State agencies involved in NRM. There is a need to continue to develop institutional arrangements that actively support and build agency/agency partnerships.

Integrated NRM and agency/community partnerships: An important challenge is to succeed with current efforts by Ministers, the CEOs coordinating group, Regional NRM Group Chairs and the State Salinity Council to devise new institutional arrangements that will support and build equitable partnerships with local, sub-regional and regional structures to develop plans and strategies that cover the full range of NRM objectives, with input from the broad community and all relevant agencies. This should involve ensuring these plans meet the statutory requirements of all NRM agencies. It may also require formal recognition of plans in order to give them greater public legitimacy and provide more scope for implementation through government/community/industry partnerships.

Prioritising: The development and application of regulations, policies and programs for the management and monitoring of native vegetation is a large task. Determining the 'most important' next steps is critical in order to most effectively confront the many challenges.

Biodiversity legislation: There is a need for integrating policies for the conservation of biodiversity with other NRM strategies through the proposed biodiversity legislation and supporting strategy, each of which have been on the forward agenda for some time. A strengthened legislative base is required for both the endangered species program and the consideration of biodiversity values in assessment processes.

Clearing controls: The aforementioned biodiversity legislation is one element of refining clearing control processes which should also involve clarification of the role of the Environment Protection Authority. There is also a need to further improve the linkages and develop consistency between the regulation of native vegetation clearing on rural lands and urban land, particularly in relation to the application of land use planning legislation to subdivision and changes in land use.

Data and assessment: Improving the coordination and management of data relating to NRM, which is currently fragmented across government agencies. This will require the development of data management systems and information sharing protocols. A stocktake of existing data sets to determine the extent, scale and quality would provide an improved basis for identifying future needs for data collection.

Reserve system: Continuing to identify and fill gaps in the Reserve system through acquisition and formal reservation, as well as through complementary programs on private and leasehold lands. Resolving biodiversity and nature conservation management, especially in arid lands, unallocated Crown lands and pastoral grazing lands, is a particular priority.

Extension services: Coordinating and building the competencies of extension programs and officers to facilitate joint learning about sustainable production and biodiversity conservation.

Incentives: Implementing and adequately resourcing emerging incentive structures for the conservation of native vegetation at an appropriate scale, including supporting the delivery of innovative programs by the non-government sector.

Pastoral land management: Ensuring pastoral leaseholders are operating their production enterprises in an ecologically sustainable way. This will require continuing development and maintenance of adequate monitoring and compliance mechanisms, particularly in relation to biodiversity conservation.

Structural adjustment: Where necessary, facilitating further structural adjustment of rural industries to aid the achievement of biodiversity and landscape conservation goals.

Monitoring and evaluation: Coordinating existing monitoring and evaluation activities and developing a strategic plan that is focused on management needs, develops clear baseline indicators and is realistic in terms of resource constraints.

Commonwealth

CONTEXT

Commonwealth and National Context

This chapter has a dual focus. It addresses the present role of the Commonwealth government in managing and monitoring native vegetation. It also addresses many other national bodies, which although they may not be a formal part of the Commonwealth government, are usually managed or based in Canberra. These institutions, which play an important role with regard to native vegetation, include CSIRO and various Research and Development (R&D) Corporations.

But first to Federalism. It is a matter of historic record, that the Australian Constitution does not give the Commonwealth government any explicit powers to intervene directly in the management of natural resources. Regardless of on-going arguments about concurrency, in practice the States/Territories retain primary responsibility for management of soils, water, fauna and flora. Nevertheless, the Commonwealth government has progressively increased the extent to which it seeks to influence or support the policies of State/Territory jurisdictions. Acknowledgement of the scale of some land and water degradation issues has reinforced the significance of Natural Resources Management (NRM), and has also resulted in evolving acceptance of Commonwealth/national approaches. International pressure associated with the recognition and development of international treaties addressing environmental issues including the conservation of biodiversity and greenhouse gas emissions has also pushed the Commonwealth government into greater involvement.

Other reasons which contribute to the Commonwealth view of its role in fostering improved native vegetation management at a national scale include:

- *Australia-wide community concern:* Community recognition and concern about the state of our natural resources has provided a strong political imperative for Commonwealth involvement. This includes a concern for the decline of our native vegetation and recognition of its inherent value. However, native vegetation is also recognised as being an important component of some agricultural production systems and integral to the management of a range of large scale and nationally significant land degradation problems, such as dryland salinity. It is also recognised that native vegetation forms an integral part of the habitat for other aspects of our nation's biodiversity.
- *International responsibility:* There is a Commonwealth responsibility to respond, on behalf of Australia, to international treaties and obligations, notably the biodiversity and climate change (greenhouse) conventions that arose from the 1992 United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, subsequently revisited and developed in 1997 at Kyoto.
- *Scale of national investment:* Significant investment by Australia is required to address NRM problems. This has been recognised by the Commonwealth government – in partnership with the States and Territories – initially through the Decade of Landcare and other programs, but most recently through the Natural Heritage Trust (NHT). With regard to native vegetation, the primary current initiative is the \$346.5 million Bushcare program, but there are many other associated initiatives. NHT and Bushcare predecessors have included, at the Commonwealth/national level, programs such as: Save The Bush, One Billion Trees and National Corridors of Green
- *Facilitation of institutional and structural change:* The Commonwealth also sees a leadership role for itself in facilitating the institutional and structural change that has been and still is required in various Australian jurisdictions if the nation is to meet the challenges posed by emerging NRM issues

In the past Commonwealth involvement in native vegetation management has been controversial, particularly in relation to the management of native forests. In the 1980s Commonwealth involvement was characterised by the use of its constitutional powers to affect decisions previously considered to be the province of the States/Territories, for example, through the protection of World Heritage Areas. This approach involved the use of indirect means, such as the regulation of export licensing, and exercising the external affairs power, particularly related to international conventions and foreign investment controls. This resulted in conflict with

State/Territory governments, not only on the issues involved but also in relation to the general process and operation of our Federal system.

In recent years, Commonwealth governments have attempted to develop more collaborative, multilateral approaches with State and Territory governments. This transition is perhaps best evidenced by the development of the Intergovernmental Agreement on the Environment in 1992, the COAG Heads of Agreement on Commonwealth/States Roles and Responsibilities for the Environment in 1997, and the development of the *Environment Protection and Biodiversity Conservation Act 1999* recently passed by the Commonwealth Parliament. The Act provides for a clearer expression of the Commonwealth's environmental responsibilities. There are also provisions for accreditation of State/Territory processes, subject to those processes meeting the requirement of the Act, and the development of bilateral agreements. It also allows the Commonwealth Environment Minister to establish programs to support the objectives of the legislation. It provides for Commonwealth involvement in environment assessment and approvals, only for those issues deemed to be of national environmental significance. The Act is an attempt to replace indirect triggers for assessment and approval with direct triggers based on explicit constitutional heads of power.

The 1997 COAG Heads of Agreement recognised that conservation of native vegetation and fauna is a matter of national environmental significance. The Agreement notes the Commonwealth interest includes undertaking program and cooperative measures with the States/Territories and other interested parties designed to aid the management of native vegetation for sustainable use and conservation. It stops short of recommending native vegetation should be a trigger for Commonwealth government involvement in formal environment assessment processes.

Commonwealth involvement in native vegetation management and monitoring is presently focused in the following areas:

- *National coordination:* The Commonwealth government has taken a leading role in coordinating and contributing to the development of many national strategies and approaches of direct relevance to native vegetation.
- *Capacity building:* Identification and development of capacities to address emerging policy imperatives that involve native vegetation management, such as the response to climate change (the National Greenhouse Strategy) which is perhaps the most significant example of an emerging native vegetation issue.
- *Legislation:* Developing legislation which complements that prepared by other jurisdictions.
- *R&D:* Undertaking and funding of R&D that develops the basic understanding of the ecology of native vegetation, including the functional role of native vegetation in landscapes and the basic technologies required for successful retention, protection, use and general management.
- *Catalytic funding:* Providing catalytic funding that builds the capacity of the community to manage native vegetation and secures the institutional and structural changes required for jurisdictions and land managers to achieve self-sufficiency in native vegetation management. The Commonwealth government is of the view that it should not be responsible for the provision of long term assistance for activities more appropriately addressed by land users and the primarily responsible State/Territory jurisdictions.
- *Monitoring and evaluation:* M&E of the cover and condition of native vegetation from a national perspective, to meet both domestic and international policy and reporting requirements. At the national scale, monitoring is difficult. The best and most recent example of nation-wide data has been provided by the Bureau of Rural Sciences Agricultural Land Cover Change (BRS/ALCC) project (See Table 1).

Table 1 BRS/ALCC project: Annual rates of Change in Woody Vegetation (ha) 1990-1995
 (Bureau of Rural Sciences preliminary data, http://www.brs.gov.au/apnrb/landcov/alcc_results/)
 (Woody vegetation defined as >2m tall, with >20% crown cover)

	Agric.	Grazing	Other	Forests	Plantation	Farm trees	Fire	Total	%
DECREASE									
ACT	-	-	-	50	1,100	-	-	1,150	0%
NSW	14,150		2,250	4,170	1,780	NR	33,520	55,870	13%
NT	1,180	220	1,920		-	NR	NR	3,320	1%
Qld	10,880	245,060	7,510	1,050	3,520	NR	40	268,060	63%
SA	1,280	NR	90	-	1,970	170	13,780	17,290	4%
Tas	40	820	80	5,700	1,700	250	260	8,850	2%
Vic	1,790	NR	660	6,270	4,480	NR	4,170	17,370	4%
WA	17,750	NR	3,400	1,610	600	NR	32,650	56,010	13%
<i>Total</i>	<i>47,070</i>	<i>246,100</i>	<i>15,910</i>	<i>56,460</i>	<i>14,151</i>	<i>420</i>	<i>84,420</i>	<i>427,920</i>	<i>100%</i>
INCREASE									
ACT	-	-	-	-	446	-	17	463	0%
NSW	307	8	27	1,482	7,680	34	4,014	13,552	7%
NT	85	-	-	-	31	-	-	116	0%
Qld	-	30,615	-	332	4,445	-	-	35,392	19%
SA	3,417	-	-	-	4,685	332	40,878	49,312	26%
Tas	26	-	13	320	4,696	48	-	5,103	3%
Vic	-	-	612	2,772	7,001	1	36,136	46,522	24%
WA	15,718	-	2,091	1,122	6,430	2,290	12,961	40,612	21%
<i>Total</i>	<i>19,553</i>	<i>30,623</i>	<i>2,743</i>	<i>6,028</i>	<i>35,414</i>	<i>2,705</i>	<i>94,006</i>	<i>191,072</i>	<i>100%</i>

*NR = not recorded

Points to note about the BRS/ALCC project data: The figures only address woody vegetation (as defined). Changes to grasslands, woodlands where crown cover is <20%, open woodlands, heaths and most shrublands have not been assessed. Significant threats to many ecosystems, such as grasslands, are not reflected. Despite the limitations, it is still the best and most recent overview available.

Vision

The overarching national native vegetation goal is to reverse the long-term decline in the quality and extent of Australia's native vegetation by June 2001.

This national goal is articulated in each of the bilateral NHT Partnership Agreements which have been signed between the Commonwealth government and each State/Territory.

The BRS/ALCC data – even insofar as they only relate to woody vegetation – confirms that this is an ambitious national goal which will not be achieved without further reforms in several key jurisdictions.

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

Commonwealth legislation with significant potential to impact on native vegetation include the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC) which, when it comes into force in July 2000, will replace the following existing Acts: *Environment Protection (Impact of Proposals) Act 1974*, *National Parks and Wildlife Conservation Act 1975*, *World Heritage (Properties Conservation) Act 1983*, and the *Endangered Species Protection Act 1992*.

Other relevant Acts which effect native vegetation include: *Australian Heritage Commission Act 1975*, *Australian Quarantine Act 1908*, *Natural Heritage Trust Act 1997*, *Natural Resources Management (Financial Assistance) Act 1992*, and the *Primary Industries Research and Development Act 1989*.

Policies, Strategies & Plans

There is a plethora of national policies, strategies and plans which are directly relevant to native vegetation management. Most of these have been negotiated and agreed between the Commonwealth, States and Territories governments.

The recent development of the DRAFT National Framework for Management and Monitoring of Australia's Native Vegetation, a process to which this report is contributing, is a further stage in the evolution of a national approach to native vegetation. The DRAFT National Framework specifically acknowledges:

- native vegetation needs to be considered within the wider context of NRM
- the wide range of linked activities (Table 2) which have already occurred
- that native vegetation has economic, social and environmental values
- that native vegetation management and monitoring activity is seeking wide-ranging outcomes relating to: biodiversity, 'health' of soil and water resources, hydrology, land productivity, sustainable land use, natural and cultural heritage, indigenous peoples and climate change.
- that each jurisdiction has a different operating context which has contributed to the present legislation, policies and institutions
- that clarifying role and responsibilities of the many participants is very important
- that there is an array of mechanisms which may be applicable in any jurisdiction relating to: planning and assessment, the Reserve system (with public and private components), communication and capacity building, incentives, regulatory mechanisms; and, monitoring and evaluation.

Although having only a limited role in direct management, the Commonwealth government has an active interest in developing and assisting with the achievement of best practice mechanisms for native vegetation management and monitoring. Hence, working via ANZECC processes, the Commonwealth in cooperation with the States and Territories, has developed the 'first draft' of best practice attributes for each category and sub-category of mechanism. This is consistent with the Commonwealth role identified in the 1997 COAG Heads of Agreement.

Articulating these in the DRAFT National Framework represents a consolidation of existing knowledge which can be now used by each jurisdiction when periodically reassessing their management and monitoring approaches.

Table 2 Key policies, strategies & plans relevant to native vegetation

1989	Murray-Darling Basin's NRM Strategy
1992	Decade of Landcare Plan Convention on Biological Diversity Inter Governmental Agreement on the Environment National Forest Policy Statement National Strategy for Ecologically Sustainable Development United Nations Framework Convention on Climate Change
1993	National Landcare Program Framework Partnership Agreements
1994	COAG Water Reform Framework
1995	Wood and Paper Industries Strategy (including commencement of the Regional Forest Agreements processes)
1996	Murray-Darling Basin Sustainability Plan National Strategy for the Conservation of Australia's Biodiversity
1997	COAG Heads of Agreement on Roles & Responsibilities for Environment Decade of Landcare Plan: National Overview Kyoto Protocol to the United Nations Framework Convention on Climate Change National Weeds Strategy Nationally Agreed Criteria for the Establishment of a Comprehensive Adequate and Representative Reserve System for Forests in Australia Natural Heritage Trust Partnership Agreements Plantations 2020 Vision Wetlands Policy of the Commonwealth Government of Australia
1998	National Greenhouse Strategy
1999	Great Artesian Basin Sustainability Initiative National Principles and Guidelines for Rangeland Management Conservation of Australian Species and Ecological Communities Threatened with Extinction: A National Strategy (ANZECC Working Document)
July 99	DRAFT National Framework for the Management and Monitoring of Australia's Native Vegetation

Institutional Arrangements

Commonwealth government portfolios

Environment & Heritage (EA)
Agriculture, Fisheries and Forestry (AFFA)
Industry, Science and Resources (DISR)
Prime Minister and Cabinet (DPM&C)

Government coordinating mechanisms (portfolio with lead responsibility in brackets)

Australian & New Zealand Environment & Conservation Council (EA)
Ministerial Council on Forests, Fisheries and Aquaculture (AFFA)
Agriculture & Resource Management Council of Australia & New Zealand (AFFA)
Murray-Darling Basin Ministerial Council (AFFA)
Australia and New Zealand Land Information Council (DISR)
Council of Australian Governments (DPM&C)
Special Premiers Conferences (DPM&C)

Advisory bodies (principal reporting portfolio in brackets)

Australian Research Council (ETYA)
Biological Diversity Advisory Council (EA)
Council for Sustainable Vegetation Management (EA)
Endangered Species Advisory Committee (EA)
Endangered Species Scientific Subcommittee (EA)
Australian Landcare Council (AFFA)
Murray Darling Basin Community Advisory Committee (AFFA)
National Farm Forestry Roundtable (AFFA)
Prime Ministers Science Engineering and Innovation Council (DISR)

Department units, associated research agencies, associated statutory authorities

Australian Greenhouse Office
Australian Heritage Commission (EA)
Environmental Resources Information Network (EA)
Parks Australia & Wildlife Australia (EA)
Australian Bureau of Agriculture & Resource Economics (AFFA)
Bureau of Rural Sciences (AFFA)
Australian Quarantine Inspection Service (AFFA)
Murray-Darling Basin Commission (AFFA)
National Resource Information Centre (AFFA)
Land and Water Resources R&D Corporation (AFFA)
Rural Industries R&D Corporation (AFFA)
Other R&D Corporations (AFFA)
Australian Geological Survey Organisations (DISR)
Australian Land Information Group (DISR)
Commonwealth Scientific & Industrial Research Organisation (DISR)
Cooperative Research Centres (usually involving Universities) (DISR)
Aboriginal & Torres Strait Islander Commission (DPM&C)
Indigenous Land Corporation (DPM&C)
Productivity Commission (Treasury)
Australian Bureau of Statistics (Treasury)

Key programs and policy initiatives

The primary Commonwealth investment mechanism for achieving the native vegetation vision is the NHT, the objectives of which are to:

- Provide a framework for strategic capital investment, to stimulate additional investment in the natural environment
- Achieve complementary environment protection (including biodiversity conservation), sustainable agriculture and NRM outcomes consistent with national strategies
- Provide a framework for cooperative partnerships between communities, industry and all levels of government

There is a wide range of Commonwealth/State/Territory programs relevant to native vegetation, most of which have their delivery coordinated via the NHT framework. Many, but not all, of the programs are funded from the NHT. However, projects such as the National Landcare Program (NLP) may also receive some funding via appropriation – e.g. NLP received \$34 million from appropriation in 99/00.

It is clearly recognised that only a proportion of this expenditure relates to native vegetation.

Moreover, it is recognised that there is often extra funds committed to bolster program allocations, over and above that specified in Table 3. Sometimes these 'extra funds' are transfers from other programs, for example,

the Murray-Darling Basin Commission committed \$275,000 in each of the 98/99 and 99/00 financial years to the Joint Venture Agroforestry Program. At other times, 'extra funds' are contributed by third parties. For example, the National Remnant Vegetation R&D Program is augmented by a further \$5.8 million from host and third parties, during the life of the current program.

Table 3 Commonwealth/national programs relevant to native vegetation

<i>Program</i>	<i>Institutions with major role</i>	<i>\$ million</i>	<i>Duration</i>
Bushcare	EA	346.5	96/97-01/02
National Landcare Program	AFFA	326.6	96/97-01/02
Murray-Darling 2001	AFFA, MDBC	196.1	96/97-01/02
National Reserve System Program	EA	85.0	96/97-01/02
National Rivercare Program	AFFA	67.4	96/97-01/02
Farm Forestry Program (exc JVAP)	AFFA	45.2	97/98-01/02
Endangered Species Program	EA	39.6	96/97-01/02
National Land & Water Resources Audit (inc National Vegetation Information System)	AFFA	37.0	96/97-01/02
Greenhouse Challenge	Australian Greenhouse Office	30.0	98/99-02/03
National Weeds Program	AFFA, EA	28.5	96/97-01/02
Cities for Climate Protection	Australian Greenhouse Office	13.0	98/99-02/03
Joint Venture Agroforestry R&D Program	AFFA, RIRDC, FWPRDC	~6.0	98/99-01/02
Bush for Greenhouse	Australian Greenhouse Office	5.5	98/99-02/03
National Forest Inventory	AFFA	5.0	97/98-00/01
National Greenhouse Gas Inventory	Australian Greenhouse Office	5.0	96/97-01/02
National Remnant Vegetation R&D Program	EA, LWRRDC	5.0	94/95-99/00

Analysis

At the national level there is now a strong policy base founded on a number of national strategies. These strategies are supported through institutional structures, within the Commonwealth government, and between jurisdictions via mechanisms such as Ministerial Councils. In recent times, more effective Commonwealth/State/Territory partnership approaches are emerging.

The new *Environment Protection and Biodiversity Conservation Act 1999*, contains a number of provisions relevant to the management of native vegetation. It provides a framework for moving forward through the further development of bilateral agreements with State/Territory governments. However, regardless of the legislation, the development and implementation of robust bilateral agreements that deliver against the objective of ecologically sustainable NRM remains a critical challenge. The legislation has put in place a more formalised framework through which there is the potential to consolidate and build upon existing cooperative structures.

With regard to native vegetation, in common with other jurisdictions, the central institutional challenge for the Commonwealth is to manage the disparate approaches to native vegetation management between agencies and programs. The NHT and associated institutional structures, attempt to coordinate the delivery of programs that are relevant to native vegetation management. However, challenges remain in the following areas:

- *Integrating across departments and policy objectives:* Between Departments there are different objectives and hence, priorities. For example, AFFA has a focus on sustainable rural industries, whereas Environment Australia have a greater emphasis on the achievement of biodiversity objectives. Understandably, this results in different values being attached to native vegetation.
- *Coordinating native vegetation programs:* Coordination is required across the full spectrum (ranging from commercial forestry, to agroforestry to biodiversity conservation and environmental plantings) of programs relevant to the management of native vegetation
- *Targeting and coordinating the delivery of programs at a regional scale:* Effective on-ground delivery of Commonwealth programs requires clear pathways for delivery at local, sub-regional, catchment, regional, State and national scales. Key issues relate to the targeting of program delivery and, where appropriate, devolution of program management to local and regional scales.

- *Integration with climate change policies and programs:* Although this point could be subsumed within those above, it is highlighted because of the urgency in achieving coordination between native vegetation and climate change programs in order to maximise the return to the national investment in these areas.
- *Policy learning:* Given the breadth of activity and learning, a real challenge for the Commonwealth (and other jurisdictions) is to ensure that lessons from experience are captured and fed back into the policy development process.
- *Securing long-term institutional and financial arrangements for NRM:* The case for a long term commitment is compelling for two reasons. Firstly, the size and scale of the task of conserving, rehabilitating and re-establishing native vegetation demands a long term commitment. Secondly, given the emphasis that has been devoted to fostering community-driven solutions, continuity and security for program and regional structures will be critical for at least 10-15 years. The argument for more secure arrangements does not, however, necessarily imply that a long term ongoing Commonwealth involvement is required.

Several issues need to be considered including clarification of the responsibilities of Commonwealth, State and Territory jurisdictions. As the Commonwealth government does not have primary responsibility for the management of natural resources, it may not be desirable that it continue the current scale of investment through the NHT. Unless a strong argument for shared responsibilities is accepted, it is difficult to see why the Commonwealth government should continue to lead/direct future investment beyond what is clearly its present catalytic role.

A related issue is funding and the 'vertical fiscal imbalance' which simply refers to the imbalance between revenue-raising powers and expenditure responsibilities. In the Australian Federation, more than in any other, the Commonwealth government collects most of the money and has distribution powers which allow it to significantly influence the agenda of State/Territory governments who rely on financial transfers from the Commonwealth to discharge their various responsibilities. At least in relation to NRM, there is a risk of increasing dependence by State/Territory government agencies on Commonwealth program funding to maintain core staff and services. This point should be considered by those negotiating new financing arrangements, with the advent of the national Goods and Services Tax (GST). New formulae for revenue sharing, proposed as a part of the GST system, could significantly alter the present balance for NRM funding. In relation to native vegetation this could be seen as either an opportunity or a 'threat' depending on perceptions of the Commonwealth's funding role in achieving the leverage required to change attitudes at a State/Territory level for the protection and management of native vegetation.

A related point is that it is obvious that at the Commonwealth (and State/Territory) level there is significant reliance on the NHT which at this stage is apparently only to operate for a clearly defined term (96/97-01/02). Funding post-NHT is yet to be resolved. The present mid-term review of the NHT will inevitably, and justifiably, inform policymakers considering 2002+.

Perhaps the most important national challenge is to establish secure institutional arrangements for NRM, that extend beyond political and budgetary cycles. A paradigm shift is required that views government investment in NRM as a core element of government business requiring strong ongoing commitment, akin to health and education. To achieve this outcome there is an urgent need to clarify the criteria through which the funding and responsibilities for program management to are allocated or devolved between Commonwealth, State, Territory and Local governments and other regional or catchment based organisations. The National NRM Statement planned for 1999, the shape of which is presently being actively debated, needs to address these issues.

Future delivery of native vegetation programs will have to achieve an appropriate balance between funding individual, community-based initiatives and targeting funding toward larger scale strategic investments that build community capacity and facilitate structural change in prioritised regions. Despite genuine efforts by many participants, there is still some justifiable criticism of the lack of strategic focus and prioritising of 'on ground' public-funded efforts.

Significant questions remain. For example, should Commonwealth support be prioritised and directed on the basis of the status of native vegetation, the urgency of addressing processes that threaten native vegetation, the capacity and willingness of local communities, or the orthodox economic benefit/cost of action/inaction/investment/non-investment? Also, what about risk assessment? For example, with regard to

remnant vegetation, where is the relative risk assessment of the different areas confronting salinity-associated degradation?

With regard to R&D at the national level, there is a wide range of very capable R&D institutions. These are either department units, associated research agencies, or associated statutory authorities. Whilst the knowledge base is significant, there is still much to be learned to really understand the role of native vegetation in basic ecological processes and the linkages between biological diversity and agricultural production. There are many remaining needs, including:

- more understanding of the social and institutional influences on native vegetation
- cheaper, more practical and more effective approaches to revegetation at a landscape scale
- better policy instruments, especially incentives
- understanding barriers to 'appropriate' market development and increased private investment

These are some of the types of issues on the agenda of organisations such as the Land and Water Resources R&D Corporation (LWRRDC), Murray-Darling Basin Commission, CSIRO, Rural Industries R&D Corporation and the team at the National Land and Water Resources Audit (NLWRA).

EVALUATION OF MECHANISMS

Planning and Assessment

Inventory and Mapping

The Commonwealth is committed to developing improved methods for identifying native vegetation issues and prioritising program delivery. An essential starting point is the development of comprehensive and consistent data on the extent and condition of native vegetation nationally. There is a great deal of activity in collecting and collating data related to native vegetation management.

Data are held by a wide range of agencies including:

- Australian Bureau of Statistics
- Australian Bureau of Agriculture and Resource Economics
- Environmental Resources Information Network
- Bureau of Rural Sciences (within which is the National Resource Information Centre)
- Centre for Plant Biodiversity Research
- Commonwealth Scientific and Industrial Research Organisation (CSIRO)

The diversity in funding levels for data collection and collation activities and related institutions – just at the national level – reflects different policy imperatives and institutional histories. However, it is widely agreed that there is an urgent need to draw together – or at least allow easy access to – existing information to enable clarification of the baseline status of native vegetation. The National Forest Inventory (NFI), a cooperative program between all State, Territory and Commonwealth governments and operating since 1988, is an example of where information for a component of the vegetation spectrum, forests (both public and private), has been drawn together to a national aggregate. The NFI which has preceded the NLWRA, provides useful lessons for the present active development, coordinated by the NLWRA of the National Vegetation Information System (NVIS).

Data management and coordination inevitably presents technical, commercial and political challenges. Whilst the institutional structures are now in place, there is an urgent need for continued commitment by governments, post-NLWRA, to provide the necessary leadership and support to ensure these new structures deliver against what has been a long running gap in our knowledge base.

Examples of other extensive inventory and mapping efforts include: Comprehensive Regional Assessments for the Regional Forest Agreements (RFAs), the National Threatened Flora Database, and the BRS/ALCC project.

Biodiversity Status Assessment

In relation to biodiversity status assessment the Commonwealth government has both undertaken and funded a wide range of studies that have assisted in developing methods for the assessment of biodiversity at different scales, particularly through the RFA process. However, there remains an urgent need for further detailed studies at a regional scale in many jurisdictions. Studies of this kind are resource intensive, time consuming and need to be conducted to a high and consistent scientific standard.

Australia is a world leader in biodiversity assessment methodologies. However, it must be recognised that many gaps in our knowledge remain, particularly at fine spatial scale. Acquiring this knowledge represents an investment in our understanding of Australia's natural environment. This requires a long term strategic program of biodiversity inventory status assessment which can be justified by its potential to improve the targeting of investment in conservation.

Regional Planning

The Commonwealth government is seeking to encourage the development of regional approaches to NRM which have potential to further improve native vegetation management and monitoring. Its approach is focused on building methods and skills for effective regional planning; funding strategic projects; providing devolved grants and responsibilities to regions that are performing; and working to engage Local government. It has done this through funding of a range of regional initiatives through the NHT.

For example, specifically with regard to native vegetation, Environment Australia and LWRRDC have funded State/Territory pilot projects developing best practice management and process via case studies in four regions of SA, the Lachlan region of NSW, Dongolocking in WA, the Goulburn-Broken catchment in Victoria, the northern midlands of Tasmania, and the Brigalow Belt of Queensland.

As has been previously mentioned, a critical challenge is to determine the processes and criteria through which stable regional structures can be created and recognised in order to have resources and responsibilities devolved to them.

Key Challenges

Ensuring that the newly established processes for drawing together and establishing baseline data on the extent and status of native vegetation are adequately supported to deliver against their objectives. (This challenge particularly relates to the NLWRA, a key part of which is the NVIS)

Establishing a long term strategic program to support consistent national biodiversity and native vegetation inventory and status assessment

Continuing to facilitate the development and regional delivery of native vegetation programs by:

- Putting in place clear tools and criteria against which regions can be accredited to deliver Commonwealth and State/Territory programs
- Facilitating the integration of vegetation, biodiversity and catchment management planning
- Building the capacity and developing strategic partnerships with Local governments for the management and monitoring native vegetation
- Using the mid-term review of the NHT and regional planning processes to identify and target the adoption of best practice approaches in high priority regions

Ensuring that regional vegetation management planning is undertaken within the context of ESD at the regional scale (sustainable regional development) and that the plans inform and support specific vegetation decisions and broader regional activities.

Reserve System

The Commonwealth jurisdiction has two principal roles in relation to conservation reserves: coordination of the development and implementation of the National Reserve System; and management of its own national parks and other protected areas for which it is directly responsible.

The Commonwealth government remains largely dependent on State/Territory government agencies for detailed advice on Reserve planning, acquisition and management. For example, there is no national database on the conservation status of different ecological communities other than at a broad bioregional scale. Cooperative approaches with State/Territory government agencies are critical to achieve Reserve acquisition and management objectives. The work of the ANZECC Working Group on National Parks and Protected Area Management in developing best practice guidelines on particular aspects of Reserve management is a good example of inter-jurisdictional cooperation in this area.

In the last five years considerable effort has been devoted to developing a framework for coordinating and prioritising Reserve acquisition and management programs at a national scale. A key achievement has been the development and agreement through ANZECC of CAR criteria to scientifically guide the establishment of a National Reserve System. Together with funding from the NHT National Reserve System program, this has provided the basis for targeting acquisition programs and widening the range of mechanisms through which land can be reserved, including private lands that have management agreements in place that ensure the long term protection and management of conservation values. The program, which complements the RFA Reserve creation, is concentrating on conservation of ecosystems using (where available) attributes of vegetation structure and flora/fauna composition.

A key challenge is to ensure on and off-Reserve conservation is effectively coordinated on an ecosystem basis.

The Commonwealth government has only direct responsibility for a small number (15) of conservation reserves in those parts of the nation for which it exercises natural resource responsibility, for example the external territories and marine waters beyond State limits. Significant terrestrial reserves include: Uluru Kata-Tjuta, Kakadu, Booderee, Christmas Island, Pulu Keeling and Norfolk Island National Parks. Development of a CAR system of marine protected areas in Commonwealth waters is under way, however, the Commonwealth government is not empowered to establish an equivalent terrestrial system.

The *National Parks and Wildlife Conservation Act 1975*, and the *Environment Protection and Biodiversity Conservation Act 1999* which will replace 'the Parks Act' in July 2000, require plans of management to be prepared for all areas declared under the Act. The Acts provide for both public involvement in the preparation of plans and for Parliamentary scrutiny and acceptance before plans take effect.

All Commonwealth-controlled reserves have plans either in place and guiding activities or in the process of being developed. For those parks which are jointly managed with their traditional owners, plans place great emphasis on establishing joint management arrangements including maintenance and presentation of Aboriginal culture.

In addition to formally-proclaimed protected areas, there are significant areas of Commonwealth land which have high conservation values and, in addition to their primary use, are managed to take account of those values. Calperum Station in SA (part of the Bookmark Biosphere Reserve) and Defence lands at Beecroft Peninsula (Jervis Bay, NSW), Garden Island (WA) and Shoalwater Bay (Qld) are examples of such areas.

Key Challenges

Continuing to foster and develop cooperative inter-jurisdiction structures for the establishment, management and monitoring of the National Reserve System

Promoting the participation of private lands, including indigenous lands, in the National Reserve System

Improving the coordination and linkages between on and off-Reserve management and associated government programs, particularly for ecosystems that are predominately found on private land. This could be initiated by establishing a database which supports planning across Reserve and off-Reserve programs on an ecosystem basis

Continuing to work with other jurisdictions to ensure acquisitions under the National Reserve System Program are targeted at high priority areas and gaps, given the agreed criteria

Developing biological information on which to plan Reserve and off-Reserve conservation measures

Support of applied research on basic issues related to the management of reserves. Key issues include the management of grazing pressure of native and feral animals, weeds, fire and recreational uses

Maintaining established relationships with traditional owners of jointly managed national parks that appropriately balance natural and cultural conservation with other park uses, especially tourism

Improving conservation management in reserves in relation to improved knowledge of fire management for conservation, rehabilitation of damaged ecosystems, recovery of endangered species and management of tourism impacts

Communication and Capacity Building

Community Education

In the last 10-15 years the Commonwealth government has made a significant investment in promoting awareness and the capacity of communities and landholders to address NRM issues through the Landcare movement and more recently Landcare/Bushcare etc., largely funded by the NHT. As another example, RFAs have also sought to raise community understanding of the issues surrounding the management of native forests.

General community awareness of land and native vegetation management issues is undoubtedly higher than it was prior to the establishment of Landcare. However, it is unlikely that the broad community (rural and urban) has an adequate appreciation of the size, scale and long time lags associated with 'returns on investment' for many land management problems that are related to native vegetation.

Landholder Support

The Commonwealth is also very significant by way of its important role in funding much of the communication and capacity building 'workforce' which provides support to landholders (and non-landholders) with an interest in NRM, and native vegetation management.

For example, the AFFA suite of NHT programs supports about 500 full time equivalent coordinators and facilitators. This figure includes employees funded from the National Landcare Program, National Rivercare

Program, Murray-Darling 2001, Farm Forestry Program and the Fisheries Action Program. These people have an NRM focus, but dissecting the amount of time spent on native vegetation management and monitoring would be difficult and probably rather pointless.

Bushcare supports the employment of 120-130 full time equivalent coordinators and facilitators. This includes 8 State/Territory coordinators, 40 regional facilitators, 112 technical support people (but 64.5 full time equivalents) via the Bushcare Support network contract led by Greening Australia, 8 environment resource people with Local governments, and 12 indigenous land management facilitators. The Bushcare network has a strong focus on vegetation.

Revegetation 'Hardware'

Whilst the Commonwealth has no direct role in the provision of specific vegetation management tools and resources, it does have an important role in the coordination of activities and development of new techniques for the management, rehabilitation and reestablishment of native vegetation. A notable Commonwealth initiative is the FloraBank project that is facilitating improved availability and quality of native seed for revegetation and conservation purposes. In addition, a range of research projects relating to the management and rehabilitation of native vegetation are being supported through the LWRRDC. A key national challenge remains in developing and communicating improved techniques and technologies for larger scale revegetation activities.

R&D

The Commonwealth makes a significant investment in research and development related to native vegetation management and monitoring. The work undertaken through the EA/LWRRDC Remnant Vegetation R&D Program is one of a number of notable programs and initiatives funded by the Commonwealth. It includes ecological, socio-economic and regional vegetation management projects. Another important program is the Joint Venture Agroforestry R&D Program (RIRDC/FWPRDC/LWRRDC) which, for example, has allocated \$2.5 million over 3 years to the assessment of new tree-crop products and industries, with an emphasis on native species. The Commonwealth either directly or indirectly funds much of the basic research relating to the management of native vegetation. There is a wealth of information and expertise to draw on at the Commonwealth/national level. However, there are significant challenges in building effective partnerships for applied research and in maintaining a core of basic research, for example in understanding the function of native vegetation in maintaining ecosystem function at landscape scales.

Key Challenges

Developing effective programs to communicate the scale and urgency of managing native vegetation to meet NRM objectives to both landholders and the broader community

Working with State/Territory/Local governments and local/regional organisations to ensure that community education and landholder support services are integrated and make available advice on both sustainable production and native vegetation conservation issues

Developing and resourcing programs that build on the core competencies and establish clear career paths for public and private sector community/landholder education/support personnel to better equip them to meet the challenges of working within an integrated NRM context

Developing and transferring improved techniques and technologies for larger scale vegetation management, including revegetation

Clarifying research and development policy in relation to NRM with a particular focus on striking an appropriate balance between applied and basic research

Incentives

Grants

The Commonwealth is involved in grants programs for various reasons, including market failure, relating to real or perceived: lack of information; lack of incentive; inability to capture full benefit from R&D investment,

capacity-to-pay or willingness-to-pay, on and off-site costs associated with management practices, multiplied benefits from collaborative and widespread efforts.

There is a wide range of grant programs which have been developed in an attempt to meet the range of policy objectives for native vegetation. The NHT has given a significant boost to the funding of native vegetation management programs, applied for and delivered via a common one-stop-shop approach. Examples include:

- Bushcare (native vegetation and biodiversity focus)
- Murray-Darling 2001 (focusing on catchment management and irrigation regions)
- Landcare (sustainable agriculture focus)
- Farm Forestry (focusing on commercial plantations incorporated within farming systems)
- Rivercare (riparian health and water quality focus)
- National Reserve System (focusing on formal reserves, plus 'off-Reserve' management agreements etc.)
- the Endangered Species Program (focusing on endangered ecological communities)

There are a number of important challenges:

- prioritising funding is difficult (needs-based, return-based, equity-based)
- determining whether fundamental landuse change is required, and hence whether support for industry and community adjustment is necessary
- how much decision making should be devolved to regional, sub-regional and local levels.

Market-based

With the exception of the taxation system – which is obviously potentially very significant – the Commonwealth jurisdiction does not directly manage any other market-based incentive programs. However, it has funded the development and promotion of new market-based measures, such as revolving funds.

Challenges relate to the creation of market structures that provide a commercial value for native vegetation. Areas of opportunity include:

- The development of functional property right systems and a market for carbon sequestration through native vegetation. This is a primary focus of the Bush for Greenhouse program.
- The development of commercial and farm forestry opportunities, noting that the creation of markets and viable enterprises remains challenging, particularly in regions with less than 600mm rainfall. This is a primary focus of the Farm Forestry Program.
- Improving understanding of the value of native vegetation in maintaining land and soil productivity and thereby encourage land markets to reflect a premium for sustainably managed agricultural lands.
- Creating incentives for corporate and private investment in nature conservation. This will require incentives that target urban and corporate Australia, such as through the purchase of shares in conservation lands. The potential role of taxation incentives in this area represents an important and significant challenge. The recent announcement to allow donations of property to be tax deductible, irrespective of date of purchase, is a significant step forward.

Key Challenges

Improved targeting of grants to areas of greatest need: in terms of status of native vegetation, threats to that native vegetation and the capacity of the community to address those issues

Facilitating land use change and associated structural adjustment through appropriate market signals

Continuing to develop and promote new grant programs with State/Territory/Local governments and the non-government sector, particularly through devolved grants, which catalyse positive action

Encouraging commercial markets for native vegetation, particularly in relation to carbon sequestration

Continuing the development of incentives for corporate and private philanthropic investment in nature conservation, particularly through tax incentives

Regulatory Arrangements

Most Commonwealth legislation related to the management and monitoring of native vegetation is focused on environment management and protection. The jurisdiction has recently completed a review of its environmental legislation. This review identified a number of issues, particularly in relation to the ad hoc structure and the age of the existing legislation, meaning that it does not consistently apply the concepts and principles of ecologically sustainable development.

The new *Environment Protection and Biodiversity Conservation Act 1999* has been passed by the Commonwealth Parliament. The Act which implements key aspects of the 1997 COAG Heads of Agreement on 'the Environment' aims to clearly identify Commonwealth responsibilities in relation to environmental protection and provide for an improved, integrated framework for the conservation of biodiversity. The key mechanisms through which these objectives are to be met include:

- The identification of matters of national environmental significance for the purposes of environmental assessment and approval
- The development of bilateral agreements between the Commonwealth and State/Territory governments for the accreditation of State assessment and approval processes
- The provision of a legislative base for cooperative identification and monitoring of biodiversity and bioregional planning
- Processes for listing threatened species and ecological communities, threatening processes and development and implementation of recovery/threat abatement plans
- Managing Commonwealth reserves, Conservation Zones, World Heritage Areas and Ramsar Wetlands.

The legislation provides an improved framework for the Commonwealth jurisdiction to define its interest in and regulate environmental issues in cooperation with State/Territory governments. However, the effectiveness of the legislation will only be able to be judged following a period of its implementation. A key issue will be to

ensure that the bilateral agreements negotiated with State/Territory governments for the accreditation of State/Territory assessment processes adequately address the national interest. This is particularly true for those issues of national interest, including native vegetation, that have not been included as triggers for Commonwealth involvement in formal environment assessment processes. It is noted that the issue of accreditation is not new, as it was a key component of the Intergovernmental Agreement on the Environment, and that reaching consensus on the development of robust arrangements with State/Territory governments will be extremely challenging.

Within this broader legislative framework there is a Commonwealth system in place for listing threatened species and ecological communities and the associated threatening processes. Through ANZECC there is strong inter-jurisdictional support for national listing and recovery planning. To date over 1400 species have been listed, with 400– 500 recovery planning processes funded by the Commonwealth in cooperation with State and Territory agencies. Twenty-one recovery plans for 22 species have been formally approved and put in place. Key issues relate to moving away from planning for individual species and focusing on regional, threat-based or ecosystem based plans; increasing levels of community involvement in the recovery process; and placing more emphasis on gathering and reporting on performance, in particular outcomes of expenditure and changes in the status of the species/communities in question.

Through the *Australian Heritage Commission Act 1975* there is a process for listing places that are of national estate value from both natural and cultural heritage perspectives. The legislation provides for the provision of advice on the impact of any proposed development on an area of the national estate. Although listing provides only limited direct protection, and only in relation to Commonwealth actions and decisions, it does provide increased awareness and impetus for conservation management. Although the Australian Heritage Commission legislation is not part of the current consolidation of environmental law, it is currently under review in a parallel process and it is envisaged that any resulting legislative changes will be incorporated into the EPBC.

Other Commonwealth legislation and regulations are of indirect relevance to the management and monitoring of native vegetation. Examples include protection from foreign pests, weeds and diseases through the *Australian Quarantine Act 1908*.

Key Challenges

With the passage of the *Environment Protection and Biodiversity Conservation Act 1999* ensuring that adequate resources are devoted to the development of bilateral agreements and supporting policies and programs for the effective implementation of the Act.

Continue to improve the implementation of the objectives of the *Endangered Species Protection Act 1992* – even though the Act itself will be subsumed and replaced by the EPBC Act in July 2000 – and associated programs by placing greater emphasis on:

- the listing of endangered ecological communities
- recovery planning of species on a regional, threat-based or ecosystem basis
- the measurement of the outcomes of recovery planning and expenditure and on-ground actions in terms of species/ecosystem recovery
- mechanisms for the management of threatening processes and the protection of critical habitat

Completing the review of the *Australian Heritage Commission Act 1975* and ensuring that close integration with other environmental legislation, policies and programs is achieved. In particular improved linkages between the listing of areas of native vegetation on the national estate and Commonwealth and State/Territory programs that can improve the management and monitoring of these sites is required

Monitoring and Evaluation

There is a great deal of activity in developing national scale indicators for monitoring the extent and quality of native vegetation and the performance of related government programs. Key activities include: State of the Environment reporting, ARMCANZ Sustainability Indicators, State of the Forests reporting, National Greenhouse Gas Inventory, Montreal indicators for sustainable forest management, NLWRA and NHT program evaluation

The current state of play in monitoring and evaluation mirrors that discussed in relation to the collection of data for assessment and planning. Performance indicators are justifiably being developed at different scales to monitor and evaluate a wide range of different policy objectives. However, there is also an urgent need to develop measurable and cost effective indicators at a national scale that are preferably tied to existing data sets. A step in this process has been the recent release of the results of the BRS/ALCC project. However, this study still leaves many gaps in our national scale knowledge of the extent of a wide range of ecological communities. For this reason there is an urgent need to identify complementary indicators for monitoring the extent of non-woody native vegetation. Even more challenging is the need to identify national scale measures for the quality (or condition) of native vegetation.

Whilst there are numerous processes developing performance indicators, without coordination there remains a risk that a focused assessment at a national scale will remain elusive. Simple indicators and targets are, in our view, required to drive the development of policy in this important area. An analogy could be drawn with the key economic measures of gross domestic product, unemployment, inflation and interest rates. Although these measures are not a full set of economic indicators, they do provide the focus for public assessment and debate on the state of the economy. Drawing on ANZECC's Environmental Indicators for national State of the Environment Reporting, some suggested indicators could include:

- extent and rate of clearing, or major modification of natural native vegetation
- extent of regeneration, rehabilitation and reestablishment of native vegetation
- % of areas of native vegetation demonstrating recruitment and regeneration
- conservation status of ecological communities both on and off-Reserve
- location and configuration of fragmentation of remnant vegetation

These broad indicators are illustrative of an appropriate scale for national reporting. Significant effort is being placed in this area through activities including the NLWRA and its NVIS. Challenges do exist, particularly in aggregating data that is collected in different ways, at different scales, by each State/Territory government.

Key Challenges

Agreeing, resourcing and putting in place a small number of national scale indicators for the assessment of performance in relation to both the extent (cover) and quality (condition) of native vegetation

Working to ensure that there is strong and on-going political and bureaucratic support for the development of appropriate national monitoring and evaluation

Continuing to work with State/Territory governments to develop protocols and processes for the collection and sharing of data relevant to the management of native vegetation

Continuing to work with State/Territory governments to resolve technical issues surrounding the comparability and compatibility of different data sets for national monitoring and evaluation

COMMONWEALTH STOCKTAKE

KEY STRENGTHS

The Commonwealth government has worked to put in place strong institutional structures to support native vegetation management. Key achievements include its efforts in clarifying roles and responsibilities between itself and State/Territory governments and the establishment of the NHT to coordinate and fund the delivery of programs relevant to the management of natural resources.

The Commonwealth government has made a significant and growing contribution to the management and monitoring of native vegetation over the last 10–15 years.

Community awareness and capacity to address native vegetation management issues has been significantly boosted through the Commonwealth support of the Landcare and Bushcare networks.

The Commonwealth jurisdiction has coordinated the development and implementation of a nationally agreed framework for the creation of a National Reserve System which is intended to be comprehensive, adequate and representative.

The Commonwealth jurisdiction either funds or directly undertakes a wide range of research on native vegetation management. There is an impressive knowledge base, although this needs to be maintained and enhanced.

Looking beyond grants, there has been strong Commonwealth support for the development and promotion of incentives and the creation of new markets. Notable examples include conservation covenants, revolving funds and the Bush for Greenhouse and Farm Forestry programs.

There is strong Commonwealth commitment to the development of efficient and useful national monitoring and evaluation systems to provide timely information about the extent and status of native vegetation.

KEY CHALLENGES

National coordination: Continuing to take a leading role in coordinating and contributing to the development of many national strategies and approaches of direct relevance to native vegetation.

Capacity building: Continuing to identify needs and support the development of national capacity to address emerging policy imperatives that involve native vegetation management, such as the response to climate change (the National Greenhouse Strategy) which is perhaps the most significant example of an emerging native vegetation issue.

Securing long-term institutional arrangements for NRM: Perhaps the most important national challenge is to establish secure – but experimental and evolving – institutional arrangements for NRM, that extend beyond political and budgetary cycles. A paradigm shift is required that views government investment in NRM as a core element of government business requiring strong ongoing commitment, akin to health and education. To achieve this outcome there is an urgent need to clarify the criteria through which responsibilities for program management to be allocated, shared or devolved between Commonwealth, State, Territory and Local governments and other regional or catchment based organisations. The National NRM Statement planned for 1999, the shape of which is presently being actively debated, needs to address these issues.

Funding: Closely related to institutional arrangements is the issue of funding – both public and private. New formulae for revenue sharing proposed as a part of the Goods and Services Tax system could significantly alter the present balance for public NRM funding. In relation to native vegetation this could be seen as either an opportunity or a ‘threat’ depending on perceptions of the Commonwealth’s funding role in achieving the leverage required to change attitudes at a State/Territory level for the protection and management of native vegetation. However, also very important is the challenge of encouraging more private investment in vegetation initiatives – both commercial and philanthropic.

R&D: Continuing to support the funding of R&D that develops the basic understanding of the ecology of native vegetation, including the functional role of native vegetation in landscapes and the basic technologies required for successful retention, protection, use and general management. However, also of great importance is the challenge for continued national support of R&D examining the social, economic, legal, policy and institutional aspects of Australian behaviour which impacts on native vegetation and NRM.

Coordinating native vegetation programs: To avoid inefficiencies and confused messages, continued effort is required to coordinate, as required, across the full spectrum of programs relevant to the management of native vegetation – ranging from commercial forestry, agroforestry biodiversity conservation and environmental plantings.

Scale of program approaches: Future delivery of native vegetation programs will have to achieve an appropriate balance between funding individual, community-based initiatives and targeting funding toward larger scale strategic investments that build community capacity and facilitate structural change, as required.

Legislation: The breadth of relevant legislation makes challenge identification difficult. However, two examples will suffice. With the passage of the *Environment Protection and Biodiversity Conservation Act 1999* (‘the EPBC Act’) ensuring that adequate resources are devoted to the development of bilateral agreements and supporting policies and programs for the effective implementation of the Act. Also, continuing to improve the implementation of the objectives of the *Endangered Species Protection Act 1992* – even though the Act itself will be subsumed and replaced by the EPBC Act in July 2000 – and associated programs by placing greater emphasis on endangered ecological communities, rather than individual species.

Data: Ensuring that the newly established processes for drawing together and establishing baseline data on the extent and status of native vegetation are adequately supported to deliver against their objectives. This challenge particularly relates to the National Land and Water Resources Audit (NLWRA), a key part of which is the National Vegetation Information System (NVIS). This will require ongoing leadership and support to ensure we continue to fill the glaring gaps in our knowledge base. It should be possible to draw together – or at least allow easy access to – existing information to enable clarification of the baseline status of native vegetation. Agreeing, resourcing and putting in place a small number of national scale indicators for the assessment of performance in relation to both the extent (cover) and quality (condition) of native vegetation would be another significant step forward.

Policy learning: Given the breadth of activity and learning, a real challenge at the national level (and within individual jurisdictions) is to ensure that lessons from experience are captured and fed back into the policy development process.

Australian Capital Territory

CONTEXT

ACT Context

The ACT and Sub-region of surrounding Local government areas was until recently the fastest growing inland region in Australia. Its current population of about 350,000 is expected to increase to around 560,000 by 2020.

The ACT itself has an area of only 240,000 hectares, excised from NSW to form the national capital. There are five main categories of lands:

- Protected areas (54% of the ACT is included in a formal Reserve system)
- Rural lands (23%)
- Plantation forestry (7%)
- Urban lands (14%)
- Commonwealth lands - broadacre non-urban uses such as military or communications (area to be supplied)

A distinguishing feature of the ACT is its land tenure system, whereby all lands are leasehold. As in all jurisdictions, the land tenure arrangements have considerable potential influence on the way in which native vegetation can be managed and monitored.

In the ACT fragmentation of native vegetation has occurred in areas used for agriculture and pastoralism, through urban development and associated infrastructure, and pine plantation establishment. Vegetation has also been modified by timber harvesting, fuel reduction burning and the invasion or introduction of alien plants and animals.

Extent and Status of Native Vegetation

In recognition of the fact that the ACT is only a small area, the jurisdiction is keen to avoid what it calls a 'fortress ACT' approach. As a result it participates where possible in identifying and valuing its native vegetation (and other biodiversity) in a regional context, in cooperation with the surrounding NSW jurisdiction.

As land development and associated clearing has proceeded, uncleared areas have become fragmented vegetation remnants that invariably have special conservation values in addition to their other recognised benefits, such as contributing to landscape amenity and land productivity. Approximately 15,000 hectares of remnant woodland occur in leased rural land. Up to 4,000 hectares is endangered yellow box/red gum grassy woodland. Provision for conservation of native vegetation in Property Management Agreements (PMAs) and development of a habitat corridor network that links patches of remnant vegetation are important mechanisms for guiding conservation effort.

Vision

The overarching vision of the ACT is to have an aware and responsible community that is actively involved in the protection and conservation of biological diversity and the management of ecological threats. More specifically, the ACT has a series of native vegetation objectives, actions and performance indicators/targets clearly articulated in the 1998 ACT Nature Conservation Strategy. These have a clear remnant protection focus, due to their biodiversity value, over and above unarticulated, but acknowledged, broader values related to subjects such as hydrology.

The key elements of the native vegetation vision are:

- *To conserve native vegetation remnants:* Significant native vegetation remnants will be identified and conserved, and landholder and wider community participation promoted in the identification of areas of remnant vegetation and their subsequent management. This strategy will be monitored using the following performance indicators:
 - Ecological survey data extracted and assessed
 - Ecological assets database includes remnant vegetation information
 - Linking and management requirements incorporated into nature conservation network
 - Protection and rehabilitation of vegetation remnants incorporated into land management programs
 - Strong community interest and participation in remnant vegetation conservation program
- *To manage the clearing of native vegetation so that the biodiversity conservation requirements are not compromised:* This will be achieved by assessing land development proposals for environmental implications, and ensuring that land use activities or proposals that involve the clearing of naturally occurring native vegetation in conservation networks, habitat corridors or other sites of ecological significance are subject to an assessment and approval process directed at protecting nature conservation values. This strategy will be monitored using the following performance indicators:
 - Flora and fauna guidelines and approvals processes consider remnant vegetation and conservation network requirements
 - Statutory provisions for vegetation clearance control are reviewed and amended as necessary
 - Nature conservation network program and ecological sites database form the basis for assessing vegetation values and clearance management requirements
- *To reduce the impact of ACT firewood demand on declining woodland values in NSW:* This will be achieved by promoting the use of alternative fuel sources. Progress will be measured against the following indicators:
 - Increased use of plantation timber for firewood
 - Decrease in consumption of firewood originating from areas of conservation concern
- *To develop a nature conservation network linking protected areas, habitat corridors and significant vegetation remnants:* The main action to achieve this will be to prepare a master reference document as a planning tool and management guide. Progress will be measured against the following indicators:
 - Master plan prepared based on ecological survey data and work already done for the ACT and Sub-region Planning Strategy
 - Includes identification of network deficiencies and gaps, and special values which need particular planning and management attention
 - Plan routinely used in relevant open space planning and management exercises and incorporated into GIS operation

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

Land (Planning and Environment) Act 1991: This Act provides for planning and development of the Territory within parameters established by the ACT (Planning and Land Management) Act 1988 [Commonwealth legislation] and the National Capital Plan. It is the primary statute for administration of land, provides for environmental assessments and enquiries, protection of heritage places and establishes the Territory Plan.

Nature Conservation Act 1980: This Act protects native flora and fauna, and provides management authority for national parks and nature reserves. Native vegetation is protected on all unleased land and threatened species are protected on all land. On leased rural land native timber may not be damaged, felled or removed from the land except in accordance with specified conditions. Clearing of remnant vegetation is generally not an issue in the ACT. The main area of focus is the protective management of woodland and grassland communities on private land, in the context of objectives related to the conservation of remnant vegetation and threatened ecological communities.

Policies, Strategies and Plans

The Territory Plan defines land use zones and associated development and use policy (including constraints). It is also the mechanism for reservation of Public Land for a range of purposes including environmental conservation (the nature conservation estate). The protection of natural assets receives particular attention in the Territory Plan. Land use policy objectives for the Territory's open space system specifically address conservation of natural habitat diversity, wildlife corridors, stream flow and ecological resources and functions.

The ACT and Sub-region Planning Strategy outlines a long-term planning strategy to guide development and resource management within the ACT and sub-region. It is a collaborative product of the Commonwealth, State, Territory and five Local governments of the ACT and region. Of particular relevance to biodiversity conservation is its vision for ecologically sustainable development through regional integration of planning and management. Among other things, it provides for a system of wildlife and riverine corridors, and enhanced protection of important areas of wildlife habitat and remnant vegetation.

Institutional Arrangements

Government

The overarching guide to application of the Nature Conservation Act 1980 is the ACT Nature Conservation Strategy, adopted in December 1997. Most of the responsibilities for administering the Act fall to Environment ACT within the ACT Department of Urban Services (DUS). Environment ACT functions are undertaken by a range of business units. Those with responsibilities for management of native vegetation or related natural resources include:

- Wildlife Research and Monitoring (threatened species and communities, biodiversity conservation policy)
- Conservation and Land Management (overall policy development) (CALM)
- ACT Parks and Conservation Service (land management, nature conservation, including parks and reserves, and rural districts)
- Environment Protection, Water Unit (including catchment management approaches)
- Other land management agencies within DUS are ACT Forests (plantation forestry and some protected native forests) and City Operations (urban parks and reserves).
- Planning and Land Management (PALM) within DUS is the agency with responsibility for preparing and administering the Territory Plan and related statutory processes that control land use, including administration of leased rural land.

Another institution of significance is the Office of the Commissioner for the Environment (OCE), a separate independent authority which has responsibility for investigating and reporting on the Territory's management of the environment.

Government/Community

All of these government institutions have the potential to influence the ACT landscape. The government institutions are complemented by a host of other region-wide, Territory-wide or local government and/or community organisations. At the territory/regional scale, those of influence include:

- Flora and Fauna Committee
- Environment Advisory Committee
- ACT Heritage Council
- Upper Murrumbidgee Catchment Management Committee (ACT/SENSW)
- Regional Plantation Committee (ACT/SENSW)
- ACT Rural Lessees' Association
- Conservation Council of the South-east Region and Canberra (ACT/SENSW)

A specific-purpose short-life government/community institution of importance to native vegetation – in the contexts of use, conservation and general NRM – was the ACT Rural Policy Taskforce which reported in 1997. Their recommendations initiated a still current legislative and policy review process attempting to resolve dilemmas concerning the management and administration of the ACT leasehold rural lands.

At the local level, important contributors are Landcare, Parkcare, and various 'Friends of ...' groups.

Analysis

By nature of its size, in theory the ACT system for native vegetation management and monitoring should be simpler than that required for larger jurisdictions. However, in any jurisdiction it is a relatively complex task to design a suitable system selecting from the range of possible mechanisms or 'tools' (and merging or overcoming historical and not necessarily compatible processes and arrangements). In the case of the ACT, 'diseconomies' of scale sometimes become evident in that overheads (such as administrative and reporting processes) require disproportionate resourcing relative to larger jurisdictions, and the range of expertise or skills, available across a number of agencies elsewhere, may not be routinely available.

The ACT legislation is workable. The strategies, policies and plans are either in place or getting there. There is a host of institutions involved and it would be of some benefit to all players for there to be a review of institutional roles and responsibilities. However, fundamentally – with the exception of rural lands, which are in a transitional phase – most bases are covered.

Very importantly with regard to rural lands, there are three balls being juggled. Success with the overall objectives (for establishing an ecologically sustainable and economically viable rural industry) depend upon resolution of land tenure and Property Management Agreement (PMA) issues, development and passage of supporting legislation, and effective incorporation of vegetation protection and management provisions into the PMA process.

Any politicisation of the process which results in the awarding of secure tenure without securely embedding a flexible and accountable PMA process, will be long remembered as a lost opportunity for nature conservation.

EVALUATION OF MECHANISMS

Planning and Assessment

Relative to some jurisdictions, the ACT has very detailed planning and assessment approaches in place. This is partly due to the small area of the Territory which means that the scale is manageable; and to a strong land use planning history for the National Capital. However, considered on its own this undersells the efforts which have been made due to nature conservation and native vegetation protection being prioritised and resourced as specific priorities of the jurisdiction.

Progress with establishing a native vegetation inventory, supported by detailed mapping, is well advanced.

Biodiversity status assessments of various ecological communities have been made; however, the focus has been on threatened communities and it is acknowledged that much more could be done.

Regional vegetation management planning is a very live issue for the ACT. An advanced effort is underway to complete a territory-wide ACT nature conservation network master plan which will be an important strategic tool for vegetation planning and management. Once completed, this should inform and complement the TCM Upper Murrumbidgee Catchment Management Committee planning processes and/or the newly established NSW Regional Vegetation Committees planning processes. (Hopefully, the two NSW institutions will also inform each other!).

At a larger scale, the overarching ACT Nature Conservation Strategy is used in developing each year an Implementation Plan which clearly articulates the jurisdiction activities. This is noteworthy for several reasons – the fact that it even occurs!; it is budgeted for; it is prioritised; and, very importantly, it is linked to the formal budgeting process of the ACT government.

Key Challenges

Pulling together and gaining added value from currently disparate data sources throughout the jurisdiction's numerous institutions

Digitising the existing information and making it accessible to the range of potential users/beneficiaries

Applying the nature conservation network master plan linking protected areas, habitat corridors and significant vegetation remnants

Ensuring continued participation in joint industry, State and Local government regional biodiversity survey programs which ultimately inform the statutory Territory plans

In relation to biodiversity status assessment, shifting from reactive mode – driven by threatened species nominations – to proactive mode

Reserve System

In a general sense the ACT, with 54% of its total area included in the formal protected Reserve system, has an extensive Reserve system relative to any other jurisdiction. However, statistics can of course be misleading, as the total area of the ACT is tiny relative to the rest of the country. Nevertheless, from a conservation perspective, upland areas of the ACT biotypes are extremely well protected. In contrast, the lowlands are relatively poorly represented in formal reserves, as historically they have been utilised for agricultural production. Most of the lowlands are still managed by private leaseholders. The native vegetation is under considerable pressure due to the active use of the lands for agriculture, viticulture, equestrian or residential development.

Given that there are few opportunities for increasing the formal Reserve system to protect these remnants, other solutions must be found if the ACT and the surrounding region are to hope to succeed in establishing a CAR protected areas system. Landholder and broader community involvement in off-Reserve conservation is the alternative approach being developed. An incentive scheme, a review of rural administration policy and

supporting legislation are under development. (Mechanisms to do this – such as via Property Management Agreements and the Rural Conservation Trust – are dealt with later in this brief report).

Key Challenges

Maintaining nature conservation standards in the face of use pressures and competing resource demands

Ensuring that management priorities are determined in a strategic rather than reactive way

Taking advantage of opportunities to put CAR principles into practice

Increasing the knowledge base of resources present and their management requirements

Communication and Capacity Building

Communication and capacity building relates to community education, landholder extension, vegetation management infrastructure and R&D.

Whilst Environment ACT has a ‘communications policy’ it appears to do little to assist the coordination of a strategic approach by the jurisdiction to increasing the interest, learning and engagement of the territory’s people in native vegetation management and monitoring. (This is not to say that the community does not appear relatively well engaged, but rather that this may be the case despite – or because of? – a scatter gun approach.)

With regard to leaseholder extension, the ACT still appears to be coming to grips with the reality of national downsizing of the public sector extension network. There is still an extensive network of people from various parts of the jurisdiction involved in ‘servicing’ rural lessees (which number approximately 170).

The ACT does have more than adequate supporting ‘hardware’ to provide seeds, seeding equipment etc. However, there is a concern that the level of underpinning knowledge generated by R&D is still barely adequate to inform proactive management interventions.

Key Challenges

Clarifying the ways in which the jurisdiction is or isn’t involved in community education and/or support of community groups – many of which may already have a high-level of knowledge and understanding

Clarifying the objectives of the publicly funded workforce supporting rural lessees; extension? PMA negotiation? PMA compliance? sustainable agricultural production? biodiversity conservation? holistic property management planning support (what is the demand for some of these services?)

Prioritising and coordinating the undertaking of ACT or Sub-region specific R&D to underpin subsequent on-ground actions

Incentives

Discussion about incentives is primarily centred around encouraging improved practices on privately-managed lands, i.e. all rural lands in the ACT. The two primary incentives in the ‘toolkit’ are lease tenure ‘carrots’ and the recently announced ACT Rural Conservation Trust.

Cleverly resolving the current debates about land tenure is a very significant issue for the ACT. The Rural Policy Taskforce argues that land tenure uncertainty is a major impediment to the improved management of rural lands. The argument is that increasing the duration of tenure, in some cases up to 99 years, will provide a significant improvement to land management practices. Uncertainty is undeniably a negative constraint on performance and longer term investments. But, do 99 year lease grants achieve anything more than other systems, such as 20 year leases renewed every five years, subject to monitored compliance? There is an enormous opportunity at present which the ACT must be careful to get right. The proposed Property Management Agreements (PMAs) need to be carefully constructed so as to deliver the sought NRM outcomes.

Key Challenges

Seizing the opportunity to institute a new and improved land tenure system which delivers better native vegetation and NRM outcomes

Effective implementation of the Rural Conservation Trust

Maintaining effective environmental extension and grants programs

Regulatory Arrangements

There is no statutory control specific to clearing of native vegetation outside the Reserve system. However, the Nature Conservation Act 1980 contains a number of relevant provisions where protection can be provided for special nature conservation values (such as the habitat of a species threatened with extinction).

The *Nature Conservation Act 1980* protects native flora and fauna. Native vegetation is protected on all unleased land and threatened species are protected on all land. On leased rural land native timber may not be damaged, felled or removed from the land except in accordance with specified conditions. Clearing of remnant vegetation is generally not an issue in the ACT - protective management of woodland and grassland communities on private land is the main area of focus in the context of conservation of remnant vegetation and threatened ecological communities.

Leased rural land is administered under the provisions of the *Land (Planning and Environment) Act 1991*. This Act also establishes the Territory Plan which sets out land use policy and constraints, impact assessment processes and natural heritage protection measures. Lease development policy for rural land requires a Property Management Agreement to be developed whereby land management and nature conservation issues are identified and management measures agreed. The Property Management Agreement process currently is under review to give greater flexibility and accountability. It is the preferred mechanism for identifying protective measures for remnant vegetation on rural land. It is proposed to give PMAs increased statutory recognition under proposed amendments to the Land (Planning and Environment) Act.

Land with particular natural heritage value may have protective measures imposed by being entered on the Heritage Places Register under the provisions of the Land (Planning and Environment) Act. Directions for the conservation of flora and fauna may be imposed under the provisions of the Nature Conservation Act.

For Commonwealth lands, the major semi-regulatory tool is development of a Memorandum of Understanding (MOU) to guide conservation practices. The MOU is developed between the occupying Commonwealth agency, Environment ACT and Environment Australia. There is a focus on those lands with threatened ecological communities or habitat important to a threatened species.

Key Challenges

Ensuring the PMAs are adequately redesigned, incorporating workable and effective nature conservation provisions

Ensuring the Land Development Assessment (LDA) process takes full account of ecological concerns relating to native vegetation and other issues

Monitoring and Evaluation

Triennial (previously annual) ACT State of the Environment (SoE) reports aim to measure the condition of the environment against progress towards sustainability. Obviously, these have a strong natural resources focus. In 1997 the ACT Office of the Commissioner for the Environment coordinated the first successful attempt to pool resources between the ACT and surrounding NSW Local governments to produce an 'Australian Capital Region' SoE report. This has obvious potential in assisting ACT manage and monitor native vegetation communities within a broader regional context. The future of such cooperative efforts will improve as issue-specific information improves.

Moving down a scale, the monitoring and evaluation (M&E) efforts of the ACT for native vegetation are generally considered to be inadequate to really contribute to any degree of sophisticated ecosystem management. In most instances, the jurisdiction is still obtaining baseline information. Decisions about what and how vegetation should be monitored are still being considered. As with all jurisdictions, whilst M&E is acknowledged as important, if resources are scarce it quickly slips off the agenda, or is limited to (admirable) bigger picture efforts such as the ACT or ACT/SENSW SoE efforts.

Key Challenges

Developing a biodiversity monitoring program to follow on from the baseline biodiversity status assessment

Establishing an efficient M&E mechanism to allow private land manager compliance with the revised PMA system to be assessed effectively and to facilitate a flexible management response to information gathered

Implementing the M&E work to enable informed updating of park management priorities and directions

Refining SoE reporting requirements cost-effectively to inform the community, policymakers and planners of the condition of native vegetation and ecological communities, the environmental pressures influencing those conditions and to promote effective evaluation of management responses to identified pressures

Ensuring M&E results inform strategic land use plans for the ACT

AUSTRALIAN CAPITAL TERRITORY STOCKTAKE

KEY STRENGTHS

Relatively strong scientific underpinning.

Strategic approach to native vegetation linking into the surrounding NSW region.

Process for implementing the ACT Nature Conservation Strategy.

Extensive Reserve system.

Action plans for endangered ecological communities.

High-level of community engagement in conservation issues.

Linkages between PALM and Environment ACT ensuring conservation linkages to statutory planning.

KEY CHALLENGES

Legislation: Completing the legislative process for rural lease administration.

Mapping: Completing the ACT Vegetation Map.

Policy: Continuing implementation of the ACT Nature Conservation Strategy.

Institutional arrangements: Acknowledging the splintered institutional arrangements and acting to clarify roles and responsibilities and to coordinate related functions e.g. Environment Section of PALM, WRE, ACT Forests, semi-autonomous District Offices etc.

Community education: Developing a 'whole-of-jurisdiction' strategy for community NRM education.

Landholder extension: Lifting landholder understanding of the purpose of PMAs and the reasons for an overhaul of the leasehold system.

Leasehold overhaul: Successfully rejigging the entire leasehold system to provide greater security, obligations and incentives for stewardship.

Incentives: Developing stronger conservation incentives.

Property Management Agreements: Successfully establishing the PMA system including clarifying quality, obligations and compliance.

Implementing management plans: Meeting, in a coordinated way, the implementation commitments contained in the range of management plans for the Reserve system, surrounding catchments and associated rural districts.

New South Wales

CONTEXT

NSW Context

Native vegetation management in NSW has been high on the political agenda for some time, but particularly since 1995. In August 1995 the NSW government introduced State Environmental Planning Policy 46 Protection and Management of Native Vegetation (SEPP46) as an interim measure to prevent inappropriate land clearing while long-term measures were being developed in consultation with the community. At the same time the government established the NSW Native Vegetation Forum ('the Forum') to review the performance of SEPP46 and recommend long term strategies resulting from the community consultation process. The Forum submitted its report to government in August 1996, with its preferred model involving a tiered, regional approach to native vegetation management, backed by appropriate legislation. It was the process which led to the introduction of the *Native Vegetation Conservation Act* (the *NVC Act*) which took effect from 1 January 1998. The *NVC Act* repealed SEPP46 and incorporates native vegetation clearing controls previously contained in other legislation.

In addition to legislative reform there has been considerable institutional reform leading to the creation in non-metropolitan areas of Regional Vegetation Committees (RVCs) charged with producing Regional Vegetation Management Plans (RVMPs).

These most recent reforms have been made within the context of a highly charged political environment, whereby perceived 'infringement' on landholder rights, coupled with rural disenchantment, have been met head on by conservationists demanding firm action by the State to improve the policy settings so as to encourage and/or enforce the protection of biodiversity, including native vegetation. New institutions such as the Native Vegetation Advisory Council (NVAC) and RVCs have been established to inform the process and assist the negotiation of tradeoffs. The new system is still being bedded down, with a draft of the first of the RVMPs being released for public exhibition only in March 1999. It remains to be seen how successful the new legislation, institutions and plans can be in practice.

Extent and Status of Native Vegetation

More than two thirds of the area of NSW consists of the rangelands and agricultural lands west of the Great Dividing Range; the remaining third to the east of the range is often referred to as the coastal strip. To the west, the major threats to native vegetation are grazing and land clearing for agriculture. East of the divide, the major threats are land clearing for agriculture and urban development.

The extent of current land clearing in NSW is uncertain but the BRS/ALCC estimate was 16,400 ha per annum between 1990 and 1995.

NSW includes part or all of 17 IBRA regions. The area cleared in each region ranges from zero in the more arid and remote areas, such as the Channel Country and the dunefields of the Simpson-Strzelecki, to 80% in the south-west slopes. It is difficult to ascertain the situation with regard to floral biodiversity with any great certainty. It has been estimated that there were some ~16,000 vascular plant species in NSW at the time of European settlement. Currently, ~390 of these species are presumed extinct in NSW, ~435 threatened in NSW, and ~307 threatened nationally. As with other jurisdictions, there has been no inventory of non-vascular plants. Eleven plant communities in NSW have been listed as threatened and at least one plant community which exists in NSW is threatened nationally.

At the present time 6% of the State's land area is considered formally protected via parks. The area reserved ranges markedly within IBRA regions from >80% in the Australian Alps to 1.1% in the south-west slopes and only ~0.3% of the Riverina. There is an ongoing process of enlarging this formal Reserve system. In recent

years more than 150 new parks have been created and some 430,000 hectares of wilderness have been protected.

Vision

The NSW vision for native vegetation, articulated in the *Native Vegetation Conservation (NVC) Act*, is to:

- Conserve and manage native vegetation on a regional basis
- Encourage and promote native vegetation management in the social, economic and environmental interests of the State
- Protect native vegetation of high conservation value
- Improve the condition of existing native vegetation
- Encourage the revegetation of land, and the rehabilitation of land, with appropriate native vegetation
- Prevent the inappropriate clearing of vegetation
- Promote the significance of native vegetation

This vision is not inconsistent with the core objectives of the NSW Biodiversity Strategy which include ensuring the survival and evolutionary development of species, populations and ecological communities; managing biodiversity on a bioregional basis; and tackling biodiversity threats at source.

NSW is endeavouring to adopt a state-wide approach to the conservation and sustainable management of native vegetation which acknowledges social, economic and environmental interests. The previous regime, which involved a range of different permit and licensing procedures, is being replaced by a new system which has the following elements:

- New native vegetation conservation legislation which has repealed and rationalised previous native vegetation controls
- Regional Vegetation Management Plans (RVMPs) which have legislative status
- Consultation with the legislative authority (either State or Local) regarding threatened species, populations or ecological communities or their habitats
- An on-going state-wide monitoring program using remote sensing technology and supplemented by strategic on-ground assessments which will provide information for monitoring and compliance
- Encouragement of a whole property planning approach where native vegetation management is integrated with all relevant aspects of property management
- Use of voluntary property agreements with covenants to qualify landholders for incentive schemes
- Assessment and consent for clearing under native vegetation legislation consistent with that proposed in the Integrated Development Assessment System (IDAS)
- Promotion of codes of practice to undertake clearing for particular land uses which specify environmental, social and economic criteria consistent with the aims and principles of State native vegetation legislation

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

The policy and strategic framework of the NSW government for native vegetation management is now underpinned by three Acts of Parliament. The foundation is the *Native Vegetation Conservation Act 1997 (NVC Act)*. This builds upon and is intended to complement the *Threatened Species Conservation Act 1995 (TSC Act)* and the *Environment Planning and Assessment Act 1979 (EPA Act)*.

Prior to August 1995, clearing controls were exercised primarily over the Western Division of the State under the *Western Lands Act 1901*, and over protected land across the Eastern and Central Divisions of the State by

provisions of the *Soil Conservation Act 1938*. In addition there were, and still are, various planning controls exercised under the *EPA Act*.

The *NVC Act* builds upon the *Soil Conservation Act 1938*, the *Western Lands Act 1901*, the *Crown Lands (Continued Tenures) Act 1989* and the *Forestry Act 1916* in an endeavour to provide a comprehensive, over-arching piece of legislation for native vegetation management. It also has the potential to be used as the primary legislation for the broader subject of NRM.

Policies, Strategies and Plans

Essentially the new policy directions involve active community participation via Regional Vegetation Committees or, in specially approved circumstances, Local government, in the development of Local Environment Plans. This is supported at the property level by partnerships with landholders for vegetation management on their properties via a suite of mechanisms, and in the formal Reserve areas by their individual 'park plans of management'.

Guiding all this activity should be the Native Vegetation Conservation Strategy currently being prepared by the Native Vegetation Advisory Council (NVAC). Presumably this will be completed in 1999. Inevitably, much of the present activity will be reflected back and supported in the retrospective strategy development, which will have benefited from the heavily resourced (by both the Commonwealth and State governments) pilot study which has developed the draft Mid Lachlan Regional Vegetation Management Plan.

Another key State policy document is the new NSW Biodiversity Strategy 1999, the impetus for which was the continuing decline and loss of the State's biodiversity. The government has committed itself to the goals and actions enunciated in the strategy, and by doing so has acknowledged "the need to strengthen and improve current activities, policies, legislation, practices and attitudes to achieve the conservation of biodiversity".

Institutional Arrangements

Government

In addition to Local and Commonwealth governments, the principal State government institutions involved in native vegetation are:

- NSW Department of Land and Water Conservation (DLWC)
- NSW National Parks and Wildlife Service (NPWS)
- NSW Agriculture (NSW Ag)
- NSW Department of Urban Affairs and Planning (DUAP)
- State Forests of NSW (State Forests)
- Environment Protection Authority (EPA)

The principal coordinating mechanism for native vegetation between the various agencies of State government is the National Vegetation Implementation Group (NVIG) which comprises senior officers from each of the relevant departments.

Government/Community

At the State level the key institution is the Native Vegetation Advisory Council (NVAC), established under the *NVC Act*. NVAC advises the government on a number of issues including the status of native vegetation in NSW, the development and review of strategic native vegetation policy, and the identification of priorities for incentives for sustainable vegetation management. NVAC consists of:

- four rural representatives
- two conservation representatives nominated by the Nature Conservation Council of NSW
- a non-government member of the Catchment Management Coordinating Committee

- one Local government representative
- two representatives of Aboriginal interests nominated by the NSW Aboriginal Land Council
- a representative from either the Australian Ecological Society or the National Herbarium
- representatives from DLWC, NPWS, NSW Agriculture and DUAP

There are various Regional Organisations, most importantly the Regional Vegetation Committees (RVCs), being established under the *NVC Act*. The RVCs' interests at the regional level are similar to those of NVAC at State level. Again, all members are Ministerial appointees.

The *Threatened Species Conservation Act 1995* established the Biodiversity Advisory Council to advise the Minister for the Environment on biodiversity issues, including the development of the Biodiversity Strategy. The Act also provides for the establishment of a Scientific Committee to advise the Minister on matters relating to the listing and management of threatened species and ecological communities.

At the State level the Total Catchment Management (TCM) movement continues to operate under the *Catchment Management Act 1989*, although with what seems to be a diminishing role. Institutionally, the TCM movement includes the overarching State Catchment Management Coordinating Committee, the Regional Catchment Coordinating Committees, the Catchment Management Committees and the Catchment Management Trusts, which each operate under various legislation.

Also of significance at the State level is the Resource and Conservation Assessment Council (RCAC) RCAC is the government/community advisory body that provided advice and coordination on the forest reform processes including the development of RFAs. There are also other NRM-related regional groups, such as River Management Committees, Groundwater Management Committees and Water Management Committees (i.e. river and groundwater management).

Aboriginal Land Councils are also important land management, and hence native vegetation management, organisations. Finally, at the local level there are the usual interactive Local government processes supported by local/regional institutions such as Rural Lands Protection Boards (RLPBs) and Landcare etc.

Analysis

There are several aspects of the present NSW situation which are of great interest to all jurisdictions. The new legislation, the *NVC Act*, is an attempt to take a fresh approach to native vegetation management. It is a radical and explicit attempt to clearly articulate the position of the State, and to establish unambiguous authority and supporting institutions to resolve a highly controversial subject. Understandably, the creation and passage of the legislation has been far from straightforward. However, articulating and then following a defined process has been a clear strength. The major anxieties still to be resolved relate to landholders' fears of being restricted by the *EPA Act*, which they perceive to be potentially less farmer-friendly than the *NVC Act* and associated Regional Vegetation Management Plans (RVMPs).

It is critical for the government and the community that NVAC and the fledgling RVCs now deliver. Without negotiated and agreed RVMPs the *NVC Act* and associated institutions are relatively powerless.

NVAC and the RVCs provide an opportunity to link government (DLWC, NPWS, DUAP and Local government) with the community via advocacy groups for farmers, Aboriginals and conservationists. The agenda is narrower than for TCM, i.e. statutory native vegetation planning rather than non-statutory regional NRM planning. However, the field of players is more extensive. NVAC and the RVCs reflect the seemingly normal evolution of institutions in NRM to become more inclusive.

Many of the 'hard yards' establishing the skeleton of a new system have been successfully taken. However, the RVC network is just beginning its task. It is to be hoped that it will succeed in its initial goals of establishing a sound, statutory, planning basis for native vegetation management and monitoring across the State, particularly west of the Divide.

Institutional evolution can occur by either adjusting existing arrangements or, as in the case of NSW, by starting from scratch. With regard to native vegetation, the State chose not to use the pre-existing TCM network as the central player, but rather to simply make it a mandatory member with the same status as others. It could have chosen to build upon, or within, the TCM foundation, but for a variety of logistical and political reasons it decided to start afresh and establish new institutions and associated arrangements for each of vegetation and water. An obvious problem associated with this approach is the ease with which critics can argue that the overall system for NRM is unnecessarily complex.

Following the re-election of the Carr government an internal review is being undertaken, examining the roles and responsibilities of the various institutions involved in NRM (and hence native vegetation). This will inevitably include clarifying 'who will do what' in the development and implementation of the various mechanisms either operating or proposed. It remains to be seen whether the specifically tasked NVAC/RVCs eventually merge with the Water Advisory Council and plethora of associated Water Management Committees, and the TCM movement to form a new broadly focused ICM/NRM movement. Decisions by the Ministers involved (Land & Water Conservation; Agriculture; and Environment) will be required.

EVALUATION OF MECHANISMS

Planning and Assessment

The principal statutory mechanisms for native vegetation planning are either the DLWC coordinated Regional Vegetation Management Plans (RVMPs) or the Local government coordinated Local Environment Plans (LEPs). Other plans, such as the non-statutory 'catchment plans' from all over the State will inform the process; however, it is the RVMPs and LEPs which will provide specific guidance to development consent authorities.

Regardless of the type of plans that might be used, a substantial input into data inventory, mapping and biodiversity status assessment will be needed to inform the planning processes. DLWC is currently finalising a NSW mapping strategy to address the sharing of data and the gaps in existing information.

The NSW Biodiversity Strategy summarises the current state of knowledge regarding biodiversity. As with other jurisdictions, assessment of status is expensive and attaching values is difficult.

Much of the state has had new RVCs (or Local government) approved and established to discharge their responsibility of preparing RVMPs, or adjusting LEPs to reflect native vegetation issues. Whilst there is considerable information already available, the Mid-Lachlan pilot has shown that considerable extra resources need to be allocated in order to underpin the creation of credible RVMPs. The issue of resourcing is very significant. NSW now believes that to meet the Mid-Lachlan standard across the State would require 100-200K per RVMP. Although the number of RVMPs (or equivalents) remains to be determined, it is envisaged that there are likely to be 30 RVMPs in total. Although the actual RVMP process has only just commenced, there are already 19 underway. High quality background material has been prepared and the pilot learnings should inform future processes.

Key Challenges

Finalising the State mapping strategy and in so doing specifying the minimum amount of mapping required for planning and monitoring

Implementing the State Biodiversity Strategy

Ensuring sufficient agency and community support for the fledgling RVCs to enable them to do their job

Clarifying the extent of financial resources to be applied to the preparation of RVMPs

Clarifying the relationships between Local governments, agencies, LEPs and RVMPs – which Act applies etc.

Ensuring that the various NRM planning processes (vegetation, TCM, water, biodiversity) inform each other &/or are integrated, as required

Reserve System

As with other jurisdictions, NSW's major objective is to develop a CAR Reserve system. With regard to the formal Reserve system managed by NPWS, action is being taken to establish a CAR forest Reserve system, expand the protected area system and to create a comprehensive system of marine parks. There are clear management plans and policies in place to achieve these aims.

As with other jurisdictions, the question remains as to how best to protect native vegetation off-Reserve which in essence means on private lands or Local government lands. Over and above any public acquisitions, in NSW the mechanisms being used are the Property Agreement or the Voluntary Conservation Agreement.

Key Challenges

Deciding whether better public investment outcomes in the future are to be achieved by expanding the formal Reserve system or by providing incentives for off-Reserve conservation

Obtaining sufficient information to make decisions based on CAR principles (because putting the principles into practice without information is destined to lead to sub-optimal investment decisions)

Simplifying the current covenanting arrangements

Linking native vegetation priorities with more comprehensive nature conservation priorities

Shifting away from the 'island concept' to a 'landscape' view of protected areas

Communication and Capacity Building

As with all jurisdictions, various services are delivered ranging from general community education activities through to the planned activities of specific extension personnel focusing on preparing Property Agreements with landholders. Somewhere in the middle are targeted efforts with schools, rural and urban communities, park visitors and property management planning exercises with groups of landholders.

Key Challenges

Preparing high-quality information packages in a timely fashion and keeping pace with legislated changes in approach

Ensuring some consistency of the messages given to land managers by different agencies, e.g. DLWC, NSW Agriculture and NPWS

Devising effective ways to support extension activities of government/community institutions, industry organisations, etc.

Meshing the key messages for programs like Land for Wildlife with other efforts such as Property Management Planning

Assuring that demand for individual Property Agreements is stimulated and that the capacity to respond to the demand is adequate. Creating this capacity will require short term resourcing to develop suitable Property Agreements, and longer term resourcing to ensure compliance

Incentives

The principal incentives being used are grants. These include the myriad of Bushcare/NHT types of grants. However, of particular interest in NSW is the \$15 million Native Vegetation Management Fund (NVMF) which is dependent upon the development, via DLWC, of Property Agreements which may, for example, include an NPWS coordinated Voluntary Conservation Agreement element. A range of other incentives is being researched. It is intended to experiment with these in the near future.

Key Challenges

Ensuring that grants schemes are not 'competitive' with each other, but rather operate in a coordinated way to achieve best overall results

Given limited funds (as is always the case) targeting grants to recipients where there will be the greatest impacts

Allowing landholders to 'group together' to develop coordinated action plans supported by various mechanisms

Ensuring that the current research into non-grant mechanisms translates into 'mechanism use' and subsequently enhanced native vegetation outcomes

For rural lands, ensuring direct linkages of incentives with approved Property Agreements, which in turn are consistent with appropriate RVMPs or LEPs

Ensuring compliance with Property Agreements

Regulatory Arrangements

Threatened Species/Ecosystem Protection

The *Threatened Species Conservation Act 1995 (TSC Act)* guides the approach to threatened species and ecological communities.

Land Clearance Regulation

The foundation is the *Native Vegetation Conservation Act 1997 (NVC Act)*. This builds upon and is intended to complement and the *Environment Planning and Assessment Act 1979 (EPA Act)*. The NVC Act is intended to strengthen the regulatory approach to controlling land clearing. Rural landholders fear being over-restricted by the EPA Act, which they perceive to be potentially less farmer-friendly than the NVC Act and associated Regional Vegetation Management Plans (RVMPs). However, without negotiated and agreed RVMPs the NVC Act and associated institutions are relatively powerless. In the meantime, those wishing to clear must put enter a Development Consent process which includes assessments and determinations by DLWC.

The BRS/ALCC data indicates there was still extensive clearing of woody vegetation in NSW between 1990 and 1995. The previously discussed deficiencies of this data include the fact that it does not provide any information on non-woody ecosystems such as grasslands. The current NSW system also finds it difficult to rapidly monitor this type of land clearance. Reducing further the extent of land clearing, and being able to monitor progress against this objective remains a high priority.

Codes of Practice

A Code of Practice exists for the timber plantations industry, but this appears to be the only real example related to native vegetation.

Key Challenges

Enhancing the workability of the 'threatened species processes' which are extremely resource intensive and yet may have less satisfactory outcomes than processes with an emphasis on threatened communities or – taking a different approach – high-value communities

Ensuring compliance with the Voluntary Agreements for conservation

Completing the RVMPs to enable a more strategic approach to be taken to vegetation management, including land clearance controls

Agencies such as DLWC balancing their dual role as 'farmers' friend' and compliance agent with regard to the Development Consent and assessment processes.

Further reducing land clearing

Assessing the performance of the existing controls on land clearance, given the information gaps (see M&E challenges below). The deficiencies of the BRS/ALCC data

Monitoring and Evaluation

M&E ranges from periodic 'big picture' efforts, such as the 1999 BRS/ALCC overview of vegetation cover and condition, to the more detailed analysis of the content of RVMPs, Property Agreements and associated Development Consents and exclusions, etc.

Given that NSW is implementing a new system, it is important that it considers now how it will monitor and evaluate the many different components of the overall effort. These components include: legislation, policies, strategies, institutional arrangements, and mechanisms. Measuring outcomes is also still problematic and is a key task in order to monitor change at the State, regional, local and individual property level.

Key Challenges

Resourcing M&E for objective assessment of legislation, policies and institutions

Filling the gaps in data gathering which lead to confusion about areas of vegetation, areas cleared, areas revegetated, the impact of clearing permits, the actual amounts being permitted to be cleared, wholesale versus selective clearing, etc.

Developing real-time indicators which provide a genuine perspective on cover change

NEW SOUTH WALES STOCKTAKE

KEY STRENGTHS

A new system which has built upon previous experience of other jurisdictions, such as South Australia and Victoria. The system includes a reshaped policy framework, new institutions and many different mechanisms for implementation of policy.

Effort is being directed at getting genuine community involvement in government/community partnerships via institutions such as the Native Vegetation Advisory Council and the Regional Vegetation Committees.

A comprehensive legislative basis, founded on the *Native Vegetation Conservation Act 1997*.

A gradual evolution of a genuine whole-of-government approach at the State level, directed from the Native Vegetation Implementation Group.

KEY CHALLENGES

Completing and the acting upon the findings of the review of institutional arrangements for NRM, including the native vegetation component: There is a need and a challenge to clarify roles of the various State agencies and the future roles, beyond RVMP preparation, of the Regional Vegetation Committees and their relationship to the Total Catchment Management movement, Water Management Committees, Landcare groups etc. Critics can easily argue that the present parallel systems for NRM are unnecessarily complex.

Community confidence: Earning, obtaining and retaining community confidence in new approaches to native vegetation management and monitoring is a major challenge.

State agencies and Local government confidence: Earning, obtaining and maintaining genuine confidence and support of the range of agencies and Local governments involved in the preparation of statutory Regional Vegetation Management Plans (RVMPs) and/or more native vegetation conscious Local Environment Plans.

Resourcing RVCs and RVMPs: Resourcing and supporting Regional Vegetation Committees to ensure they successfully complete RVMPs; or resourcing and supporting Local governments to ensure they successfully incorporate satisfactory native vegetation measures into their Local Environment Plans is a major challenge. The mid-Lachlan pilot RVMP has shown that significant resources need to be allocated to underpin the creation of credible RVMPs.

Quality control of RVMPs: A challenge for the State is to develop benchmarks against which to assess RVMPs to ensure they all meet required standards.

Policy complementarity: Ensuring the State Native Vegetation Conservation Strategy complements the existing State Biodiversity Strategy.

Land clearance: The BRS/ALCC data indicates there was still extensive clearing of woody vegetation in NSW between 1990 and 1995. The previously discussed deficiencies of this data include the fact that it does not provide any information on non-woody ecosystems such as grasslands. The current NSW system finds it difficult to monitor land clearance. Reducing further the extent of land clearing, and being able to monitor progress against this objective remains a high priority.

Lack of information: Resolving underpinning knowledge gaps and consequent problems with biodiversity status assessment, classification standards and data aggregation and reporting. This also applies to current problems with regular monitoring of land clearance applications versus actual clearance activity etc. Naturally, these information gaps makes policy and program evaluation difficult.

Future Reserve investment: For the Reserve system, working out the best way to target further investments, via expansion of formal reserves or by resourcing of more off-park protected areas.

Property Agreements: For rural lands, developing widespread acceptance of the legitimacy of the Property Agreements (PAs), over and above their usefulness in obtaining a government 'payout' from the Native Vegetation Management Fund. Moreover, there is a need to ensure that the PAs are linked to and informed by the RVMPs.

General streamlining: Streamlining the processes within and between governments, regional organisations, Reserve managers, other land managers, and the general community.

Northern Territory

CONTEXT

Northern Territory Context

Native vegetation is very important to the NT. It forms a valuable element of the increasingly important tourism industry, continues to underpin production from the pastoral industry, and is a valued part of the culture of the indigenous people. The vegetation is diverse and many elements of it are internationally recognised for their importance to world biodiversity.

The NT is seeking to manage its native vegetation as one of the more important elements of the natural resource system. However, with regard to the national Bushcare goal, NT does not believe that it can meet an objective of no net loss of native vegetation within the Territory. It argues that, agriculture/horticulture development in the NT is far from 'complete', and that further clearing will be necessary. Officials from the NT argued that, unlike other jurisdictions, there is little need for significant revegetation activities, with the result that even with minimal clearing, the no net loss goal is presently unattainable for the NT.

Some relevant contextual points include:

- The major pressures on native vegetation relate to fire, feral animals, weed invasion and grazing livestock. Land use intensification for agriculture/horticulture and urban growth/subdivision is meaning that particular locations are now being, or will be, subject to increasing pressures.
- The native vegetation and other features of the natural resources of the NT are substantially different from those elsewhere. Ten of NT's 23 biogeographic regions are unique to the NT.
- At present, there is very little pressure from pastoral leaseholders to clear land, as measured by clearing applications. (This is quite different from the situation in Queensland). For example in 1997/98 there were only four applications submitted by pastoralists for approval to clear under the *Pastoral Land Act 1996*, applying to clear 300 hectares. Unresolved questions about Native Title have created uncertainty with regard to issues such as land clearing; this may be partly responsible for the very few applications.
- With only 224 pastoral leaseholders managing 47% of the NT, the scale of operation on properties makes it unlikely that incentives could be used to encourage particular native vegetation management outcomes. Rather, any desired native vegetation management outcome needs to be bundled with other economic and social outcomes if progress is to be made.
- Unlike most other jurisdictions, there is virtually no freehold land outside peri-urban areas in the NT. Some 42% of the land is Aboriginal freehold land, 47% is pastoral leasehold, about 3% is parks and reserves and the remaining 8% represents freehold land and Crown leases and other tenure. The management of Aboriginal lands brings new challenges reflecting the involvement of different institutions and sometimes different legislative jurisdictions.
- It is widely recognised in northern Australia (NT, Qld and northern WA) that native vegetation needs to be considered within a broad ecosystems context (e.g. tropical rainforest, arid rangelands etc) rather than by a jurisdictional approach. This is explicitly acknowledged in the approach of the Darwin-based Cooperative Research Centre for Tropical Savannas.
- NT is fortunate in that it does have a good broadscale land system mapping base which it is using to plan and monitor all aspects of NRM, including native vegetation. It does, however, need finer detail in critical areas and the cost of obtaining such detail in comparison with the limited revenue base means that maximum use needs to be made of appropriate technologies.

Extent and Status of Native Vegetation

The NT has been divided into 20 IBRA regions using the national system. Two of the IBRA regions have been subdivided into five so that the NT recognises 23 bioregions. Vegetation in the NT ranges from the rainforests

and seasonal swamps of the seasonally wet tropical north to the sandy desert vegetation in the arid, temperate south. The only comprehensive vegetation data comes from the Parks and Wildlife Commission which has mapped the vegetation at a scale of 1:1 million using 13 broad categories and 112 fine categories. Hummock grasslands (spinifex) accounts for 38%, eucalypt forest with tussock grasses for 17%, eucalypt woodland with hummock grass 14%, acacia woodland and shrubland for 13% and tussock grasslands for 7%. Smaller areas are covered with shrubland, floodplain, Meleleuca forest, saltbush and coastal (littoral) vegetation.

The NT has a rich complement of native plants with more than 4,000 identified species comprising about 25% of the Australian total. Some 10% of the plant species are endemic to NT and 5% of the plants are considered threatened. Although there has been relatively little clearing, the clearing that has occurred has been concentrated in only a few locations and land use intensification has been concentrated in only a few biogeographic regions. However, changes in vegetation have occurred without clearing owing to the impact of grazing animals, feral herbivores such as rabbits, buffalo, donkey, horses, goats and camels and altered fire regimes. Many of the NT's threatened plants have extremely limited ranges and most occur mainly in the MacDonnell Ranges, Western Arnhem Land escarpment, Tiwi Islands and Petermann Ranges.

Most of the vegetation apparently remains intact. However, the most recent detailed figures are from CSIRO in 1984 (Wells KF, Wood NH and Laut P). These suggest that tree clearing in the NT is <1% overall and <9% in the most heavily cleared areas. These figures are quoted again in the 1998 NT Parks Masterplan. The most recent data, as with other jurisdictions, is the BRS Agricultural Land Cover Change figures from 1990-1995 which estimate the loss of woody vegetation in that period as follows: 5,870 hectares for cropping, 1,070 hectares for grazing, and 9,550 hectares for infrastructure development and urban expansion. More recent data is unavailable. There are significant information gaps in the NT.

Vision

The NT has an overall vision of managing its resources in an ecologically sustainable manner consistent with designated land uses. Its primary focus is on rectifying any on-going adverse effects to the natural resources resulting from current land use practices. Equally its primary focus is to protect and enhance the regional biodiversity and other environmental values. The NT does not have a specific vision for management and monitoring of native vegetation, rather it is seeking to recognise and protect the role that intact native vegetation plays in the overall health and functioning of NT ecosystems.

The NT expect to see regional NRM plans developed for each region, with priority given to regions where the development pressure is greatest. These plans should treat native vegetation as one elements of the landscape and ecosystem that need to be managed in a integrated manner.

In summary, the NT vision involves:

- further developing an integrated approach to native vegetation management
- attaining a representative and balanced Reserve system
- effective conservation of biodiversity
- sustainable use of the flora and fauna

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

There are several pieces of Commonwealth legislation and eight NT acts that influence the management and monitoring of native vegetation in the NT. Relevant Commonwealth legislation includes the *Native Title Act 1993*, *Aboriginal Land Rights (NT) Act 1976* and the *Environment Protection and Biodiversity Conservation Act 1999*. Principal NT legislation includes:

- *Pastoral Land Act 1996*: This Act provides a form of tenure of Crown land that facilitates the sustainable use of land for pastoral purposes and the economic viability of the pastoral industry. The regulations in the Act specifically place mandatory controls on clearing and subdivision, and guidelines have been developed in support of these regulations. The Act provides for the development of remedial plans to address problems of land degradation occurring on a lease.
- *Parks and Wildlife Commission Act 1998*: This Act establishes the Parks and Wildlife Commission (PWC) to promote the conservation and protection of the natural environment of the Territory by managing parks, reserves and sanctuaries and other land by agreement with owners or occupiers.
- *Parks and Wildlife Conservation Act 1988*: This Act establishes the parks and reserves in the NT and requires that they be managed in accordance to 'plans of management' approved by the Legislative Assembly. It also provides for the protection, management and use of wildlife across the NT.
- *Cobourg Peninsula Aboriginal Land, Sanctuary & Marine Park Act*: This Act guides the management of the Gurig national park and the Cobourg Marine Park with a management plan. The park and Nitmiluk are jointly managed by Aboriginal owners and PWC.
- *Nitmiluk National Park Act*: This Act establishes the national park at Nitmiluk (Katherine Gorge) and specifies the way in which a plan of management will be developed. The land is owned by the Jawoyn Land Trust and leased to the Conservation Land Corporation.
- *Soil Conservation and Land Utilisation Act 1995*: This Act makes provision for the prevention of soil erosion and for the conservation and reclamation of soil. It has the capacity to regulate clearing when various provisions of the Act are applied.
- *Water Act 1992*: This Act provides for the investigation, use, control, protection, management and administration of water resources, and for related purposes. It has provisions which can protect native vegetation in catchment areas.
- *Planning Act 1999*

At present there is no specific legislative basis for regional NRM in the NT. However, the legal foundations are provided by the *Planning Act 1999* and the *Water Act 1992*. The *Planning Act 1999* provides for appropriate and orderly planning and control of the use and development of land by the NT government. Any Planning Scheme prepared under the Act may include:

- Land Use Objectives (LUOs) which establish NT government policy for future land use and development. The declaration of LUOs is able to occur as a parallel process to the development of regional NRM plans
- Planning Concepts, which refer to structure or concept plans which support LUOs through the presentation of planning concepts and identification of development opportunities. The status of these documents will depend on the particular project. LUOs and Planning Concepts are often published as one document

The NT is currently reviewing its legislation and a number of the likely changes are expected to support enhanced NRM. Possible changes include:

- A new *Weeds Bill* scheduled for introduction to parliament in October 1999 that will strengthen the provisions of the *Weeds Act* and apply to all forms of weeds
- Strengthening the *Stock Diseases Act* to enforce stronger controls over feral animals
- Amending the *Parks and Wildlife Conservation Act* to strengthen its powers
- A *Draft Land Resources Conservation Bill* is being proposed to replace the *Soil Conservation and Land Utilisation Act*. This *Bill* if enacted would introduce the concept of 'duty of care' and introduce guidelines to assist people in meeting their 'duty of care' such as in the area of clearing and erosion control
- The *Water Act* is also being reviewed as part of the Council of Australian Governments (COAG) water reform processes and as a means to facilitate the development of integrated catchment and regional planning

Policies, Strategies and Plans

The NT is striving for a 'whole of government' approach across all activities, including native vegetation. At present, apart from the particular interests of the Parks and Wildlife Commission, native vegetation management is rarely viewed in isolation but rather as an essential element of integrated NRM. The NT is

attempting to balance economic and NRM sustainability objectives. It does not yet have well-developed integrated NRM policies but they are being actively considered. A Land Resources Coordination Group comprising the CEOs of the three key agencies – Parks and Wildlife Commission NT (PWCNT), Department of Lands, Planning and Environment (DLPE) and Department of Primary Industry and Fisheries (DPIF) – is being used to ensure a consistent approach between these parts of government.

For pastoral land, the two broad policy objectives followed by the Pastoral Land Board (established in 1992) and its Pastoral Land Advisory Group are to monitor the condition of pastoral land and to ensure that it maintains its productivity. To a large extent, the particular desired outcomes from leaseholder management are set without specifying what the management inputs must be to achieve those outcomes. In setting desired outcomes, attention is paid to concerns such as fire, weeds, feral animal control and overall sustainability. Management of weeds has been guided by the NT Weeds Strategy 1996-2005 developed in 1997 by DPIF. The Weeds Strategy identifies the current inadequacies in the Weeds Act and this is currently being updated.

For land in parks and reserves, the 1998 Northern Territory Parks Masterplan provides a comprehensive assessment of the parks system and sets out five clear themes for development over the next 15 years.

For Aboriginal land, the situation is less clear, in part owing to shared responsibility across jurisdictions and to differences in the tenure situation and cultures. The lands are administered by four Aboriginal Land Councils and in some cases support for management is provided by the Indigenous Land Corporation. For some Aboriginal land, joint management agreements have been reached and PWCNT works with local communities in managing the land applying the same policies as elsewhere in the NT. In other cases, Aboriginal land is managed by Land Councils or by individual communities. In some cases, this land may not be managed in accordance with the policies which apply elsewhere. One policy which is being developed and implemented across all forms of tenure in the NT seeks to enable sustainable commercial use of wildlife (including native vegetation) while also ensuring its conservation.

For the small areas of land which are subject to planning controls and specific LUOs, there are some which have specific controls over management of native vegetation. Capacity exists to declare certain 'precincts' which then develop LUOs which are incorporated into Control Plans and become mandatory. The precincts should at least include peri-urban areas or other areas subject to pressures for intensification of land use such as in the Douglas Daly region.

Integrated Catchment Management Planning (ICMP) is in its infancy, with the Mary River being the only catchment or region that has developed, and is implementing, a formal action plan.

Management of threatened species is guided by the Threatened Species Strategy developed by PWCNT in 1998. The NT favours an approach which aims to protect biodiversity at a landscape scale rather than a focus on the conservation of single species.

A number of other policy and strategy documents are presently being developed, including:

- Wetlands Conservation Strategy 2000+
- Conservation Strategy for Pastoral Lands
- NRM Strategy (Land and Water), being developed by the Department of Lands, Planning and Environment (DLPE)

Institutional Arrangements

Government

There are three principal institutions responsible directly or indirectly for managing and monitoring native vegetation in the NT:

- *Department of Lands, Planning and Environment (DLPE):* The key role of DLPE is to plan and manage land and water use in the NT to support development of the economy without placing the environment heritage and lifestyle at risk. It has responsibility for strategic planning in relation to land use generally and also for developing and implementing overall environmental policies. This department oversees the use of pastoral lands through the Pastoral Land Act, including assessment of applications for clearing and land use intensification. DLPE is also responsible for assisting the Pastoral Land Board through the provision of information on the condition of pastoral lands (monitoring) and through provision of advice to help inform decisions about changes in land use and intensification on pastoral lands. In the case of all other land, DLPE is responsible for setting land use standards within broad land use objectives and giving effect to these LUOs through some form of Planning Scheme. DLPE also administers the other NRM legislation such as the Soil Conservation and Land Utilisation Act and the Water Act.
- *Parks and Wildlife Commission NT:* PWCNT has responsibility for protection and management of parks and reserves and for protection of wildlife. This responsibility includes an extensive research and development program, and the development and implementation of an active program of community education and communication about natural resource conservation. PWCNT is also responsible for the development and support of a number of agreements between itself and landholders or managers for joint management of lands.
- *Department of Primary Industry & Fisheries:* DPIF is responsible for the provision of technical and economic support services to pastoral, agricultural, horticultural and fisheries industries. Its relevance to native vegetation arises through its policy development role (e.g. the Weeds Strategy which is in place, and the proposed Conservation Strategy on Pastoral Lands which is being developed in consultation with industry) and its field activities. DPIF provides a range of services to pastoralists and agricultural operators including support for whole farm planning (PMP) and general advice on integrated resource management including the management of fire, feral animals, weeds and grazing pressure.

The three key agencies are brought together at senior officer level through the Land Resources Coordinating Group and at the operational level through a range of technical advisory groups which are formed to deal with specific issues.

In addition to the aforementioned institutions, there is a range of others that indirectly play a role in management and monitoring of native vegetation. These include: Mines and Energy, Power and Water Authority, Transport and Works, the NT Tourist Commission, the NT Department of Housing and Local Government and the Office of Aboriginal Development. Individual Local governments and the Local Government Association of the NT are also relevant participants.

There are also various Commonwealth government supported institutions that are involved in and contribute to the management of native vegetation. They include the Indigenous Land Council, the four Aboriginal Lands Councils, Environment Australia and the CSIRO Division of Wildlife and Ecology.

Government/Community

Relevant government/community groups include the Landcare Council of NT, the State Assessment Panel, the three Regional Assessment Panels (Darwin, Katherine and Alice Springs), local Landcare groups and other groups such as the Centralian Land Management Association.

The important non-government organisations include the Cooperative Research Centre for Tropical Savannas which operates a number of R&D programs particularly relevant to native vegetation, Greening Australia NT, the Environment Centre of the NT, the Arid Lands Environment Centre, the NT University and the Threatened Species Network.

Analysis

Although the NT subscribes to the general overarching principles of ESD, it still developing an NRM strategy. It does not plan to develop a separate strategy for native vegetation management but rather plans to manage vegetation as just one of the many elements integral to NRM. This is not surprising and could be a reasonable approach. As discussed, integrated NRM planning or Integrated Catchment Management (ICM) is a relatively

new approach for the NT and many of the 'methods and rules and relationships' are still being developed and tested.

With regard to regulatory arrangements, the legislative system provides a basis for effective management and monitoring of native vegetation, although there are some weaknesses reported in consistent implementation across all forms of tenure. The challenge for the NT, as with some other jurisdictions, is to see that the legislative processes are sufficiently resourced to be applied.

The NT is still experimenting and seeking to develop a suitable model on which to base its management of native vegetation. The model may be substantially different to other Australian jurisdictions. However, it should involve further refinement and/or application of an open and robust environmental assessment process which critically assesses development proposals – particularly in areas earmarked for agriculture/horticulture intensification, but also in urban and peri-urban areas.

EVALUATION OF MECHANISMS

Planning and Assessment

Inventory and Mapping

Vegetation mapping is carried out by DLPE, PWCNT, DPIF, the Bushfire Council and by the CRC for Tropical Savannas. The coverage varies but the only comprehensive mapping is that of the CRC at 1:1 million scale. Some parks are covered at a finer scale and some biogeographic regions have additional details, but coverage is disparate. A large area of pastoral land is mapped at 1:100,000 land unit scale while an even greater area of the NT is mapped at land unit /system scale of 1:250,000. Land unit and land system mapping delineates like landscapes based on their soil, vegetation and topographic characteristics. There are monitoring plots in key parks and all pastoral land is subject to a two tier monitoring – discussed later. The NT is using some of the best technology and hopes to develop a more strategic approach to its mapping and inventory.

Biodiversity Status Assessment

The NT's biodiversity status has been assessed at a general level for each of its biogeographic regions and follow-up assessments are being conducted in priority biogeographic regions. There are gaps in the assessment particularly in relation to non-vascular species. The NT feels that the Commonwealth places too much emphasis on individual endangered species and too little on enhancing biodiversity per se.

Regional Planning

Regional vegetation management planning is being carried out by each of the three key agencies as part of broader activities rather than as an activity in itself. It is intended that the NRM plans of the future will incorporate native vegetation plans as an integral part of the plan and will consider biodiversity and all elements of the landscape and ecosystems.

Key Challenges

Filling the gaps in the vegetation inventory in priority order

Finding resources for bio-survey activities and including fungi, algae and invertebrates

Developing and applying an integrated approach to NRM and incorporating vegetation management in this approach

Communication and Capacity Building

Community Education

The PWCNT has a community education program that is reported to be creating a demand for services beyond what the agency can provide. DPIF has a full-time education officer primarily focused on weeds awareness and works with the community in conjunction with the Bushfire Council and PWCNT for management of weeds and grasses.

Landholder Support

The DLPE administers and promotes the landcare ethic throughout the NT and supports Landcare, Coastcare and Waterwatch groups. The department also conducts an extensive extension and advisory service to all landusers integrating both land and water issues. Much of the land resource monitoring methodologies developed by the department rely on assessing change in vegetation cover across the landscape.

The extension programs of DPIF include strong emphasis on Property Management Planning (PMP), Best Practices and some new approaches to integrated management are being trialled. The Bushcare program is underway and Greening Australia NT is an important provider of information on native vegetation.

Revegetation 'Hardware'

Given that the vegetation management thrust in the NT is largely directed at retaining and managing the existing native vegetation, there is no specific requirement for revegetation infrastructure other than in enhancing community education and values in peri-urban areas.

R&D

There is an active R&D program underway in DLPE, PWCNT and DPIF as well as the CRC for Tropical Savannas in which the three agencies are key partners. R&D in PWCNT is directed at developing priorities for improving the Reserve system, understanding the ecological processes and coupling science-based R&D with indigenous knowledge with particular attention to fire management. DLPE's R&D is directed at developing effective monitoring methodologies for detecting change and impact across all landscapes and integrating land and water quality monitoring methodologies. On a specific issue, DLPE is drafting a Mangrove Management Strategy and conducting R&D into mangrove productivity and their links with the food chain.

Key Challenges

Achieving greater coordination and integration of extension efforts amongst agencies

Changing attitudes to the role of native vegetation on farms and along rivers and streams—introducing the concept of duty of care

Finding the resources needed for extension activities

Convincing funding agencies of the critical need for further R&D

Reserve System

The NT has the second smallest percentage of terrestrial reserves (3.2%) of any jurisdiction.¹ The NT Parks Masterplan comments that the Reserve system in the NT must be considered minimal and not comprehensive. Six of the biogeographic regions are entirely unreserved, seven have less than 1% and two have 1-5% reserved. Of these 15 bioregions, six are unique to NT. Although there are some 93 parks covering 4.37 million hectares, many of them are relatively small and they tend to be located in rocky areas. Only one bioregion has parks which contain a highly representative sample of vegetation and landscapes. Even regions with high levels of reservation show only a moderate degree of representativeness. Those few bioregions where land use is being intensified are poorly represented. At present, for the seven biogeographic regions where Aboriginal land is 80% or more, three have no reserves, two less than 2% and two are well reserved with more than 14%.

Of the 13 broad types of vegetation, seven are well represented in parks and five have negligible representation. As with other jurisdictions, the grasslands (tussock and hummock) are amongst the most poorly reserved. The majority of the poorly reserved vegetation is found in the southern half of the NT. The authorities regard the poor reservation status of these broad vegetation types as the most substantial environmental shortcoming of the NT park system. The approach to the problem is to seek to expand the off-Reserve elements of the system. Already there are Joint Management Agreements with Aboriginal landholders and there are plans for increasing the use of these types of agreements with all land managers.

Key Challenges

Boosting the existing NT Reserve system which at present fails to meet CAR criteria

Establishing effective joint management plans in those areas that are not adequately represented in the formal Reserve system

Fostering a greater community awareness of the need for maintenance of biodiversity outside the formal Reserve system

Incentives

Grants and Market-based

As with other jurisdictions there are various grants programs delivered via either Landcare, Bushcare, Greening Australia etc. However, it is recognised that the resources available for grant incentives will not, in themselves, be in any way sufficient to ameliorate landscape degradation. As with all other jurisdictions, these types of incentives – whilst welcomed – need to be boosted, if possible, by other market-based incentive drivers.

¹ Queensland has 2.40%, NSW 4.85%, WA 6.23%, Victoria 12.92%, SA 16.95%, Tasmania 26.71% and ACT 44.01%. Source *NT Parks Masterplan* (1998) p 13.

Key Challenges

Finding a basis on which a practical market-based incentive schemes can be developed to suit the NT situation

Developing markets and promoting industries, especially among Aboriginal communities that encourage sustainable utilisation of wood products, such as sandalwood and mallee (similar to NT initiatives in wildlife utilisation)

Regulatory Arrangements

Threatened Species/Ecosystem Protection

The NT administration disagrees with the conventional Commonwealth approach to protection of threatened species which has focused on individual species rather than the ecosystems that these need to survive. Consequently, to the extent permitted by funding arrangements, the NT has been moving towards efforts to manage the habitat and overall landscape in a way that will reduce threats. The new NRM strategy which is under preparation will further advocate the approach – increasingly recognised nationally – of treating ‘causes’ rather than ‘symptoms’.

Land Clearance Regulation

Within pastoral areas leaseholders must apply for a permit to clear, and any clearing must be in accordance with guidelines unless it is for infrastructure, clearing of noxious weeds or clearing of small areas of woody weeds (less than two hectares). Outside the pastoral lands the situation is less clear. On Aboriginal lands clearing is theoretically subject to the same controls as on leasehold land but this is seldom applied in practice.

There is significant land clearing occurring in the Darwin region. In urban and peri-urban areas, clearing is subject to approval from local authorities or the NT Planning Authority. However, as an example, in the Litchfield Local government area, subject to a Control Plan, clearing of up to 50% of any particular block is permitted without the need to apply to any authority. Breaches of this threshold are reported, with total clearing of some blocks occurring without sanction.

Codes of Practice

The NT has a number of guidelines which function as ‘codes of practice’. These deal with extractive industries, mining industry, clearing activities in a generic sense and erosion and sediment control. It is envisaged that new guidelines will need to be developed to incorporate any concerns about the appropriate protection of native vegetation. There may also be nature conservation guidelines for land developers.

Key Challenges

Shifting from a threatened species focus to a threatened ecological communities focus

Ensuring that existing legislation is consistently applied across all tenures. This may require broader questions to be addressed about the application of legislation across jurisdictions

Managing the increasing pressure to clear lands particularly in the Darwin region

Ensuring there is adequate pre-development environmental assessments of proposals for intensified land use

Developing and having accepted codes of practice or guidelines that are effective in bringing about appropriate management of native vegetation

Monitoring and Evaluation

The NT has an extensive monitoring system in place, though its purpose is not solely to monitor the extent and condition of native vegetation. On pastoral lands, a two tier system is used. The Tier 1 system involves the establishment of a photo-point in every paddock of each leaseholding and encouraging the leaseholder to revisit the site on a regular basis building up a photographic history of change in that paddock. It is an education and extension tool.

The Tier 2 monitoring system uses satellite data sequences to provide a temporal history of change through like landscapes and is integrated with soil and vegetation ground data from permanent monitoring sites to enable the interpretation of what the landscape change detection actually means. It is expected that the remote sensing Tier 2 monitoring system will be extended to all land and provide regional assessment of change irrespective of land use. Fire monitoring is carried out using both remote sensing and on-ground monitoring to map fire history.

The BRS agricultural land cover change monitoring is providing useful data and will be continued as the methodology for monitoring broadscale clearing. Permanent monitoring sites have been established in the southern part of the NT and in mangrove areas. The CRC for Tropical Savannas is working in conjunction with DLPE in a number of ways, including developing techniques for monitoring wetlands.

Key Challenges

Extending the monitoring coverage across all of the NT

Developing a process to prioritise and coordinate monitoring efforts

Ensuring that monitoring data is accessible and is fed back into management

NORTHERN TERRITORY STOCKTAKE

KEY STRENGTHS

A largely intact representation of the native vegetation, some of which is unique and internationally recognised to be of high conservation value.

A strong and growing ecotourism industry which relies on sound vegetation management and provides a viable alternative to some forms of agriculture.

The basis of a Reserve system with scope for expansion using emerging mechanisms for joint management of Aboriginal and other land.

Commitment to improve the policy framework and the integration of activities between agencies.

A process for managing leasehold land, monitoring its condition and guiding leaseholders in its sustainable use.

KEY CHALLENGES

Managing the pressures on vegetation: In the past the main pressures have been fire, feral animals, weeds and grazing livestock. Land use intensification for agriculture/horticulture and urban growth/subdivision is meaning that particular locations are now being, or will be, subject to increasing pressures. Managing the old and new pressures is a significant challenge.

Developing an effective NRM strategy: The NT is developing an NRM strategy, which will have a vegetation component. The strategy will presumably outline the NRM model or approach to be followed. Ensuring that this leads to enhanced NRM outcomes is the challenge.

Developing a sound base for planning: Providing the basis for sound native vegetation management as part of integrated NRM is a large task for the NT given the extensive area of the Territory, and limited revenue and human resources. Part of the challenge lies in finding cost-effective means to conduct the finer scale vegetation mapping needed in critical locations in advance of development pressures or loss of habitat. Part also lies in finding mechanisms to resolve conflicts between development and conservation and biodiversity objectives. Issues associated with the greenhouse also need to be considered in the planning context.

Legislation: The present legislative system provides a basis for effective management and monitoring of native vegetation, although there are some weaknesses reported in consistent implementation across all forms of tenure. The challenge for the NT, as with some other jurisdictions, is to see that the legislative processes are sufficiently resourced to be applied. A related challenge is the further refinement and/or regular application of an open and robust environmental assessment process which ensures the critical evaluation of development proposals – particularly in areas earmarked for agriculture/horticulture intensification, but also in urban and peri-urban areas. There are loopholes in existing legislation which allow some developments to avoid controls. These need to be addressed. Legislation is not seen as the sole answer to native vegetation management, but it will continue to form part of the ‘operating environment’ that will be needed to bring about the desired outcomes.

Developing non-legislative means to achieve desired NRM outcomes: Perhaps the only way that the desired NRM outcomes will be achieved in the NT is by having all those who use or impact on the resources manage

them in a manner consistent with those outcomes. Such management practices cannot be prescribed through legislation because it will be impractical and unduly costly to attempt to enforce such legislation. Efforts are needed to inculcate a new ethos based on duty of care and moral persuasion to influence changes in management approaches needed from pastoralists, miners, tour operators, Aboriginals and urban dwellers who have the capacity to impact on the natural resources of the NT.

Improving representation of ecosystems in parks and reserves: The challenge here is significant since the Reserve system as it now stands is neither fully comprehensive, adequate nor representative. Some of the unreserved elements are becoming increasingly scarce. Improving representation will probably have to rely on non-formal reserves via initiatives such as joint management arrangements since the NT will not have the resources to acquire and manage sufficient formal reserves.

Queensland

CONTEXT

Queensland Context

Queensland is Australia's second largest jurisdiction and more than two thirds of the state (171 million hectares) comprises forests, woodlands and shrubland in its natural state. Its economy is heavily reliant on agriculture, mining and tourism and the government seeks to balance its environmental objectives in vegetation management with the objective of sustainable agricultural and pastoral production. Unlike other jurisdictions, Queensland is currently involved in extensive broadscale tree clearing and accounted for more than 80% of the area cleared in Australia between 1990 and 1995.

The high annual rates of clearing and limited re-forestation activities in Queensland need to be seen in context. The management of native vegetation in Queensland presents an array of issues that are different from those facing other jurisdictions. For example, owing to the time of settlement and spatial extent of lands with economic development potential in Queensland, a large number of farms have not yet completed (or even initiated) their planned clearing activities. For other lands, activities such as drought feeding using mulga might be viewed as land clearing by some, but as a routine occasional harvesting of regrowth by others. Another interesting twist, presently very contentious, involves the Greenhouse issue. There are claims (refuted by others) that regrowth post-clearing, plus on-going growth from existing vegetation, offsets carbon sink reduction from clearing activities.

Queensland also finds itself in a different situation concerning the willingness of landholders to focus on native vegetation management as a key issue. Many are distracted by successive waves of concerns related to native title (Wik), water allocation management planning (WAMPs) and hostile criticism of land clearing practices. Others have strong perceptions about individual 'rights' regarding land use. In addition, Queensland does not yet have – to the same extent as in some other jurisdictions – high-profile land degradation associated with issues such as salinity, which in other jurisdictions have served to focus attention on the importance of vegetation. This combination of issues detracts from specific attention on vegetation management and tends to make it more difficult to gain support for further change – particularly new regulatory enforcement.

The drivers influencing native vegetation management in Queensland (along with the Northern Territory and northern WA) are substantially different from those in other jurisdictions. They relate primarily to the impact of rainfall, fire and grazing pressures. In northern Australia, there may well be a case for reinforcing the broad ecosystems approach to native vegetation management needs (e.g. tropical rainforest, arid rangelands, etc.) rather than a jurisdictional approach.

Extent and Status of Native Vegetation

Queensland currently accounts for 32% of the native forest area in Australia. Almost three quarters of the native forest cover is woodland. About 35% of the woody vegetation has been cleared or severely disturbed, but despite this Queensland still has an estimated 49% native woody vegetation cover, second only to Tasmania with 66%. The BRS (Bureau of Rural Sciences) land cover change estimates for the period 1990-1995 suggest that Queensland accounted for 81% of the national decrease in woody vegetation (1,218,010 hectares).

Queensland has been classified into 13 bioregions, each with a characteristic set of geology, landforms, soils and vegetation communities. The bioregions have been further subdivided into some 1,200 regional ecosystems which are based on vegetation mapping. The conservation status of the regional ecosystems has been assessed based on the proportion of the pre-clearing extent remaining intact. Some 71% of all ecosystems contain more than 30% of the pre-European vegetation and are considered to be 'relatively

abundant'. A further 25% contain are described as 'of concern' or 'vulnerable' (10-30%). The remaining 4% of the ecosystems are described as 'endangered', with <10% of the pre-European extent remaining.

About 73% of Queensland is leasehold, of which around 6% is in some form of freeholding lease leaving 67% subject to clearing controls. Reserves and parks account for about 10%, freehold land about 14% and other state land, roads, etc., a further 6%.

Vision

Queensland has an overall vision of ensuring that the management and economic use of the State's natural grasslands, woodlands, and forest areas takes into account environmental (including biodiversity) values through NRM and sustainable agricultural practices. It aims for cooperative action by government, landholders, land managers and community to ensure ecological sustainability and biodiversity retention to protect and recover 'endangered' and 'vulnerable' ecosystems, and to ensure that clearing does not change the conservation status of regional ecosystems.

It places priority on those IBRA regions where 'endangered' and 'of concern' ecosystems make up more than 35% of the regional ecosystems present. These regions are: Desert Uplands, Einasleigh Uplands, Brigalow Belt North, Brigalow Belt South, South-East Queensland, Gulf Plains, and the Wet Tropics. It also places priority on changing vegetation management practices to improve biodiversity in woodland areas used for pastoral production.

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

Five major pieces of State legislation underpin the management and monitoring of native vegetation in Queensland:

- *Land Act 1994*: This Act provides for control over use of leasehold lands, and amongst other things requires permits for tree clearing for most leasehold tenures. Following amendments of the earlier 1962 Act, the current legislation emphasises the need to use leasehold lands sustainably. Queensland's Broadscale Tree Clearing Policy (BTCP), applying to leasehold land, was approved in 1997. This Act applies to about 73% of the land in Queensland, comprising all leasehold land other than freeholding leases, and all State land.
- *Nature Conservation Act 1992*: The NCA provides for the issue of conservation orders on any tenure in order to protect environmental or conservation values. It provides for the designation of an area as being of major interest or critical habitat. The Nature Conservation (Wildlife) Regulations of 1994 identify species and populations to be protected.
- *Water Resources Act*: This Act imposes controls over the clearing of beds and banks of water courses.
- *Integrated Planning Act 1998*: IPA provides the framework for local government planning schemes in the form of the new Integrated Development Assessment System (IDAS). It confirms Local government as the primary consent authority for all development applications (other than those deemed to be of State significance). Vegetation management is specifically excluded from the application of the Act. However, with amendment it provides a basis for introducing vegetation management provisions for land other than leasehold. IPA replaced the Local Government (Planning and Environment) Act.
- *Rural Lands Protection Act 1985*: This Act identifies exotic woody weed species (amongst other things) which are to be controlled, and allows landholders to control these species without seeking tree clearing permits, provided the overstorey trees are not removed.

Despite these Acts, the legislative basis for native vegetation management remains incomplete. In the case of leasehold land, the Land Act 1994 provides all the powers that are needed, but in the case of freehold land and freehold leases, the existing legislation is inadequate. The intent is to move to a situation where there is a consistent approach across all land tenures. Consequently, Queensland is looking to establish a legislative

basis for regulating clearing on freehold land. It wants a legislative basis that is comprehensive, so that it stands in the longer term, and one that is able to accommodate new policy settings. It also wants to be able to incorporate bioregional planning and to give some form of statutory recognition to good planning measures such as might be built into Property or Land Management Plans.

Policies, Strategies and Plans

In 1995 a Scientific Forum examined the impact that tree clearing on leasehold land has had or is likely to have, on production, economics and the environment. It reported that the most intensively cleared areas are the most productive (coastal and sub-coastal lands) and that clearing has been particularly widespread in the south-east. It noted that the brigalow communities which had been the target of government sponsored development are now intensively modified with 60% of tree cover removed. The Forum suggested that tree clearing contributes less to increased runoff and soil erosion than poor grazing management and reduced fire incidence, and that tree density and biomass is increasing in uncleared but grazed woodlands. It noted that the biodiversity of 29% of the regional ecosystems is vulnerable or threatened, with clearing and grazing being the major threat. The Forum suggested that tree clearing increases productivity 2 to 4 fold, and that controls on clearing can reduce property values for uncleared properties by 15 to 70%. It also suggested that there was potential to 'profitably develop' 50% of the current grazed leasehold woodland, although not all members of the Forum agreed that this was sustainable.

Broadscale Tree Clearing Policy (BTCP)

The subsequent development and introduction of the Broadscale Tree Clearing Policy (BTCP) provided a state-wide framework to guide tree clearing which attempts to balance government's environmental objectives with the divergent views of the wider community. The BTCP was initiated in 1995 and finalised in 1997 following an amendment to the Lands Act.

The BTCP recognises that clearing is often required to meet economic objectives, but aims to ensure that tree clearing does not breach certain principles including maintenance of regional biodiversity; environmental, scientific recreation tourism and amenity values; and prevention of degradation of the land. It uses 23 criteria set out in the Lands Act that must be satisfied before an authority issues a permit to clear trees. However, the policy does not apply to freehold land, freeholding leases, leases for purposes other than grazing or agriculture, roads or stock routes, state forests, timber reserves or other reserves. It also excludes clearing of trees for routine management purposes and clearing of weeds.

The BTCP recognises three conservation categories:

- 'Endangered and vulnerable' communities, defined as having less than 10% of the pre-European distribution remaining intact. These areas should not be cleared.
- 'Of concern' communities which have 10-30% of the pre-European distribution remaining intact. These may be cleared provided clearing does not result in communities becoming vulnerable.
- 'Not of concern' communities which have more than 30% of the original distribution remaining. These may only be cleared provided that clearing does not lead to communities moving into the 'of concern' category.

The policy also sets aside watercourse buffers. The State is divided into seven zones to assist in the application of the policy.

Local Tree Clearing Guidelines (LTCGs)

Thirty-four sets of Local Tree Clearing Guidelines (LTCGs) have been developed by regional/local groups in response to the BTCP. Not all of the State is covered by LTCGs. For example, no specific LTCGs have been developed for the south-east of the State where most of the land is freehold.

Tree Management Plans

Under the Tree Management Regulations, property-based Tree Management Plans may be developed as part of an application for a tree clearing permit in areas not covered by LTCGs.

Policy evolution

A State Trees Group was established in 1997 to examine the issues in vegetation management taking into account the differing perspectives of farmers, conservationists and local governments. Following the Wik decision in 1997, a moratorium was placed on broadscale clearing on leasehold lands. The State government initiated a review of leasehold policy with a report due July 1999. This is part of a wider review of vegetation management. In March 1999 the Government established a non-governmental Vegetation Management Advisory Committee (VMAC) with wide-ranging responsibilities to assist in the development of a vegetation management strategy.

Queensland is working strategically to address the key issues in vegetation management. In the short term (by the end of 2000) it is focusing on developing consistent controls on tree clearing across all tenures and building in a bioregional and biodiversity focus by ensuring that the controls give emphasis to areas with special significance. In the longer term it is planning to incorporate a broader vegetation management. Clearly, the speed at which Queensland moves towards this longer term approach will depend on the extent to which farmers can be convinced that the broader vegetation management approach will provide them with some benefits. Unless a system can be put in place which does provide some benefits, it is likely that there will be little change on the ground. A vegetation management strategy has been developed for the Central Highlands as part of an NRM strategy and this is being considered as a possible model for further regional vegetation management planning.

Queensland is working to find common ground between national, state, regional and local level interests and is examining appropriate legislative approaches to regulatory controls particularly on freehold land. Queensland also is looking to encourage Local governments to take action in support of State objectives. More generally, Queensland has an active strategy development effort underway and is currently developing strategies for both biodiversity and NRM.

Institutional Arrangements

Government

The key State level agencies are:

- *Department of Natural Resources:* DNR is responsible for promoting sustainable use of natural resources and has taken a major role in implementing projects for this purpose under NHT. It is responsible for development of policies and regulatory arrangements, including the regulation of forest management practices. DNR also have responsibility for the State-wide Landcover and Tree Study (SLATS)
- *Environment Protection Agency:* The EPA was formed in December 1998 from the previous Department of Environment and Heritage and has responsibility for environmental planning, policy and for a range of field services. Its major role in relation to vegetation management is likely to be in planning and policy. It appears the EPA will have very minimal enforcement/compliance powers with respect to vegetation. The Queensland Herbarium is part of the EPA and is the State's lead agency on vegetation survey, mapping and monitoring
- *Queensland Parks and Wildlife Services:* QPWS is a part of the EPA and provides a range of services concerned with management of native vegetation. It manages the Reserve system and the 215 national parks and has an extensive communication program informing land managers and others about vegetation and wildlife. It also has an extension group that operates Bushcare
- *Department of Primary Industries:* DPI provides a range of services in support of agriculture and other primary industries. Amongst other activities of relevance to native vegetation management, its officers administer the Property Management Planning program and the Forestry Group manages plantations and harvest timber
- *Department of Communications, Information, Local Government and Planning:* DCILGP is the agency coordinating regional development initiatives and works with Regional Planning Advisory Committees (RPACs) to develop regional strategies and plans. It is also the agency for administering the Integrated Planning Act

- *Department of State Development:* DSD has a charter to boost economic activity for the benefit of all Queensland citizens and is taking a major role in regional economic development

In a reflection of the importance given to vegetation management, there is an inter-departmental Vegetation Management Working Group which has been operating for some time to coordinate the agencies' responses.

At the local level, Local governments have a significant potential role in vegetation management and monitoring since the capacity exists within the legislation for this to occur. Of the approximately 125 Local governments, 30 have adopted controls, of which 14 operate over rural areas and 16 over urban areas. An important policy decision will be whether Local government is to have responsibility for administering any new arrangements for vegetation management, or whether DNR will be the administering agency.

Government/Community

The key institution serving to link community and government interests in vegetation management is the Vegetation Management Advisory Committee (VMAC), established in March 1999. VMAC is charged with providing advice to the Minister for Natural Resources and Environment and Heritage on:

- The development and implementation of a comprehensive framework for vegetation management to apply consistently across all tenures and to achieve Ecologically Sustainable Development (ESD) objectives
- The need for, nature and timing of, a review of the BTCP
- The need for, and development of, interim arrangements for the control of clearing on freehold land to protect environmental values of regional vegetation communities inter alia
- Amendments to current legislation or new legislation to provide statutory support for a comprehensive system of vegetation management

Another state-level institutional player is the Landcare and Catchment Management Council (LCMC) which advises the same Minister on Integrated Catchment Management (ICM) and the direction and operation of the NHT.

Beneath the LCMC umbrella is the ICM network. The smallest units are Landcare groups. Landcare and Catchment Coordinating Committees (LCCCs) operate to implement ICM. With the advent of the NHT, these 'sub-regional' LCCCs have been aggregated further to create Regional Strategy Groups (RSGs). During their short post-1996 lives, the RSGs have focused on developing regional NRM strategies to facilitate receipt and disbursement of NHT funds.

However, another important past player has been the Local Tree Clearing Guideline (LTCG) groups which were formed to develop local guidelines to implement the BTCP. There were 34 of these task-specific groups which developed the 'first stage' vegetation controls. Although the groups were not established across the whole of the State, nevertheless, those that did form are seen as having done a more than adequate job and have 'ownership' of the outcomes. An option for the State is to try and reactivate these groups in order to assist in the further development of local/regional vegetation management strategies to apply across all tenures.

Analysis

Native vegetation is a big issue in Queensland with mounting pressures from State government and elsewhere for changes in the way it is managed. The package of legislation, policies and strategies which has been used to guide vegetation management in Queensland is undergoing extensive review and revision with the objective of improving the management outcomes.

The Vegetation Management Advisory Committee (VMAC) has been created to provide another opportunity for multi-stakeholder input to the formation of government policy. Although it has no formal powers, it does have a very wide brief to provide advice to the Minister of political, ecological, economic and social importance. VMAC must attempt to serve as a bridge between stakeholders and government to enable all parties better to appreciate their often differing perspectives. There are significant philosophical differences between some of the lobby groups represented, therefore it is unlikely that any widely agreed consensus will be easily. Legislative review is one of the challenges for government and VMAC. There are differences of opinion as to whether or

not to develop new legislation; however, this would appear the likely medium-term result. In the interim, the new IPA will be used to underpin any newly emerging state policy. Government recognises that the current legislative arrangement is inadequate in that it does not cover all tenures, does not fully ensure that vegetation on leasehold land will be managed in an ecologically sustainable manner and does not represent a coordinated and integrated approach to resource management.

Clarifying institutional roles and responsibilities is another significant challenge for Queensland. There is a plethora of agencies involved and some lack of clarity about who should (or can) do what. For example, where will the new EPA fit into the native vegetation management and monitoring system? How will DNR and the Regional Strategy Groups work in with Local governments, DCILGP and their RPACs? As with other jurisdictions, this needs periodic review. Suffice to say, this is acknowledged by the Beattie government, the agencies involved and VMAC. How it is sorted out remains to be seen.

Of great significance to native vegetation, VMAC is exploring options to correct the acknowledged inadequacy of clearing controls on freehold land and the need to ensure that the existing controls on leasehold land lead to ecologically sustainable vegetation management. As a starting point, VMAC is examining the BTCP and the outstanding issues associated with it. There may or may not be consequent changes to the Local Tree Clearing Guidelines.

Government, with or without VMAC, may proceed towards more comprehensive regional vegetation management, planning and guidelines. If so, they will need agency support combined with some other implementing or contributing community/government institutions. Logically, this would be either via the existing ICM network or alternatively re-constituted versions of the lapsed LTCC groups.

Concern over native vegetation is occurring at a time when there are a number of other major initiatives or changes which are impacting on land managers. In particular, these include the development of water allocation management plans, uncertainties over the ramifications of the Wik decision on land title, issues associated with Australia's international Greenhouse commitments, and reforms associated with RFAs. The spectre of vegetation management controls which impinge on perceived 'rights', or impact negatively on asset values is understandably yet another controversial issue. Consequently, the constituency is unsettled and the government is under pressure from all sides. The challenges faced by the government and VMAC in 'shaking out' a new system should therefore not be underestimated by those either inside or outside the jurisdiction.

EVALUATION OF MECHANISMS

Planning and Assessment

Inventory and Mapping

Survey and mapping of vegetation communities and regional ecosystems is carried out primarily by the Queensland Herbarium (part of EPA). The objective is to provide complete coverage of pre-clearing and remnant vegetation at a scale of 1:100,000 and to date about 45% of the state is complete. There is complete coverage in south-east Queensland where the RFA process has been in operation. Where mapping is still to be completed, Queensland uses the land system maps prepared by CSIRO. Currently DNR is conducting an extensive State-wide Landcover and Tree Study (SLATS) to assess and monitor tree clearing (See Monitoring and Evaluation below). DNR is completing a pilot scheme (Jericho Shire) which provides maps and other data needed to assess whether clearing should be permitted on an individual property and is also intended to monitor clearing trends. This system may operate state-wide over the next 12-18 months subject to funding.

Biodiversity Status Assessment

Biodiversity status assessment is the responsibility of EPA and is based on regional ecosystems in the 13 bioregions that have been identified for Queensland. The present assessment process focuses on vascular plants. Non-vascular plants and invertebrates receive inadequate coverage. Although there is a list of

threatened species there is reportedly only limited follow-up activity after a species is listed. Queensland is currently developing a biodiversity strategy.

Regional Planning

Regional vegetation management planning exists only in an embryonic form in Queensland, although there are plans for including vegetation as part of an integrated natural resource planning framework. For most of the state vegetation is being 'managed' through the Land Act with its provisions for control over leasehold land. There are some locations where there are unresolved problems either because the thresholds may be close to being reached, or because the mix of freehold and leasehold land means that there is inconsistency in the way native vegetation is treated depending on the tenure. There are also concerns about so-called panic clearing. However the difficulty of differentiating 'panic' clearing from accelerated planned clearing is obvious. The government response to this challenge is to accelerate its mapping and monitoring program so that it has a better basis for identifying areas where thresholds may soon be exceeded or where panic clearing may lead to problems.

Key Challenges

Completing the vegetation inventory and overcoming other gaps in mapping

Formulating a biodiversity strategy, identifying and mapping critical habitats at finer scales where required (1:25,000) and broadening the assessment to include fungi, algae and invertebrates

Bedding down the range of new initiatives in regional planning and applying an integrated approach to NRM which incorporates vegetation management

Defining the state interests which local government needs to be taking into account in its planning processes

Reserve System

Although Queensland has 215 national parks occupying some 6.5 million hectares, because of the size of the state, it has one of the smaller percentage of terrestrial reserves (~4%) of any jurisdiction. There was a major effort in the 1990s to increase the size of the Reserve and it is reported that some 69% of the 1,080 regional ecosystems are now represented within reserves.² Critical gaps in the Reserve system include the more fertile land such as the Brigalow Belt and the coastal plains, arid wetlands and other wetlands. The longer term target is that the parks should cover 5% of the area of Queensland with priority given to wetlands, the Brigalow Belt, Desert Uplands and other neglected bioregions. Some expansion of the Reserve system has been carried out by acquisition using Commonwealth funds and there is a priority list for future expansion. It is expected that there will be significant new areas added in south-east Queensland as part of the RFA process. Overall, it is acknowledged that it is unlikely that Queensland will be able to develop a fully comprehensive Reserve system in the medium term.

Using the JANIS³ criteria in south-east Queensland, it became clear that a Reserve system meeting CAR criteria could not be created using public land alone and hence there is a move to increase the use of private land to expand the Reserve system. This is particularly true in the fertile Brigalow Belt where there is estimated to be 1 million hectares of endangered ecosystem on private land. In addition to parks, Queensland has a Native Refuge System and there are understood to be about 30 voluntary agreements reached for these. There are also about 50 gazetted Conservation Covenants on private land.

² Details will be available in the report *Status of Queensland Bioregional Ecosystems* currently being printed.

³ Joint Australian and New Zealand National Forest Policy Statement Implementation Subcommittee.

Key Challenges

Designing and operating a program to monitor the impact of pressures on native vegetation and how this relates to the extent and condition of regional ecosystems. This would be in addition to current efforts to measure impact on change in tree cover

Establishing effective off-Reserve schemes in those areas that are not adequately represented in the formal Reserve system. This will require working with industry to convince them that their industry is not 'clean and green' if it is resulting in a loss of biodiversity and other less obvious environmental values

Finding the resources needed to manage the existing Reserve system effectively

Developing a system that documents the benefits of national parks

Communication and Capacity Building

Community Education

The community education efforts are focused on promoting the need for change to all parties that are likely to be impacted by changes in vegetation management procedures. This includes farmers in general, land developers, cane growers in the coastal areas and farmers in the Brigalow. Part of the education program is directed at showing farmers, Local government staff and others how to use vegetation maps provided for local groups. Activities such as the pilot program on property assessments in Jericho are also being used as part of the education effort.

Landholder Support

Extension services have not been specifically developed for vegetation management since at this stage there are no vegetation management plans. QPWS have rangers operating from 122 locations and these staff provide informal extension services to landholders and others. It is also active through the Bushcare program, reaching out particularly to those landholders with an interest in vegetation management. Queensland is working to strengthen its service delivery but it anticipates a need for considerable extra capacity. If it is decided that the State is to administer the new regime that is expected to emerge from current policy formulation, then it is clear that DNR will need to be 'beefed up' to handle the extra work. Alternatively, if it is decided that Local government will take on the administration of the new regime, then it will need to be adequately resourced to deal with the task.

Queensland is devoting considerable effort to capacity building. It has an active community education program and is using VMAC to encourage and enable communication of results. At a later stage, the plan is to strengthen the extension effort although funding for this is yet to be finalised. One of the plans is to try to link vegetation management to initiatives such as property management plans so that ecological and economic objectives can be pursued collectively. Under this approach it is envisaged that farmers would be able to develop a sound property management plan and to have this approved with the result that it becomes an 'enduring permit' to manage native vegetation in a certain way. There would be a range of safeguards built into the system including SLATs, IPA (third party enforcement) and field staff monitoring.

Revegetation 'Hardware'

The existing revegetation management infrastructure is considered to be adequate since the re-vegetation activities underway are not substantial.

R&D

Research and development (R&D) into vegetation management is primarily carried out by DPI, DNR and QPWS. There is no coordinated policy for R&D and researchers find it difficult to attract sufficient funds for support activities such as maintenance of databases and even analysis of data. Short term contracts for staff adds further uncertainty to the R&D programs.

Key Challenges

Convincing land managers of the need to control vegetation management in situations where the regional ecosystems have not yet reached the endangered threshold status

Developing a coordinated extension program for vegetation management across all agencies. This will require the ability to deliver a message about vegetation management that is consistent with other productivity and resource management messages

Striking the appropriate balance of funding between R&D and other activities to support better vegetation management outcomes

Incentives

Bushcare provides the main direct form of grant incentives for improved vegetation management in Queensland. It operates state-wide with about 30 facilitators working as part of QPWS.

Queensland has a number of incentive schemes that can be used to encourage appropriate vegetation management. Under the *Nature Conservation Act* farmers can enter into a Conservation Agreement to protect specified habitats; this usually includes technical assistance and may include financial assistance. A Nature Refuge may be declared over land covered by a Conservation Agreement. Under the old Local Government Act, Local governments have had powers to vary rates to provide incentives for particular practices. At least three have used this provision to provide rate relief incentives for vegetation management, although only within peri-urban or urban areas (Johnstone Shire, Brisbane and Logan City Councils).

Farmers are tending to look for incentives in the form of compensation if their 'rights' to clear vegetation are limited. The Government is looking more broadly and encouraging farmers to see that there are incentives implicit in the land management plans. In those cases where it might become necessary to encourage farmers to take decisions which disproportionately impact on their operations, Queensland is looking to be able to assist with some form of structural adjustment.

Key Challenges

Bringing about a change of view so that there is no longer the expectation that any loss of 'rights' over vegetation management should result in some form of financial compensation

Finding a basis on which a practical and affordable incentive scheme could be developed to suit broadacre farming and grazing in Queensland

Regulatory Arrangements***Threatened Species/Ecosystem Protection***

Queensland has provisions to list endangered species; however, there is reported to be little follow-up effort made after a species has been listed as endangered. At this stage the Land Act is the only measure available to protect endangered ecosystems and this only operates on leasehold land. There is considerable doubt whether this measure alone can ensure ecologically sustainable use of native vegetation.

Land Clearance Regulation

As discussed in the Policy section, Queensland's land clearing regulations are limited to leasehold land and cover only about 67% of the State. There are no controls on remaining areas of the State, including all freehold land. The regulations are currently subject to a wide ranging review and are recognised to be inadequate. Since Queensland accounts for over 80% of all clearing in Australia, the magnitude of the task of administering any clearing regulation program is substantial. A pilot scheme in Jericho Shire is testing a property assessment system to guide issue of tree clearing permits and this scheme appears to cost in excess of \$2000 per assessment. Statewide application of such a scheme may cost more than \$50 million.

Codes of Practice

Queensland regards Codes of Practice as a potentially option for managing native vegetation. Queensland already has an Environmental Code of Practice for Agriculture which was developed under the Environment Protection Act and endorsed by the Queensland Farmers' Federation. The United Graziers' Association has produced Environmental Grazing Guidelines. Since all leases include a 'duty of care' obligation, there is interest in using codes of practice to further clarify how this obligation might be met.

Key Challenges

Implementing effective follow-up programs for listed endangered species

Developing an effective and acceptable basis for regulating land clearing which ensures that it is limited to situations where the regional biodiversity objectives are not compromised

Having the funds and trained staff to administer a clearing regulatory program efficiently and effectively

Developing and having accepted codes of practice or guidelines that are effective in bringing about appropriate management of native vegetation

Monitoring and Evaluation

Queensland has a well-developed remote sensing program making extensive use of Landsat and NOAA imagery. The state-of-the-art \$8 million mapping program (SLATS) provides a comprehensive overview of the change in landcover since 1991. The SLATS project is one of the most sophisticated approaches in Australia and is well suited to providing data needed for Greenhouse assessments. Given the large areas of land to be mapped and the need to obtain data quickly, the mapping program is essential to the success of vegetation management initiatives. The SLATS program relies on vegetation mapping work (through the Herbarium) and both programs run in parallel. There is some concern that mapping may constrain the introduction of improved vegetation management unless it is accelerated through the allocation of additional resources. The SLATS program is concerned primarily with land cover and there is much less information available on the condition of the vegetation cover.

The Transect Record and Processing System (TRAPS) is designed to monitor changes in woodland areas on a number of monitoring sites. Floristic cover has been monitored for the past five years at some 500 sites. There are also about 500 forestry plots which are monitored by EPA and DNR to measure growth and detailed yield. DNR are responsible for a modelling project (Aussie Grass) which operates nationally and seeks to forecast the pasture biomass available based on climatic and other data. DPI also contribute to vegetation monitoring in grazing areas and rangelands through the Qgraze network.

State of the Environment reports are expected every five years but the current report is still not complete and there is criticism of the limited effort given to the analysis of data included in the report.

Key Challenges

Further improving monitoring efforts through better and more extensive analysis of data to take out background 'noise' associated with all data

Making appropriate use of all data sources —at present it is suggested that some of the best monitoring information from TRAPS and Qgraze is not used

Ensuring that all monitoring activities are coordinated and complementary

Ensuring that monitoring data is accessible and is fed back into management

QUEENSLAND STOCKTAKE

KEY STRENGTHS

An existing native vegetation base that is rich in biodiversity and contributes substantially to the economy through ecotourism.

A sound foundation for the formal Reserve System.

An administratively simple system for State oversight of native vegetation management that has the potential to be broadened and made more effective.

A strong sense of ownership and a sound basis for involving local communities in the consultation process associated with vegetation management.

A strong system of Local government that provides scope for effective controls through statutory planning systems.

State government commitment to improved vegetation management.

KEY CHALLENGES

Increasing the appreciation of the role of native vegetation: There is a lack of appreciation of the contribution that native vegetation makes to the economy and to the overall sustainability of both agricultural and natural ecosystems. Queensland is yet to see evidence of the widespread degradation that has accompanied excessive clearing in other States and hence it is more difficult to persuade land managers to take the necessary pre-emptive action to preserve the integrity of ecosystems of long term importance to the community and economy. There is a major challenge to build support in the wider community for a changed approach to native vegetation management.

Controlling land clearing: This is a major challenge in a State which is still extending its agricultural base and where there has been a long tradition of no control over operations on freehold land and limited controls on leasehold. It is made even more challenging by its juxtaposition with a range of other issues that are perceived to impact adversely on rural voters, particularly in forest management and water reform. The pressures on vegetation in the past have been primarily those associated with land clearing and there are no signs that this pressure is abating. At present Queensland accounts for more than 80% of all current clearing in Australia and there is an expectation amongst land managers that they should be able to continue to develop their properties by clearing. In the more developed and fertile areas, the remaining areas of native vegetation are extremely limited and some ecosystems have already been lost.

Contributing to the attainment of the national Bushcare goal: Queensland does not believe that it can meet an objective of no net loss of native vegetation within the State. From a land degradation and biodiversity perspective, it argues that unlike other jurisdictions there is more to be gained in managing existing vegetation better and less to be gained from revegetation activities with the result that even with minimal clearing, the no net loss goal will be unattainable for Queensland.

Reforming legislation and its administration to achieve desired environmental outcomes without excessive costs: The government recognises that a more comprehensive approach to vegetation management is required. This will include the further development of incentives and participatory approaches. This will also include developing improved legislation for vegetation management in the 20% of the State currently without any form of control. Moreover, the controls which operate elsewhere, such as via the clauses of the Broadscale Tree Clearing Policy on leasehold lands, are being reviewed to facilitate the delivery of environmental outcomes sought by the State. The State government is seeking ways to amend the existing legislation and support it with structural adjustment and other mechanisms so that land managers will not be disproportionately disadvantaged by measures that improve vegetation management.

Improving representation of ecosystems in parks and reserves: Although Queensland does have almost half of its native vegetation still intact, the remnant vegetation is not well distributed across all bioregions or ecosystems. For example, the ecosystems based on the more fertile soils in the Brigalow belt and the coastal areas are largely unrepresented in the Reserve system and urgent action will be needed to prevent further losses. The challenge here is urgent and substantial since the Reserve system as it now stands is neither fully comprehensive, adequate nor representative. It is urgent because some of the unreserved elements are becoming increasingly scarce. It is substantial because it must rely on non-formal reserves since Queensland does not have the resources to acquire and manage additional formal reserves.

Developing a better base for planning: Providing the basis for sound native vegetation management as part of integrated NRM will be a continuing task. Queensland has an active policy development process underway, but still has to develop a biodiversity strategy and to consolidate its integrated catchment management and NRM strategies. At present there is no explicit process for developing regional vegetation management plans and these need to be incorporated into the process with an appropriate level of emphasis. All planning efforts at each level need to be more closely integrated and coordinated. Achieving the objectives of the *Integrated Planning Act 1998* and the Integrated Development Assessment System remain a challenge.

South Australia

CONTEXT

SA Context

Native vegetation is broadly recognised within SA as being fundamental to the sustainable management of natural resources, as evidenced by broad community acceptance of the regulation of clearing of native vegetation. The State faces a number of large scale land degradation processes. It is recognised that both the management of existing native vegetation and revegetation are integral to the management of these problems. As a result there is a strong underlying commitment to build on the State's impressive achievements over the last 15 years by achieving more integrated on-ground delivery of NRM programs.

Since the early 1980s the SA government has demonstrated a clear commitment to conserving and managing native vegetation. This process has been characterised by both policies and resources, best evidenced by the introduction of broadscale native vegetation clearing controls and associated assistance to landholders entering Heritage Agreements. These were leading national developments which are well respected and have been used as a model by other jurisdictions. Moreover, the obvious strides being taken with assessment and monitoring of vegetation and its condition, particularly in rangeland areas, are worthy of note.

SA has a sound framework in place for protection of native vegetation, however, this achievement must be understood in the context of a number of factors:

- *Extensively cleared:* Clearing of native vegetation, particularly in agricultural regions, was extensive prior to the introduction of broadscale clearing controls. There is less than 20% of the original native vegetation remaining in these areas. What remains is highly fragmented and in a highly variable condition.
- *NRM threats:* A number of large scale processes continue to threaten the future extent and condition of native vegetation and associated natural resources in SA. These include soil salinity, soil acidity, fragmentation, weed and pest invasion, and increasing access to limited water resources for irrigation of intensive agriculture. Native vegetation is threatened by land use change associated with intensive cropping such as vineyards, olives and vegetables. These land uses have the potential to impact directly on native vegetation in the form of scattered tree removal, degradation by invasion in relation to olives, and indirectly through the increased use of limited regional water supplies. Whilst these pressures are most acute in agricultural areas, there are also significant issues in pastoral and arid regions, notably the management of grazing pressure and regulation of waterpoints.
- *Demographics:* SA is highly urbanised and much of the State is sparsely populated.

The challenges facing SA relate to on-going management, rehabilitation and where necessary, revegetation. It is recognised that these challenges will only be met through approaches that integrate NRM objectives at a landscape scale. For example, native vegetation policy making needs to be set within a broad context which considers biodiversity, amenity, and the salinity, ground-water use, climate change and other economic drivers reshaping land use preferences.

The need for more integrated approaches raises a number of institutional challenges. These are of an evolutionary nature, rather than structural. The development of approaches that more effectively deliver coordinated on-ground actions for sustainable NRM at a regional scale is the principal challenge for the jurisdiction.

Extent and Status of Native Vegetation

The area of remnant vegetation within the agricultural region is estimated to be 2.18 million hectares or 18.3% of the total area⁴. 82% of native vegetation within the agricultural regions in SA has been cleared, leaving many communities highly fragmented and poorly conserved. Clearing has been regulated since 1983 but the introduction of the *Native Vegetation Act 1991* effectively brought to an end broadscale clearance. In the period 1993/94 to 1996/97 32 applications for broadscale land clearance were assessed by the Native Vegetation Council: approval was granted over 597 hectares. Applications over 14,918 hectares were refused and conditional approval was granted over a further 1,883 hectares. Clearing of small areas of native vegetation and isolated trees remains a controversial issue. Rangeland areas are largely uncleared but have been subject to widespread grazing and this has resulted in significant modification and instances of degradation. Suffice to say, there has also been significant decline in quality and extent of native vegetation in urban and peri-urban areas.

A broad indication of the conservation status of different ecological communities is provided by a completed assessment of 176 vascular plant associations, 97 (55%) of which are regarded as having good to excellent conservation status while 45 associations (26%) have little or no protection. There are 15 IBRA regions in SA which are more or less represented within the formal protected areas system of reserves.

The native vegetation remaining in agricultural regions is fragmented and in highly variable condition due to grazing by livestock, rabbits, kangaroos and other introduced stock; weed invasions; and other land use pressures. Other processes within the agricultural regions threaten native vegetation and the achievement of other NRM objectives. For example 391,900 hectares of land are subject to dryland salinity. This is projected to rise to 892,500 hectares by the year 2010. 2,800 hectares are estimated to be highly acidic. In response to these pressures approximately 76 million trees and shrubs were established in the period between 1989 and 1995. It is significant that since 1995 it is estimated revegetation has exceeded clearance of native vegetation.

Rangeland and pastoral regions are largely uncleared but are in varying condition due largely to grazing pressures. Initial surveys reported in the 1998 State of the Environment document give indicative figures from one district of 27% of paddocks in poor condition, 26% in fair condition, 41% in good condition and 6% unknown. This instance of poor condition contrasts with another baseline survey of paddock condition of rangeland leases which categorised 90% of grazed paddocks within the pastoral regions as being 'fair' or 'good' with regard to some version of ecologically sustainable use criteria.

In urban and peri-urban areas the major threats to native vegetation arise from various forms of development. These include land use intensification, for example, via the establishment of vineyards, olives and vegetable growing enterprises. Local and State governments regulate these developments through statutory land use planning mechanisms.

Aboriginal freehold and leasehold landholdings currently comprise about 20% of SA. As there is little monetary return to Aboriginal landholders from their lands, there are very limited resources available for any active management purposes. Degradation resulting from previous land uses needs to be addressed. Important issues include the preservation of cultural practices and protection of areas of cultural importance, protection of vegetation and restoration of degraded areas. Aboriginal landholders are also looking at ways of improving their economic return through sustainable agriculture, pastoralism, aquaculture and ecotourism. However, there is a need to build confidence, particularly given the lack of capital and financial capacity which restricts the options for individuals and groups to invest in vegetation management/sustainable production.

⁴ Much of the data in this section is drawn from the 1998 SA State of the Environment Report.

Vision

The vision for native vegetation management in SA is encapsulated in the objectives of the *Native Vegetation Act 1991*:

- The provision of incentives and assistance to landowners for the preservation, enhancement and management of native vegetation
- The conservation of the native vegetation of the State in order to prevent further reduction of biological diversity and further degradation of the land and its soil
- The limitation of the clearance of native vegetation to particular circumstances including those where the clearance will facilitate the management of other native vegetation or will facilitate the efficient use of land for primary production
- The encouragement of research into the preservation, enhancement and management of native vegetation
- The encouragement of the re-establishment of native vegetation in those parts of the State that have been cleared of native vegetation

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

- *Development Act 1993*: This Act is the primary land use planning legislation in SA. It applies throughout the State, although its major influence on native vegetation is through the regulation of land use change in urban and peri-urban areas
- *National Parks and Wildlife Act 1972*: This Act focuses on the conservation of natural areas including native vegetation. It provides for the creation and management of reserves and protected areas; the protection of native flora and fauna; and the listing of threatened species. The Act also regulates the sustainable use of wildlife, for example, kangaroo harvesting and 'bush tucker' collection
- *Native Vegetation Act 1991*: This Act regulates the clearing of native vegetation and provides for the establishment of Heritage Agreements and associated incentives for landholders. It established the Native Vegetation Council to consider applications for clearing native vegetation. The Act and its administration through the Council has effectively halted broadscale clearing of native vegetation
- *Pastoral Land Management and Conservation Act 1989*: This Act provides for the regulation and management of land which is used for the pasturing of stock and other ancillary purposes. It aims to monitor pastoral land to prevent degradation and to rehabilitate land
- *Soil Conservation and Land Care Act 1989*: This Act provides for the conservation and rehabilitation of rural lands. The Act places a duty on landholders to take all reasonable steps to prevent degradation of the land and puts in place structures for the planning and management of natural resources at a regional scale

Other relevant legislation includes:

Aboriginal Lands Trust Act 1966

Maralinga Tjarutja Land Rights Act 1984

Pitjantjatjara Land Rights Act 1981

Mining Act 1971

Animal and Plant Control (Agricultural and other purposes) Act 1986

Country Fires Act 1989

Crown Lands Act 1929

Environment Protection Act 1993

Forestry Act 1950

Heritage Act 1993

Land Acquisition Act 1969

Local Government Act 1934

South Eastern Water Conservation and Drainage Act 1992

Water Conservation Act 1936

Policies, Strategies and Plans

There are many strategies supported by a range of State boards and regional institutions which in turn are responsible for the development of more detailed plans and policies. As these plans do not generally have State-wide or formal statutory functions they are discussed under institutional arrangements in the next section. However, there are a range of state-wide strategies which establish the policy framework within which native vegetation is managed:

- **Planning Strategy:** This is a state-wide strategy outlining the main land use and planning objectives and policies for the State. The *Development Act 1993* and associated Development Regulations form part of an integrated planning and development assessment system that includes the State Planning Strategy and Development Plans. The Planning Strategy is divided into Metropolitan and Country Sections and provides the basis for development assessment policies and priorities. Development Plans are prepared by Local Government and are the principal means for implementing policies outlined in the Planning Strategy
- **State Revegetation Strategy 1996:** This has been prepared to integrate, coordinate and target revegetation activities within the State. It aims to encourage, sustain and expand present enthusiasm for revegetation
- **Marine Estuarine Strategy 1998:** South Australia has 59,800 km² of territorial waters. There are 27 Marine Protected Areas covering 270,900 hectares of State waters and another 94 reserves established under the *National Parks and Wildlife Act* covering 210,000 hectares, including some off-shore islands. However, there are many types of marine habitats either not represented or only poorly represented in the protected area system. A Marine and Estuarine Strategy, released in 1998, has established a framework for protecting marine habitats and their biodiversity by providing direction for sustainable use, improved management and conservation
- **Regional Development Strategy:** A regional development taskforce reported its findings in May 1999 to the SA cabinet. This will form the basis of a revamped approach to regional development, which may have NRM, and hence native vegetation, implications

Institutional Arrangements

Government

Department for Environment, Heritage and Aboriginal Affairs: DEHAA has primary carriage of nature conservation, biodiversity and Aboriginal issues. Of particular note are the Department's responsibilities for the administration of the Native Vegetation Act and the management of conservation reserves. DEHAA also is responsible for water resources.

Department of Primary Industries and Resources South Australia: PIRSA covers primary NRM issues and the regulation of primary industries within agricultural and pastoral regions of the State.

Department of Transport, Urban Planning and the Arts: DTUPA contains Planning SA which is responsible for the administration of statutory land use planning in conjunction with local government.

Forestry SA is responsible for the management of the State's forest reserves, including plantation forests and native forest reserves for conservation purposes, and the promotion of commercial forestry.

Department of Premier and Cabinet has an oversighting and coordinating role for NRM policy within the State.

Local governments are responsible for the interpretation and application of land use planning legislation within the urban and agricultural regions of the State. They are responsible for the regulation of development and land use change within their jurisdictions. In addition, Local governments are significant managers of Crown land.

A project to develop a Strategy for Aboriginal Managed Lands in South Australia (SAMLISA) began in early 1999 funded through the NHT under the direction of a steering committee with representation from the SA

Aboriginal Lands Trust, Anangu Pitjantjatjara, Maralinga Tjarutja, Indigenous Land Corporation, PIRSA and other non-statutory Aboriginal landowners. The project will provide a strategy for improving and protecting the natural environment in the Aboriginal Lands Region and on Aboriginal owned freehold and leasehold land in other regions of the State.

Government/Community

At the State level there is a significant number of advisory and statutory bodies that include community representatives, such as:

- Natural Resources Council
- Native Vegetation Council
- State Revegetation Committee
- Pastoral Board
- National Parks and Wildlife Council
- Country Fires Board
- Development Assessment Commission
- Soil Conservation Council
- Water Resources Council
- Animal and Plant Control Commission

At the regional level there is also a range of players:

- Catchment Water Management Boards
- District Soil Conservation Boards
- National Parks and Wildlife Consultative Committees
- Pest, Plant and Animal Control Boards
- Regional Fire Prevention Committees
- Regional Development Boards

Analysis

In general SA's legislative and policy framework is quite comprehensive.

In common with many jurisdictions, a key challenge facing SA is how to improve the coordination and delivery of NRM legislation, policies and programs across a range of State departments and their associated regional structures. Service delivery is not well coordinated, risking conflict and confusion with both bureaucracies and wider stakeholders.

Natural resource issues are managed separately from State and Local government statutory planning processes. This means that land use change, particularly land use intensification, is regulated through separate processes. Although some connections do exist, such as developments that require the clearing of native vegetation being obliged to be referred to the Native Vegetation Council, the connections between statutory planning and NRM could be strengthened. For example, currently if a landholder wants to undertake a development that involves native vegetation clearance, as well as planning approvals for a change of land use, applications have to be made to two separate agencies as two separate processes. If a water licence is required, a third agency and process is involved; Animal and Plant Control Commission approvals require a fourth, and so on. To streamline this process the SA Premier announced in early 1999 an integrated assessment initiative which should improve the situation. In the future, where a development requires approvals under both the *Native Vegetation Act 1991* and the *Development Act 1993*, landholders will only have to deal with 'one shop', their Local government.

A potentially positive consequence of this change will be to bring Local government more into the process of native vegetation clearance management. Local governments should have at their disposal all-inclusive packages for development applications, which would include native vegetation clearance applications, regional biodiversity plans, regional revegetation strategies, etc. 'Whole-of-property' native vegetation management plans should be required (it is stressed that this is not the present, but the likely near future). Any section relating to clearance would be forwarded to the Native Vegetation Council whose role will be unaffected.

State departments and agencies have traditionally had responsibility for particular NRM objectives. For example, DEHAA has traditionally focused on the protection of biodiversity through the creation of reserves and protected areas; protection of wildlife; and more recently, the listing of threatened species. In contrast, PIRSA has focused on the management of rural lands with the objective of sustaining agricultural industries. The fragmentation of policy development at a State-wide level is exacerbated at regional scales through the creation of a multitude of regional committees which provide advice to different agencies on the management of natural resources. As in other jurisdictions, it would not be uncommon for the same region to be developing several NRM plans, often with contradictory objectives and outcomes in mind for native vegetation. At a local scale, these problems may be further exacerbated by land managers receiving conflicting advice from different extension services.

The government is aware of the splintered nature of NRM planning and is making efforts to integrate the delivery of NRM plans, including those related to native vegetation management. At a State level a Natural Resources Council has been established to provide the formal interface between State government, the Local Government Association and the peak statutory bodies with involvement in NRM issues – the Soil Conservation Council, Native Vegetation Council, Pastoral Board, Water Resources Council, Animal and Plant Control Commission, and the Revegetation Committee. The Council provides advice to the Minister for Environment and Heritage and the Minister of Primary Industries and Resources on strategic issues relating to the use and management of natural resources, and consults with non-government organisations and the community through mechanisms such as an annual forum.

At present the government is favouring an approach where existing structures are encouraged to coordinate their activities rather than imposing any new structures, particularly within regions. This approach will require a high level effort and communication between what have traditionally been rival agencies. However, there are some notable successes. For example, the State's Property Management Planning program has been successfully coordinated and delivered with the involvement of a number of government agencies. Uptake of the program has been impressive, with up to 40% of landholders participating in some regions. The program includes modules that address the conservation and management of native vegetation alongside production and financial management modules.

Also, at a regional level some innovative and highly successful strategies and implementation plans have been developed. The Mount Lofty Ranges Catchment program is recognised nationally as a leader in integrated NRM. The vision of the Mount Lofty program is to achieve institutional changes that facilitate the development of land use planning based on the principle of land capability. The aim is for this to become accepted practice by all tiers of management (State and Local governments and landholders) which ensures the improved management of soil, water and vegetation.

In recognition of the need for improved NRM delivery the SA Government has recently announced that it will expand this more integrated type of regional approach to the management of natural resources, using the nine regions it identified in 1997 for the NHT funding delivery. These will include the Eyre Peninsula, the Murray River region and the South East, etc. This is a significant step forward and should continue the evolution whereby State agencies work in cooperation with government/community regional organisations. Existing institutions include the newly formed Catchment Water Management Boards (CWMBs) and the long-established District Soil Boards. Each have the capacity to develop plans that have a statutory basis and to be linked with other formal statutory planning processes of State and Local government. The future role of these organisations is being reviewed at the time of writing, in the context of the aforementioned rethink of regional NRM arrangements.

Whatever approach is taken, a major challenge for the SA jurisdiction is to improve the coordination and delivery of programs for native vegetation across State government agencies and land use systems. This will

ultimately require the refinement of formal structures. It is recognised that the government is currently considering this issue and looking towards an overarching set of principles and processes which assist the coordination of NRM activities in all regions.

EVALUATION OF MECHANISMS

Planning and Assessment

Inventory and Mapping

SA has a solid base for the collection, coordination and management of native vegetation data through the Biological Survey. Since its inception in 1985, the Survey has achieved 58% coverage of the State. Steps are being taken to integrate this with production data held by PIRSA. Within the rangeland regions 85% of pastoral leases have been surveyed and baselines for monitoring site condition established.

Data is available at various scales: environmental associations, IBRA regions, NHT regions, herbarium regions, etc. In relation to the extent of native vegetation, presence/absence mapping is available for the agricultural regions at 1:40,000, and at a broader scale for the arid/pastoral regions. In addition to this, 1:40,000 floristic native vegetation is available for approximately half the agricultural region of the State. 1:100,000 and smaller scale floristic native vegetation is available for approximately one third of the arid/pastoral regions.

Biodiversity Status Assessment

In relation to biodiversity status assessment, 382 environmental associations have had their conservation status evaluated. Little work has been undertaken at finer scales, with only limited comparison of remnant and pre-European vegetation mapping having taken place.

Regional Planning

Regional planning is occurring through the range of State agencies and associated regional boards and community structures discussed previously. There are notable examples of successful regional approaches. DEHAA are busily preparing Regional Biodiversity Plans, which include a strong remnant vegetation component; a plan for the South-East is completed and biological information is assembled for five other regions – Northern Agricultural District, Eyre Peninsula, Kangaroo Island, SA Murray-Darling Basin and Mount Lofty Ranges. PIRSA, in cooperation with the community, are preparing regional revegetation strategies; these have been completed for the Upper South-East and drafts are in progress elsewhere. These biodiversity and revegetation regional plans/strategies, whilst not in themselves statutory, can be used to manage community, industry and general development pressures. Regional (or sub-regional) NRM strategies are also being produced by District Soil Boards, with recent efforts having a stronger vegetation element. Catchment Water Management Boards are also preparing regional plans with a water orientation, but also heading towards integrated NRM, such as with the Onkaparinga CWMB.

Key Challenges

Building on the success of the Biological Survey by retaining a commitment to extending the coverage of the survey across all of SA

Building on the developing inter-agency cooperation to further integrate biological data sets with agricultural and production oriented data

Developing efficient mechanisms for updating and maintaining the baseline data that has been collected

Where required, undertaking finer scale assessments of the conservation status of ecological communities
Completing the various regional planning efforts being undertaken by DEHAA, PIRSA, Soil Boards and CWMBs

Coordinating and integrating the various regional planning efforts, which may have different foci, but need to connect to the 'bigger picture'

Ensuring that native vegetation (including remnant vegetation, revegetation etc.) is considered within the biodiversity and sustainable agriculture contexts of integrated NRM

Ensuring that Local governments look to the various vegetation and NRM plans/strategies in their own development planning and approvals processes

Putting the many NRM plans and strategies into on-ground action

Clarifying the most suitable types of regional government/community structures to guide the preparation and implementation of the vegetation/NRM elements of regional management and development

Reserve System

Formal conservation reserves account for 21.4% of the State or 21.12 million hectares. Approximately half of this area is within single purpose dedicated reserves and the remaining area is contained within multiple use regional reserves. There are also approximately 1,080 Heritage Agreements protecting native vegetation on private land covering an additional 550,000 hectares. These areas are protected, but not necessarily actively managed for conservation purposes.

Half of the area within the Reserve system is placed in the category of regional reserves, which allow for a range of different land uses, consistent with IUCN category VI. Of the total Reserve area, 78% is available for mining, as some of the other reserves (in addition to regional reserves) have proclamations allowing mining access. The use of this category of Reserve has allowed large reserves to be established to protect biodiversity values of the extensive ecological communities within rangeland areas.

The Reserve system has been evaluated in terms of meeting the CAR criteria. Of the 382 Laut Environmental Associations State-wide, approximately 15% are considered to have good conservation status, 6% fair conservation status, 31% poor, while 48% are not represented in the Reserve System. Acquisition of further reserves is controversial because of the high percentage of the State already reserved, with priority being given to identified gaps in the Reserve system whenever possible.

Management planning is undertaken on a regional basis and support by community consultation. 42% of reserves are covered by a management plan. Linkages between strategic and operational planning are developing.

The public Reserve system is complemented by off-Reserve conservation measures, particularly the 1,080 Heritage Agreements protecting native vegetation on private land. These areas have recently been assessed for their conservation value and priorities for future management are being identified.

Key Challenges

Improving the linkages between on and off-Reserve conservation mechanisms

Ensuring acquisition programs and assistance for conservation on private land is targeted at those environmental associations in most need of further conservation effort against CAR criteria

Using the budget process to strengthen the linkages between Reserve management plans and yearly operational plans

Communication and Capacity Building

Community Education and Landholder Support

The SA government has a strong commitment to engaging the community in the conservation of native vegetation. This is best evidenced by:

- strong public debate over the regulation of clearing native vegetation in the 1980s
- a Property Management Planning Program which includes conservation modules
- extension services promoting the conservation of native vegetation by landholders
- community involvement in preparation and implementation of Regional Biodiversity Plans

There are, however, significant issues to be considered. Approaches to engaging the broader community, predominately located in Adelaide, are ad hoc and lack strategic focus. In relation to communication with land managers, the separate extension services being supported by DEHAA and PIRSA require coordination to ensure that a consistent and integrated view is given to landholders.

Revegetation 'Hardware'

Basic vegetation management infrastructure is in place with an increasing focus on commercial delivery through nurseries and seedbanks.

Key Challenges

Developing and targeting community education programs that address the role of native vegetation in achieving sustainable NRM

Supporting the emerging role for NHT coordinators in targeting extension programs to effectively deliver the objectives of regional strategies and programs

Coordinating and training extension officers to ensure competence in both sustainable agricultural management and on-farm nature conservation. Landholders should have access to the full menu of land management options and assistance programs

Incentives

Grants

Clearance controls were introduced in 1983. However the provision of financial assistance for placing refused areas under a Heritage Agreement did not come about until the introduction of the Native Vegetation Management Act 1985 and finished with the Native Vegetation Act 1991. Under transitional provisions landowners still had 2 years from 1991 to claim financial assistance. More than \$70 million was provided in incentive payments to private landholders who placed areas of native vegetation within any of 1,080 Heritage Agreements. Additional assistance has also been made available for fencing these areas. Incentives for on-going management have only recently been put in place and uptake is slow at this stage.

Smaller grant programs are available to support regional initiatives and revegetation. Larger scale cost-sharing arrangements for the management of salinity have been developed in some agricultural regions, for example through the Coorong Local Action Plan and the revegetation of the Upper South-East, and are achieving strong

uptake by landholders. However, the resource implications of extending these cost-sharing arrangements to other regions are daunting.

Market-based

More innovative market-based mechanisms are yet to be used in SA, although the criterion of 'net environmental improvement' used in considering applications to clear native vegetation provides a basis for trading arrangements to off-set environmental impacts.

Key Challenges

Expanding and resourcing targeted incentive programs for the management of remnant vegetation and revegetation in agricultural regions, particularly post the NHT

Encouraging improved management of SA Heritage Agreement areas through extension and targeted incentives for on-going management

Regulatory Arrangements

Threatened Species/Ecosystem Protection

SA has no dedicated threatened species legislation, although processes for nominating and listing of species have been developed. There is no legislative basis for protecting, declaring critical habitat or developing recovery plans within the State. However, there is a cross-linkage between the threatened species listed in the Schedules under the *National Parks and Wildlife Act* and the *Native Vegetation Act 1991*. Under the 'clearance principles', the consent authority for clearance applications must consider the impact of clearance on the listed endangered, vulnerable and rare species. This also means that critical habitat (where this involves vegetation) has a legislative basis for protection via the *Native Vegetation Act 1991*.

Land Clearance Regulation

SA has a history of extensive land clearance that was first controlled in the early 1980s. However, in the early days of clearance controls, from 1983 to 1985, there was still considerable clearance approved. Subsequently, the introduction of the *Native Vegetation Management Act 1991* effectively ended broadscale clearance, although a number of issues relating to the administration of the Act require attention.

Key Challenges

Clarifying responsibilities for the management of crown lands that lie outside the responsibility of State NRM agencies. In particular, there is an urgent need to engage and resource Local governments in agricultural regions to assess, monitor and manage high value sites

Resolving a number of issues relating to the operation of the *Native Vegetation Act*, particularly in relation to enforcement and compliance. This includes closing loopholes in existing regulations (there is currently a review underway); bolstering compliance and enforcement by, for example, resolving evidence collecting powers; developing mechanisms for monitoring the management and clearing of scattered trees; and adjusting appeal rights for landholders

Monitoring and Evaluation

In essence SA is just obtaining its baseline data. As with most jurisdictions, the development of adequate monitoring and evaluation arrangements remains a significant challenge. A framework of repeatable indicators for State of the Environment reporting has been developed, with a commitment to reporting on a five-yearly basis. The Biological Survey has the potential to provide a baseline for future monitoring at finer scales.

The regulation of pastoral/rangeland leasehold areas, which cover 40% of the State, is impressive. A comprehensive monitoring program has been established, revealing that the condition of 90% of paddocks in these regions meet ecologically sustainable use standards. This result has been achieved through reduced

stocking rates and the willingness of the Pastoral Board to use enforcement and compliance mechanisms. Regional reserves provide for more conservative stocking rates over large areas of the rangelands. The Board also has a commitment to consider biodiversity issues, particularly the impact of watering points, although this remains a contentious issue.

Key Challenges

Developing formal links between data collection, management and State-wide indicators, including the establishment of baseline indicators that are supported by data

Developing indicators at finer scales including the distribution of ecological communities (extent)

Developing monitoring arrangements for conservation reserves

Developing cost effective measures of the condition of areas of native vegetation to guide management priorities and decisions

SOUTH AUSTRALIA STOCKTAKE

KEY STRENGTHS

A comprehensive legislative framework, including effective regulation of broadscale land clearing.

Development of various forms of 'district land management plans' that include native vegetation management as an important component of property management planning.

Effective regulation and management of rangeland areas by the Pastoral Board, including reduced stocking rates, improved pasture condition and strengthened willingness to use enforcement and compliance mechanisms.

The Biological Survey and associated institutional arrangements that have achieved cooperation and consistency in the collection and management of biological and resource data.

The development of a diverse Reserve system across different land tenures including dedicated conservation reserves, regional reserves and Heritage Agreements on private land.

Commitment to the development of integrated approaches to NRM that acknowledge the central role of native vegetation in achieving sustainable outcomes.

KEY CHALLENGES

Significant threatening processes: The major challenges facing SA relate to the management of processes that threaten the condition of native vegetation, associated natural resources and the communities who presently depend upon them for their livelihoods.

Integrated institutional response to NRM: Supporting existing policy commitments by establishing institutional and policy structures that improve the coordination and delivery of native vegetation programs at regional and local scales is a major challenge.

Reserves: Continuing to improve the conservation of poorly reserved ecological communities through public reservation and complementary off-Reserve mechanisms.

Management of Heritage Agreements: Improving the management of high conservation value Heritage Agreements by targeting and promoting the newly established management fund to these landholders.

Extension services: Coordinating the delivery of conservation and agricultural extension services, and building the dual competencies of extension officers. Also ensuring all extension work promotes the full range of land management options, incentive programs etc.

Cost sharing: Extending and targeting larger scale incentive programs to areas of greatest priority. Supporting these programs with a clear definition of landholders' duty of care for native vegetation management.

Data, monitoring and evaluation: Developing formal links between data collection, management and state-wide indicators, including the establishment of baseline indicators that are supported by data.

Aboriginal lands: Development and implementation of sustainable land management practices, restoration of degraded land and creation of ecotourism opportunities.

Tasmania

CONTEXT

Tasmanian Context

Tasmania's economy is heavily dependent on its natural resources and particularly its native vegetation with a major part of the economy based on tourism, agriculture and forestry. Its ecosystems are largely unique with only one of its eight IBRA regions shared with other States. It exhibits a high diversity of vascular plants (over 1600 species of which 20% are endemic), and non-vascular plant species, a high beta diversity and it is considered a refuge for a number of animal species. Tasmania's vegetation is a focus for research for various reasons, including its representatives of Gondwanan flora. In recognition of the importance of native vegetation, Tasmania has a wide ranging program aimed at appropriate management of the resource and this program has been substantially accelerated with the injection of increased Commonwealth support via the NHT.

As with all jurisdictions, land tenure is a significant issue in relation to native vegetation. An approximate overview is that 40% of all Tasmanian land is held privately, 40% is protected in formal and informal parks and reserves and 20% is in State forests.

Some of the issues facing Tasmania include:

- As a small State with limited resources of its own but relatively large areas of native vegetation per capita, it finds it difficult to allocate the staff and other resources needed to ensure optimal management.
- In a State with already stretched public service agencies, the recent acceleration of activities via the NHT has perhaps inevitably led to some sacrifices in service delivery in other areas because of the need to search for short term planning and implementation solutions
- There is concern about the comprehensiveness of the State's formal Reserve System, and it is recognised that the State needs to encourage and develop 'off-park' protected areas on private land.
- Remaining grasslands, grassy woodlands and riparian vegetation are the most poorly protected and severely threatened ecosystems.
- Pressures on the remaining native vegetation resource are substantial. Land clearing continues to be the most destructive factor working against flora and fauna conservation.

Extent and Status of Native Vegetation

Tasmania has a high level of diversity of ecosystems of high conservation value and there is a high level of endemism for both plants and animals. More than 20% of the State has been listed as World Heritage Area, internationally recognised for the undisturbed habitats that provide for a large number of plant and animal species that are vulnerable and/or endemic to Tasmania and which demonstrate evolutionary history. The State also has 91 wetlands described in A Directory of Important Wetlands in Australia, ten of which are listed as internationally important under the Ramsar Convention on Wetlands. Tasmania also has the largest area of temperate wilderness in the country, with about 30% of the State having been identified as high quality wilderness through the RFA process utilising the National Wilderness Inventory.

For forested areas, the extent and status of much of the native vegetation has been documented in the Comprehensive Regional Assessment (CRA) part of the RFA process. Forestry Tasmania and Private Forestry Tasmania are regularly updating their inventory databases. The CRA/RFA process generated excellent biodiversity information for forested areas to inform decision making. This information, plus other data for non-RFA areas, is available in the 1999 Parks and Wildlife Service publication Directory of Flora and Fauna Conservation in Tasmania.

In general, Tasmania still has a large proportion of its native vegetation intact but some of the remaining vegetation communities are threatened by continuing harvesting/conversions in forested areas and from agriculture and urban development elsewhere. As with other jurisdictions in southern Australia, outside the forests the most threatened components of native vegetation (in terms of small percentage remaining) are grasslands, grassy woodlands and riparian vegetation. Approximately 27% of land in Tasmania is under agricultural management. It is of vital importance that close linkages are developed and maintained with private land managers to ensure that integrated sustainable NRM is achieved, whilst at the same time protecting native vegetation.

The most recent clearance figures, on clearing of woody vegetation, provided by the 1999 BRS/ALCC project indicate that in the period from 1990 to 1995 about 4,000 hectares were cleared for grazing or cropping purposes. Another 440 hectares were lost as a result of urban development. It was estimated a further 27,270 hectares of forest and 8,270 hectares of plantation were harvested. A further 1,060 hectares of small farm forestry areas (<20 hectare units) were also harvested. Regeneration and replanting of harvested forest and plantation areas, including 220 hectares of new farm forestry, resulted in an increase of 24,160 hectares of woody vegetation. These forest and plantation figures, generated by remote sensing, are broadly verified by Private Forests Tasmania 1995 aerial data which was field-checked.

Vision

Through the RFA, Tasmania has put in place a vision for the management of native forests that could relatively easily be extended/adapted to other native vegetation. The RFA commits governments to “establish a framework for the management and use of Tasmanian forest which seeks to implement effective conservation and forest management practices” which meet a raft of listed criteria. Adapted for native vegetation generally, these would include:

- Providing certainty for conservation of environment and heritage values through the establishment of a CAR Reserve System
- Providing for ecologically sustainable management and use
- Providing for future growth and development of associated Tasmanian industries
- Assisting with the development of tourism and recreational opportunities capitalising on environmental advantages
- Encouraging research

In discussions with the Department of Primary Industry, Water and the Environment (DPIWE), it was suggested that Tasmania’s vision for the future conservation and monitoring of native vegetation had the following elements:

- Obtaining a CAR Reserve System. Amongst other things, this will require the development and application of mechanisms that will protect native vegetation on private land.
- Successful development and application of mechanisms that provide for the protection of native vegetation without it necessarily being part of the ‘formal’ Reserve System.
- An improved basis for decision making in relation to vegetation management through the development and application of accessible tools including maps and databases
- The finalisation of a comprehensive, consistent and logical regulatory framework including Acts, regulations and policies and which consider issues such as non-wood harvesting and release of genetically modified plants.
- An integrated approach to NRM at the State, regional and local scales.
- Building effective NRM (encompassing biodiversity and native vegetation considerations) into enforced Local government planning schemes.

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

State legislation which supports the management and monitoring of native vegetation in Tasmania includes:

- *National Parks and Wildlife Act 1970*: This Act provides for the reservation, administration and management of reserved land for the purposes of nature conservation amongst others. It includes a Conservation Area Scheme which allows private land to be designated as a Private Reserve with conditions attached to the title in the form of a statutory covenant.
- *Threatened Species Protection Act 1995*: This Act protects the State's rare and threatened species and includes various measures to conserve biodiversity. For example, Interim Protection Orders can be issued to delay clearing.
- *Crown Lands Act 1976*: This Act provides for the reservation and management of Crown Land for various public purposes including land conservation.
- *Forestry Act 1920*: This Act provides for Forestry Tasmania's management of State Forests. Forestry Tasmania is responsible for sound forest practices in State Forests.
- *Forest Practices Act 1985*: Since the signing of the Tasmanian RFA, this Act is now administered by the Forest Practices Board, which operates independently of Forestry Tasmania.
- *Public Lands (Administration and Forests) Act 1991*: This Act, now administered by the Resource Planning and Development Commission, seeks to promote the balanced use of public land and to further the objectives of the Resource Management and Planning System (RMPS). The RMPS was established by the State Policies and Projects Act 1993 and is underpinned by the Land Use Planning and Approvals Act 1993. It also involves other legislation, such as the Environmental Management and Pollution Control Act 1994 and the Resource Management and Planning Appeals Tribunal Act 1993 in addition to the threatened species and public land legislation referred to above.
- *Environmental Management and Pollution Control Act 1994*: This Act established the Board of Environmental Management and Pollution Control which has a charter to control all activities that might have an adverse effect on the environment or its ecosystems. It deals with threats at three levels, with Level 1 requiring a permit under a local planning scheme under the control of local government. Level 2 activities are specified in the Act and Level 3 activities are large projects which must be approved by parliament.

The Commonwealth legislation of relevance includes the *World Heritage Area Properties Conservation Act 1983* which provides the means for the Commonwealth to meet its international obligations in relation to areas listed on the World Heritage List. Also, the *Australian Heritage Commission Act 1975* which established the Australian Heritage Commission and gives it powers to register sites on the Register of the National Estate. The *Wildlife Protection (Regulation of Exports and Imports) Act 1982* requires approved management plans and for any wildlife being exported – including trees and other vegetation. And, lastly, worthy of particular mention is the *Endangered Species Protection Act 1992* which provides for the listing and development of recovery plans for nationally threatened species.

Policies, Strategies and Plans

There is a series of important policy, strategy and planning elements in Tasmania of relevance to native vegetation.

As with all jurisdictions, the NHT Partnership Agreement is an important policy document which articulates the principles which will govern public investment in NRM from the NHT. The Tasmanian agreement goes to great lengths to explain the context of the Tasmanian situation.

The Resource Management and Planning System (RMPS) involves legislation, State policies, regional planning, Local government strategic plans and Local government statutory planning schemes. The strategic plans are required to articulate the social, economic, environmental and financial objectives of Local governments and to

explain how these are reflected in the accompanying policies and planning schemes. The RMPS does not contain any specific controls on native vegetation. However, the Local Government Act 1993 provides for areas of vegetation which are to be retained to be prescribed in the statutory planning schemes. Although the name gives the impression of comprehensiveness, the RMPS does not, and has never been intended, to apply to National Parks, State Forest, other lands used for forestry purposes, mining, marine farms and the operations and lands associated with hydroelectricity generation. Each of these exempted categories is subject to different planning systems, processes, regulations etc.

Quite separate to the RMPS, the Forest Practices System (FPS) applies to all commercial forestry operations on private and public land. The FPS includes a Forest Practices Code, and a Forest Practices Board and is principally governed by the Forest Practices Act 1985, the Forest and Forest Industry Strategy, and the RFA.

The Threatened Species Strategy requires, amongst other things, Local governments to refer all applications for development on land which involves threatened species to the Parks and Wildlife Service for assessment.

The Draft State Policy on Protection of Agricultural Land is intending to foster agriculture and value-adding processing whilst promoting sustainable use and development. The policy should apply to all agricultural land (used for, or which has potential to be used for, agriculture). It is intended to protect agricultural land from conversion to non-agricultural uses except where there is an over-riding need/community benefit and no other suitable sites are available. In supporting sustainable use it includes guidelines which amongst other things seek to minimise the deleterious effects of agricultural activities on land and water resources and vegetation. The main vehicles for implementation of the policy are to be Local government planning schemes, catchment plans and programs of government agencies.

A Biodiversity Strategy is being developed, and is expected to be completed by early 2000. This is intended to address the major issues associated with the conservation of native vegetation. Other relevant strategies include the State Weed Strategy, and the Conservation Policy Framework for Private Forests.

Tasmania is also developing other policies relevant to native vegetation management; however, at present they are only at DPIWE Discussion Paper stage. These include:

- Remnant Vegetation (Discussion Paper)
- Wetlands Strategy (Discussion Paper)
- State Priority Actions for Flora and Fauna (Discussion Paper)

Institutional Arrangements

The institutions responsible for managing and monitoring native vegetation in Tasmania have been substantially re-structured over the past year and are currently still being re-organised. Those which are most important to the management and monitoring of native vegetation include:

- *Department of Premier and Cabinet (DPC)*: As with other jurisdictions, the Department of Premier and Cabinet plays a key overarching policy making role. DPC also is home to the Local Government Office which is obviously an important influence on the resourcing and role of the 29 Local Councils. In the initial stages of the NHT, DPC coordinated Tasmania's arrangements via its NHT Unit; however, this role has now been transferred to DPIWE
- *Resource Planning and Development Commission (RPDC)*: Overall responsibility for resource planning lies with RPDC. This is a statutory body established by the Resource Planning and Development Commission Act 1997. From 1 January 1998, RPDC took over the functions of the Public Land Use Commission, the Sustainable Development Advisory Council and the Land Use Planning Review Panel. The members of the commission represent community, industry, conservation and the government
- *Department of Primary Industry, Water and the Environment (DPIWE)*: DPIWE has lead agency responsibility for native vegetation management and monitoring, excluding forested areas. Formed in 1998, it brought together the portfolios for primary industry and fisheries, with environment and land management. It includes in its structure the Parks and Wildlife Service which is the central agency responsible for conservation and management of flora and fauna

- *Department of Infrastructure, Transport and Energy* is important in terms of roadside vegetation and its involvement in vegetation management for new infrastructure
- *Department of Community, Education and the Arts* is also relevant as it includes the Tasmanian Museum and Art Gallery of which the State Herbarium is a part
- *Forests*: There are a number of relevant institutions. Forestry Tasmania is a government business enterprise responsible for commercial forestry operations within State Forests. Private Forests Tasmania is responsible for the promotion of sustainable productivity from private forests through the *Private Forests Act 1994*. The Forestry Practices Board is responsible for the administration and enforcement of the *Forest Practices Act 1985* which includes overseeing the application of the Forest Practices Code on commercial forest operations on both public and private land

There is also a range of advisory groups including:

- National Parks and Wildlife Advisory Committee
- Threatened Species Community Review Committee
- Scientific Advisory Committees (including Flora Advisory Committee)
- World Heritage Area Advisory Council
- Forest Practice Advisory Council

Analysis

Native vegetation is important to Tasmania since it underpins the economy – via either forest products or tourism – and it is an integral part of the ‘image’ of Tasmania. However, there are important plant communities that have been lost and others that are threatened. The major pressures on native vegetation arise from forestry practices, land clearing and agricultural use of some endangered grasslands and riparian areas.

With regard to lands regulated by the RMPS, it is clear that its impact is restricted by the lack of well developed strategies for integrated catchment management and the lack of well developed and balanced planning schemes at the Local government level. In the absence of reform, many Local governments will continue to find it difficult to resource the development of integrated planning schemes. Inevitably this will reduce the effectiveness of measures designed to improve native vegetation management and monitoring.

Whilst the separation of forest management from the RMPS can be justified, it does highlight the need to ensure adequate coordination of vegetation management between different State agencies. A particular challenge is to ensure consistency between the planning objectives of the Resource Planning and Development Commission, Local governments and forestry institutions.

With regard to forests, it is clear that the Tasmanian RFA signed in November 1997, establishes a framework for the management and use of Tasmanian forests which seeks to implement effective conservation, forest management and forest industry practices and policies. It includes commitments by Tasmania to maintain a permanent forest estate and to manage forests on an ecologically sustainable basis.

Specifically in relation to the RFA, key strengths of the agreement relevant to native vegetation include commitments to implement a CAR Reserve system including the development of private reserves for ecologically communities inadequately reserved on public land; build upon the strengths of the existing Forest Practices System (FPS) in effectively regulating commercial forest operations; and the maintenance of vibrant forest based industries. It is noted that the interpretation of the RFA commitments would appear to be inconsistent with the NHT goal of halting the long term decline in the quality, if not the extent, of native vegetation. If so, this should be recognised and acknowledged.

All publicly owned State Forests and private lands that have applied for and been designated as Private Timber Reserves are required to re-establish forest, either native regeneration or plantation, following forest operations. However, native vegetation that is cleared on private land for non-commercial purposes is not regulated in any way.

In relation to the maintenance of the extent of native vegetation, a key commitment within the RFA is to maintain a permanent forest estate (Attachment 9). Amongst other things it requires the area of native forest to be maintained at a nominated minimum area within each IBRA region. Moreover, the State is required to monitor harvesting, reforestation and plantation establishment in each IBRA region. A key issue for the State is to resolve how plantation establishment will be regulated as the agreed thresholds are approached within a particular IBRA region. What actions do the State government intend to take when these minimum standards are close to being attained, particularly through the establishment of plantations?

Also, although both the Commonwealth and the State are using IBRA to provide a regional overview, should ecological communities be further subdivided to provide finer scale for policy, monitoring and evaluating purposes? Is the current situation accepted as being satisfactory by the jurisdiction?

Overall with regard to management of commercial forests, Tasmania has a clear legislative, policy and institutional framework in place through the FPS. However, with regard to NRM outside the forests, there is no such framework, although the NHT is funding initiatives, in particular the Tamar region pilot, which are attempting to develop such a framework which will create direction, policies and supportive institutional arrangements.

There is no strategy yet in place for biodiversity, however development is under way. With regard to the more specific subject of native vegetation, similarly there is no overarching policy other than that agreed to in the NHT Bushcare partnership agreement; development is at the DPIWE Discussion Paper stage. Initiatives such as TasVeg2000, which encompasses NHT-funded vegetation mapping and priorities projects, will inform the process.

EVALUATION OF MECHANISMS

Planning and Assessment

Tasmania has a well-developed system for mapping vegetation and it has a good inventory of existing vegetation, particularly its forest vegetation. There are some remaining gaps in the inventory, particularly non-vascular plants. Tasmania's biodiversity status has been documented for its eight bioregions and it is in the process of developing a biodiversity strategy. Tasmania does not have a regional vegetation management planning system in place and only carries out broadscale vegetation management planning in conjunction with its planning for national parks and State forests.

There is a skeletal Integrated Catchment Management (ICM) movement around the State which builds on the existing Landcare movement. However, there is at present no clear ICM policy for the State. ICM coordination had been a responsibility of the now merged Department of Primary Industries and Fisheries (DPIF); however, with very limited resourcing its impact has been patchy. ICM 'catchment plans' have been produced, but they have had very limited emphasis on native vegetation and have generally been focused on farmers and cleared agricultural lands. As such, they have been 'part catchment' plans which have excluded public lands from their purview. There has been little, if any, coordinated whole-of-catchment planning in the State. Funded by the NHT, the Launceston Tamar 'region' has embarked on an initiative to develop and test a framework linking the community, State agencies, NRM Local governments and associated statutory planning. To be really useful, regional vegetation planning will need to be a part of, or at least inform, statutory processes.

Key Challenges

Filling the remaining gaps in the vegetation inventory particularly on reserved lands, and by completing 1:25,000 vegetation mapping in the State

Consistently implementing an integrated approach to NRM at local and regional scales and incorporating vegetation management in this approach

Developing 'whole-of-catchment' plans informed by initiatives such as TasVeg2000, bioregional classifications (IBRA) and the RFA processes

Applying existing planning instruments at local and regional levels

Making effective use of existing planning and inventory information

Reserve System

A greater proportion of Tasmania than any other Australian jurisdiction has been incorporated into conservation reserves, including World Heritage Areas, National Parks, important conservation zones and administrative reserves. A high proportion of the eight bioregions of Tasmania, as defined by the IBRA, are covered by reserves and approximately one third of the State is considered a priority for action under the National Reserve System, to address threatening processes at a regional level.

Tasmania has 21% of its land in formal 'State' Reserves (National Parks, Nature Reserves, State Reserves, Aboriginal Sites and Historic Sites) including Macquarie Island. Over 76% of this State Reserve is also within the World Heritage Area. A further 6.4% of land is protected as Conservation Areas. Some forest areas are reserved as Forest Reserves which are set aside for conservation and recreation. Under the RFA process 396,000 hectares of additional reserves have been declared to help meet the objective of establishing a CAR Reserve system. In all, about 40% of forested lands are reserved from logging.

Whereas the forest communities found on public land are now generally well represented in the Reserve system, there remain a significant number of ecological communities that can only be adequately conserved on private lands, perhaps via the Private Lands Reserves Program (discussed in the section on incentives). Moreover, the non-forest vegetation is not well represented and Tasmania is striving to remedy this situation.

Some of the characteristics of the Reserve System, prior to the RFA, included:

- 16% of Tasmania's plant communities are not in the Reserve System. For example, four rainforest communities and nine grassland ecosystems are unreserved
- 21% of Tasmania's plant communities are poorly reserved. For example, 19 of the wet eucalypt forest communities are unreserved or poorly reserved
- Two thirds of the North-West swamp forests have been cleared and only 4% of remaining swamp forests are in formal reserves. Land clearing is the most threatening process
- In addition, 19 of the dry sclerophyll communities and 18 riparian communities are either unreserved or poorly reserved. Again, for all of these, land clearing is the most threatening process
- The Reserve of grassland ecosystems is very limited with 19 communities poorly reserved. Clearing for pasture is the most threatening process
- Current surveys are evaluating the results of the RFA in terms of community reservation status, but apparently most forest communities are now included in the CAR Reserve system (partly due to the extra RFA allocation of 396,000 hectares)
- Only a quarter of the wetlands had been surveyed, but 10 of the 91 wetlands were Ramsar listed. Very few are formally protected. Drainage and inundation are the main threatening processes. All riparian land in agricultural regions is of high conservation significance but is largely unprotected. Pollution caused by clearing and overgrazing is the major threatening process

Key Challenges

Finding the resources to strengthen protective mechanisms to improve flora conservation

Developing and applying effective mechanisms to achieve reserves on private land without having to resort to compensation

Communication and Capacity Building

Community Education

The community education efforts of DPIWE are focused on making better use of the considerable amount of existing information and ensuring that the information is accessible to all community members. Parks and Wildlife Service have produced a Directory of Flora and Fauna Conservation in Tasmania that could serve as a model for other jurisdictions. Groups such as Greening Australia also play an active role. All agencies, NGOs and some Local government have all had their native vegetation initiatives bolstered via NHT-Bushcare funding. All grapple with the difficult task of enhancing the value placed on native vegetation by the broader community.

Landholder Support

With regard to landholder (and community) extension, there is no doubt that Bushcare has provided significant impetus by encouraging formal linkages between agencies, Local governments, Tasmanian Landcare Association and Greening Australia. There are now more 'troops' involved in promoting an understanding of vegetation, but there are still less than 15 full-time extension officers dedicated to vegetation activities. Other extension and government programs have the potential to supplement the work of these officers. Also, it should be noted that the boost in Bushcare staffing has been negated to an extent by a decrease in Landcare activity and resourcing.

R&D

As in other jurisdictions, R&D is 'less fashionable' for funders. In recent years there has been increased emphasis placed on 'on-ground action' at the cost of reduced scientific technical support and investigation. Continuing work is needed to develop efficient approaches to gather together fundamental underpinning data.

Key Challenges

Achieving greater coordination amongst the native vegetation/NRM players. Although much improved, this remains a challenge

Changing attitudes to the role of native vegetation on farms and along rivers and streams – introducing the concept of 'duty of care'

Maintaining R&D outputs to underpin improved management and monitoring

Addressing the neglect of R&D into non-vascular flora

Incentives

Tasmania recognises that, by any interpretation of CAR principles, private lands must be brought into the Reserve system. It is realised that rather than rely on regulations and controls, incentives must be developed to ensure protection of designated high-value native vegetation communities. The current major tool to achieve this is the Private Lands Reserve Program (PRLP) which is funded with \$20 million from the NHT, \$10 million from the RFA agreement, plus \$300,000 from the Tasmanian government. The PRLP is principally targeting dry forests via a range of options which include government purchase, negotiation of covenants in perpetuity, or fixed-term (say 20 years or less) management agreements. Thus far, less than \$2 million has been committed.

There are some other incentives provided for landholders who protect or change the management of native vegetation. For example, Tasmania provides for differential rates to be applied in situations where a landholder sets aside land for either timber production or conservation. Other forms of incentives are being investigated.

A major issue is landholder 'compensation'. Embedded in the Threatened Species Protection Act is the right to compensation if private land use options are restricted by efforts to protect particular species or communities. Similarly, compensation may be payable if timber harvesting rights, granted if lands are accepted into the Private Timber Harvesting Reserves system, are subsequently withdrawn for conservation purposes. A general expectation is being created that any restrictions must be 'bought' via direct financial compensation.

Key Challenges

Achieving a balance between incentives, duty of care and regulatory approaches

Finalising the development of the strategic approach to the PRLP and other incentive schemes

Ensuring that grant funds are used wisely – funds need to follow sound strategic plans, not precede them!

Clarifying the compensation issues which, if the projected and 'expected' sums become unaffordable, will hamstring efforts to create a CAR system

Making effective use of the PLRP funding to achieve conservation Reserve objectives. This will require on-going adjustment to the options available under the program to encourage voluntary participation by landholders

Ensuring compliance with the negotiated covenants and management agreements

Regulatory Arrangements

Threatened Species/Ecosystem Protection

Tasmania has a conventional approach to protection of threatened species, and as in most other jurisdictions, the focus is on the threatened species rather than the ecosystems that they need to survive. However, the recovery plans are based on care for the ecosystem.

An emerging issue relates to the increasing extent of wild flower harvesting and exploitation of non-wood bush products in the search for better genetic material or biochemical products. There is a need to address these issues with some regulatory control.

Land Clearance Regulation

Land clearing regulations are deficient in Tasmania since they are not uniform across all tenures nor are they consistently applied. The virtual absence of any control over private land is a major weakness in the system. If not selling timber, there are no controls or conditions placed on landholders wanting to clear land. It is anticipated that the Biodiversity Strategy will address this issue. On private land used for commercial forestry, generally designated as Private Timber Reserves, the situation is more regulated via the FPS, but there is still concern about the clearing of native forest, with consequent loss of biodiversity etc. for plantation development. It should be acknowledged that Forestry Tasmania do have a system in place whereby any commercial forestry operation, whether on public or private lands, which involves first harvesting timber from native forest prior to establishing plantations, is subject to all the controls within the FPS. The gap seems to be where native forest is being cleared, without commercial harvesting of timber, with the primary aim of establishing a plantation. In this situation, assessment and controls appear weak, but this is apparently being addressed by a current Forest Practices Board project developing guidelines for plantation establishment.

Codes of Practice

Tasmania has elaborate Codes of Practice for forestry and it has some elements of a code of practice for agriculture in its Draft Policy on the Protection of Agricultural Land.

Key Challenges

Controlling exploitative wild harvesting of plants

Having landowners accept the need for control over clearing on private land

Minimising conversion of native forest into plantations

Rapidly developing the plantation establishment guidelines and ensuring that all native forest being cleared is first assessed and subject to control processes

Ensuring that existing legislation is consistently applied across all tenures

Incorporating native vegetation management concerns into all Local government planning

Monitoring and Evaluation

Tasmania has some vegetation management and monitoring processes. For example, monitoring in forest areas is extensive and uses multiple systems. Checks are in place to monitor how the Forest Practices System is impacting on vegetation and other natural resources. Despite activities by individual agencies, there is no strategic approach nor an agreed monitoring protocol. There is a need for a consistent framework across the State with some common indicators. Although the present system generates a lot of information, it is reported that the data is often not regularly updated and since there is no common single repository, users find it difficult to make full and appropriate use of the information.

Key Challenges

Having importance of monitoring recognised with assured funding

Developing a process to prioritise and coordinate monitoring efforts

Ensuring that monitoring data can be fed back into management

TASMANIA STOCKTAKE

KEY STRENGTHS

The formal Reserve system is a clear strength, particularly with forest vegetation types and ecosystems.

An active process which is working to improve the policy framework and the integration of activities across government.

A Resource Management Planning System (RMPS) which, if enhanced, could allow integrated NRM to be linked to statutory planning schemes of Local government.

A Forest Practices System (FPS) in which roles and responsibilities are clearly articulated, which has been further strengthened by the Tasmanian Regional Forest Agreement (RFA) process.

KEY CHALLENGES

Balancing conservation and development: Efforts to simultaneously achieve economic and conservation targets usually involve tradeoffs which are, to a greater or lesser extent, unpalatable depending upon your priorities. This is very true in Tasmania which is heavily dependent on utilisation of its natural resource assets. Striking a sustainable balance is a key challenge.

NRM policy development: Tasmania is yet to develop an integrated institutional approach to NRM at the State, regional or local levels. State policy is yet to be developed for NRM, Biodiversity, Remnant Vegetation or Native Vegetation (other than for forests).

Natural resource issues: There are important plant communities that have been lost and others that are threatened. Extensive tree decline, habitat fragmentation and emerging salinity are other realities. Responding to these issues is an overarching challenge for NRM policymakers.

Regulatory framework: As one element of an integrated approach to NRM there is a great challenge for Tasmania to finalise a comprehensive, consistent and logical regulatory framework including Acts, regulations, policies and plans which take account of different land uses, but aim for a 'whole-of-catchment' or 'regional' or 'sustainable landscapes' view. The role of the RMPS in relation to NRM should be further clarified.

Controlling land clearing on private lands: The major pressures on native vegetation arise through land clearing and agricultural use of some grasslands and riparian areas. Therefore, it is logical, if wishing to reduce this pressure, that land clearing should be controlled. Assessing the nature and degree of resistance to regulatory controls, and the most effective way to introduce such a system, is a fundamental challenge Tasmania is yet to overcome.

Addressing concerns about loss of biodiversity associated with plantation establishment: This issue is related to the more general previous point and is made in full understanding of the implications of the 'intensification clause' of the Tasmanian RFA. There remains a challenge for the jurisdiction to genuinely assess and ensure the Interim Biogeographic Regionalisation of Australia (IBRA) regional biodiversity 'minimum levels' are not breached given the current clearing of native forests, particularly on private lands, prior to plantation establishment. The FPS has mechanisms in place when the native forest is being commercially harvested; however, there appear to be few controls if simply wishing to remove the existing native forest in order to make way for a plantation.

Local planning schemes: Building effective NRM (encompassing biodiversity and native vegetation considerations) into enforceable Local government planning schemes is an essential part of a planning and regulatory framework. With the exception of a few Local governments, this has thus far proved to be a difficult task in Tasmania.

Obtaining a CAR Reserve system: Another element of integrated NRM involves the CAR objectives for the Reserve system. Attaining these will require the development and application of mechanisms that will protect native vegetation on private land. This includes, but is not restricted to, the judicious use of the \$30 million Private Land Reserve Program fund which is yet to prove itself as a successful mechanism.

Compensation versus duty of care: Managing possible expectations by landholders for compensation for any externally imposed constraints on their use of native vegetation is a challenge, whilst at the same time seeking to develop an ethos of 'duty of care' by the community and landholders for managing native vegetation.

Victoria

CONTEXT

Victorian Context

European settlement in Victoria began in the 1830s. Since that time about 65% of the native vegetation has been cleared.

Victoria's forests and woodlands were estimated in 1869 to cover nearly 88% of the State, some 20 million hectares. By 1967, this cover had been reduced to about 8 million hectares, about 35% of the land area. Of this remaining forest and woodland, around 70% is modified. Most remnant native forest is on public land, with only 5% of private land now covered by native forest. About 37% of the State is public land.

Grasslands and grassy woodlands occur mostly in the north and west of the State. 95% of these have been lost or degraded, principally due to their conversion to agricultural lands. Less than 1% are protected in formal conservation reserves.

Since the 1980s there has been very strong recognition at the State level that the loss of native vegetation needs to be halted. Institutional responses have combined legislative controls with the fostering of greater awareness of the scale of the problem, particularly in rural areas. The decline of biodiversity, coupled with resource sustainability issues (such as major hydrological imbalances first evident in irrigation areas, but now evident in many dryland catchments), have ensured that native vegetation has remained an important issue for Victoria.

As with all jurisdictions, the Victorian context includes some unique characteristics and others generic to most, or all. The recent context includes:

- heightened respect for biodiversity reflected in the 1997 Victorian Biodiversity Strategy
- Native Vegetation Retention (NVR) controls introduced in 1989
- strong regional/catchment management approach to NRM reinforced in 1997
- reform of Local government in the early 1990s with comprehensive newly gazetted planning schemes in 1999
- emerging greenhouse considerations which are also, in part, driving revegetation efforts

Victoria has comprehensive measures for controlling the removal or destruction of native vegetation. While these controls are important, they are only one part of a coordinated package of retention and revegetation programs involving financial assistance, information, education and voluntary agreements. Victoria is acting to 'value and save what it has', in addition to examining ways of boosting revegetation activities.

The State government has created regional Catchment Management Authorities (CMAs) in rural areas which are successors to the Catchment and Land Protection Boards (CALP Boards) and in most cases incorporate the role of former Waterway Management Authorities. There are now nine CMAs and one remaining CALP board providing strategic direction to NRM activities throughout the State. Local government has also been extensively restructured with the number of jurisdictions reduced from 210 to 78.

Extent and Status of Native Vegetation

There are 80 nationally agreed IBRA regions, of which 11 occur in Victoria. Eight of these IBRA types are shared with other States/Territories. However, it is felt that the broad IBRA scale, whilst appropriate for national purposes, requires further refinement at the state level in order to allow meaningful expression of differences. Thus, Victoria has delineated 21 terrestrial bioregions.

The knowledge of the biodiversity assets within each of these is variable, but on the whole is quite extensive and improving. The conservation status of native vegetation has been assessed for the whole State, using either the surrogate of Broad Vegetation Types (BVTs) (1:250,000) as a first approximation, or where comprehensive research has occurred, such as in forest areas, Ecological Vegetation Classes (EVCs) (1:100,000 – 1: 25,000). BVT maps have been prepared for estimated pre-1750 coverage, which have then been contrasted with 1987 coverage data.

Between 1972 and 1987 the net change in forested area on freehold land averaged 10,400 hectares per annum. Recent BRS data has estimated that ~9,000 hectares were cleared for agriculture between 1990 and 1995.

Vision

Victoria's vision for native vegetation will be articulated in the regional vegetation plans. These plans are being prepared by the CMAs in the context of the 1997 Biodiversity Strategy. The stated aims of the Biodiversity Strategy are to ensure that within Victoria:

- There is a reversal, across the entire landscape, of the long-term decline in the extent and quality of native vegetation, leading to a net gain with the first target being no net loss by the year 2001
- The ecological processes and the biodiversity dependent upon terrestrial, freshwater and marine environments are maintained and, where necessary, restored
- The present diversity of species and ecological communities and their viability is maintained or improved across each bioregion
- There is no further preventable decline in the viability of any rare species or of any rare ecological community
- There is an increase in the viability of threatened species and in the extent and quality of threatened ecological communities

It is recognised that different management approaches need to be taken depending on whether the context is:

- largely natural landscapes
- largely natural seascapes
- rural landscapes
- urban and urban-fringe areas

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

There is a suite of legislation in Victoria that can be used to underpin and enforce the intent of governments and the broader community to protect, conserve and manage native vegetation. This section introduces most, but by no means all, of the relevant law.

- *Planning and Environment Act 1987*: This primary legislation is fundamental to land use planning and development in Victoria. It underpins and provides for the system of planning schemes which control land use and ensures the consideration of the environmental impacts of development proposals. The format of the new planning schemes, being gazetted in 1999, is governed by the Victoria Planning Provisions (VPP), a key component of which is the State Planning Policy Framework (SPPF), which applies to all lands. The Native Vegetation Retention (NVR) controls were established under the provisions of this Act and introduced into all Victorian planning schemes in 1989. Whilst application is at the discretion of the Minister for Infrastructure, the NVR controls require a planning permit to remove, destroy or lop native vegetation – subject to a range of exemptions designed to facilitate normal domestic and rural practices. Local government is the responsible authority for administering and enforcing all planning permit applications. However, the Department of Natural Resources and Environment (DNRE) is the referral authority for a range of applications, including those to clear more than 10 hectares. The responsible authority must require the applicant to adopt any conditions issued by the referral authority or refuse to issue a permit if the referral authority objects.
- *Flora and Fauna Guarantee Act 1988*: The objectives of this Act are to guarantee that all taxa of Victoria's flora and fauna can survive, flourish and retain their potential for evolutionary development in the wild. Complementary goals are to conserve communities of flora and fauna; manage potentially threatening processes; ensuring that any use of flora or fauna by humans is sustainable; and ensuring that the genetic diversity of flora and fauna is maintained. The Act also drives the various programs which foster community education and provide voluntary agreement opportunities. The Act also required the preparation of Victoria's Biodiversity Strategy which was completed in 1997.
- *Catchment and Land Protection Act 1994*: The objectives of this Act are to establish a framework for the integrated and coordinated management of catchments which maintains productivity, whilst conserving the environment; and to ensure that the quality of the State's land and water resources and their associated plant and animal life are maintained and enhanced. The Act established the ten Catchment and Land Protection Boards which played an important role in developing regional catchment strategies (which are statutorily linked to Local government administered planning schemes). As of 1 July 1997, Act amendments came into force and nine of these Boards have evolved into CMAs.
- *Victorian Conservation Trust Act 1972*: This Act establishes the Victorian Conservation Trust (now the Trust for Nature) which has the power to hold, buy or sell real property, and the power, requiring Minister's approval, to enter into a binding covenant with landholders. These covenants can be registered on title, and are binding on successive title holders.
- *Conservation Forests and Lands Act 1987*: Act has several dimensions relevant to native vegetation management and monitoring. It provides for landholders to enter into voluntary, cooperative conservation agreements known as Land Management Cooperative Agreements. It also provides for the issuing of legally binding instruments linked to statutory planning schemes, such as the Code of Forest Practices for Timber Production.
- *Environment Conservation Council Act 1997*: This Act established the Environment Conservation Council, the function of which is to investigate the balanced use of public land and advise the Minister. The ECC replaced the Land Conservation Council.

Policies, Strategies and Plans

The State Planning Policy Framework (SPPF) includes a policy for conservation of native flora and fauna which has the objective to "assist the protection and conservation of biodiversity, including native vegetation retention and provision of habitats for native plants and animals and control of pest plants and animals". The implementation of this policy requires that "if native vegetation must be removed as part of a land use or development proposal, planning and responsible authorities should require, where possible, the replacement of lost native vegetation by regeneration or replanting at least an equivalent area of vegetation".

Victoria's Biodiversity Strategy is encapsulated in three 1997 documents: 'Our Living Wealth', 'Sustaining Our Living Wealth' and 'Directions in Management'. These clearly satisfy the State's obligations under the *Flora and Fauna Guarantee Act 1988* and the National Strategy for the Conservation of Australia's Biological Diversity.

Victoria's regional NRM policy is articulated in the 1997 document 'Managing Victoria's Catchments – Partnerships in Action' which discusses the Victorian catchment management approach, coordinated by CMAs, which aims to address sustainability issues related to farming systems, soils use, water sources/quality/nutrients, salinity and biodiversity.

The 'Victorian Greenhouse Action: responding to a global warning' sets the direction for Victoria's future greenhouse response, including support for a range of initiatives to reduce greenhouse gas emissions, enhance greenhouse sinks, and help the State to plan and respond effectively to greenhouse challenges in the future. Replanting Vic 2020 is a revegetation initiative, in which the Victorian government is investing \$9 million over 3 years to enhance the extent of sinks in Victoria and our understanding of them.

Institutional Arrangements

The main institutions responsible directly or indirectly for managing and monitoring native vegetation in Victoria are briefly introduced in this section.

Government

The key State level agency is the Department of Natural Resources and Environment (DNRE). However, another department which has an impact on native vegetation is the Department of Premier and Cabinet – due to its overarching influence on priorities, development, resources and budgets. The Department of Infrastructure is also important due to its general planning functions and influence on statutory planning schemes, development approval and appeal processes etc.

Within DNRE there are various sections of relevance, including:

- Catchment Management and Sustainable Agriculture (non-public lands)
- Parks Flora and Fauna (national parks, State parks, reserves)
- Forests (forest areas including those involved in RFA processes)
- LandVic (other crown lands)

The 78 Local governments are also key players due to their administration of planning schemes and influence over development.

Government/Community

The principal State-level government/community institution is the Catchment Management Council which advises the relevant Ministers. At the regional level, the Catchment Management Authorities (plus the single remaining CALP Board) are the key government/community organisations. The major role of the CMAs is to ensure the sustainable development of natural resource-based industries; the maintenance and, where possible, the improvement of land and water resources; and the conservation of natural and cultural values. Their responsibilities include on-going review and coordination of implementation of the regional (catchment-based) NRM strategies. They also have a key role to involve the community in decisions on NRM.

As with most other jurisdictions, at the local level there is an extensive Landcare/Bushcare network.

Analysis

The Victorian situation is more coherent than in some other jurisdictions. There are native vegetation controls which extend over all land tenures. There are robust, articulated policies for development planning, NRM and biodiversity. And there are simplified institutional arrangements mostly due to the extensive reforms of the past 10 years.

Acknowledging the seriousness of these issues, the Victorians have – conservationists would say belatedly – taken very strong steps to address the decline in the extent and quality of native vegetation.

There is a suite of legislation, voluntary agreements such as via Land for Wildlife, reformed Local governments, Native Vegetation Retention (NVR) controls, empowered Catchment Management Authorities, and detailed Biodiversity Strategies (underpinned by relatively excellent information). All this is very impressive. However, the BRS/ALCC indicates there was still a net loss of native vegetation (in a broad sense between 1990 and 1995) and therefore meeting the self-set target of no net loss of quality and extent by 2001 is still a major challenge.

There are several issues about the BRS/ALCCC data which are relevant to Victoria, and most other jurisdictions. For example, land clearance shows up immediately, whereas increases in vegetation recorded between 1990 and 1995 would also reflect plantings prior to 1990. That is, the increases and decreases reflected by the data are not synchronous. Also, many revegetation projects are of small areas <1 hectare and these are not captured by the TM satellite imagery. More important is the issue that is masked if talking about 'net' result of increases versus decreases, which is that many people believe that 'revegetation hectares', whilst valued, are of significantly lower value than 'native vegetation hectares' lost through land clearance. Also of significance is the fact that there is no BRS/ALCC-type data for non-woody ecosystems, such as grasslands. Threats to grasslands, in Victoria for example from the development of raised bed cropping systems in previously grazed country, are less well monitored and quantified. Finer scale surveys are needed in Victoria (and elsewhere) to try and get a more detailed assessment of the situation.

EVALUATION OF MECHANISMS

Planning and Assessment

Victoria has been the only State comprehensively to monitor woody native vegetation loss using Landsat MSS and TM imagery and GIS since 1972. Victoria has a complete coverage of Broad Vegetation Types (BVTs) (1:250,000) which are limited in use to strategic overviews. It is working towards complete coverage with Ecological Vegetation Classes (EVCs) (1:100,000 and 1:25,000 scales) based on substantial ground survey which are demonstrably higher quality data sets than BVTs.

As at June 1999, extant native vegetation types are mapped at 1:100,000 for about 75% of Victoria; pre-1750 native vegetation types are also modelled/mapped at 1:100,000 for 75% of the State. The State has developed a practical consistent typology for EVCs and component floristic communities. Mapping processes include full floristic site data, analysis of groups, aerial photo interpretation and/or extrapolation on the basis of relationships to environmental features, extensive ground-truthing etc.

At a broad-scale EVC mapping is a key driver of conservation planning processes – particularly for non-threatened species and ecological processes. The EVC maps/datasets are being used in various ways, including:

- Determining the status of vegetation types which are then sometimes used as surrogates for ecological communities
- Meeting representation targets in RFAs and land use planning processes in non-forest areas

- Providing the base for other value-added datasets, such as species habitat modelling or old growth forest assessments
- Identifying priorities for additions to the National Reserve System
- Identifying priorities for protection of remnants on private land through Regional Vegetation Plans
- In general, the use of ECVs in assessing status has stood up well when scrutinised via land use planning appeals, RFAs etc.

Victoria has a clear mechanism in place for the production of Regional Vegetation Plans (RVPs) for each of the regions under the jurisdiction of the relatively new CMAs. The RVPs will articulate the vision for the native vegetation landscape in that future that addresses biodiversity conservation, land protection and resource utilisation issues. They will identify regional targets for retention, rehabilitation and revegetation types within bioregions in each CMA area that complement the developing National Reserve System. The management actions required to realise the targets and vision will also be identified and prioritised to provide guidance for investment. The plans will incorporate appropriate linkages to land clearing regulation and threatened species legislation. The plans will be underpinned by existing and/or improved inventory and mapping information, and status assessments. The intention is for all CMAs to have completed RVPs by the end of 1999. These plans are scheduled to be reviewed every three years.

Key Challenges

Completing the EVC inventory of the State at the refined 1:100,000 scale

Providing ready access – particularly for non-specialists – to EVC mapping and associated interpretative material

Using EVC maps for management. For example, in developing appropriate fire management regimes to ensure diversity of age classes across the landscape

Extending the standards being achieved on public lands to the planning processes for remnants on private lands

Increasing the proportion of developments which proactively undertake biodiversity status assessments as part of a due diligence process

Improving the consideration of ecological processes (at the landscape scale) and risk management scenarios, rather than simple presence/absence of threatened species/communities

Enhancing the present, already excellent, biodiversity status assessments and completing the Action Statements required under the *FFG Act* to increase the survival prospects of threatened species and ecological communities

Completing Regional Vegetation Plans in each CMA region by the end of 1999

Ensuring the RVPs are able to be aggregated at the State level

Ensuring that Local government (the responsible authority) accept and work seamlessly with the CMAs who also have a statutory planning role

Reserve System

It is the policy of the Victorian government to establish a Reserve system which meets the comprehensive, adequate and representative (CAR) criteria. Reserves are established through a series of processes which include investigation by the Environment Conservation Council. The existing geographic information datasets (BVTs or preferably EVCs) are used to inform the decision making. Gaps in the Reserve System are being targeted by a combination of re-designation of Crown lands, land purchase and establishment of cooperative management agreements with private owners. For Crown lands, reserves can be created formally using the National Parks Act or the Crown Lands (Reserve) Act; or informally via the creation of forest zones.

At 30 June 1999, there were 109 areas managed under the provisions of the National Parks Act: 36 national parks, 3 wilderness parks, 31 State parks, 11 marine and/or coastal parks or reserves, and 28 other parks and reserves. Their total area of some 3.078 million hectares represents 13.5% of Victoria and almost 35% of

public land in the State. In addition, there were 19 wilderness zones and 21 remote and natural areas established under the Act within several national parks.

Over 3,000 nature conservation and natural features reserves, plus other categories such as reference areas, natural catchment areas and heritage rivers also contribute to the State's Reserve system. Overall, 3.418 million hectares are considered to be 'protected areas' under IUCN categories, which represents some 15% of the State.

Victoria has 11 IBRA regions, three of which occur wholly within the State. These regions range from semi-arid mallee scrub in the Murray-Darling Depression, to the alpine and subalpine environments of the Australian Alps, to cool temperate rainforests in the South East Corner.

However, representation of ecosystems is not equal throughout the bioregions. While the Victorian sections of the Furneaux, Australian Alps and South East Corner IBRA regions have relatively high levels of reservation, others such as the Victorian Volcanic Plain and Riverina, where flat grassy plains and woodlands have been severely altered are not well represented.

Victoria has 28 Broad Vegetation Types (BVTs) many of which are well represented. However, four BVTs have less than 0.3% of their pre-European distribution represented in conservation reserves – Grassland, Grassy Woodland, Swamp Scrub and Wimmera Mallee/Woodland. Other BVTs such as Box-Ironbark, Herb-rich Woodland, Riparian Forest, Sedge-rich Woodland and Valley Grassy Forest have less than 5% of their pre-European extent in reserves

On private lands vegetation is protected through formal agreements which have the capacity to be affixed to land title. For example, the Trust for Nature encourages landholders to covenant habitats and properties, thereby providing them with permanent protection. By 1997 about 8,500 hectares were protected in this way.

Key Challenges

Finding ways to bring privately managed areas into the 'protected areas system', in recognition that the largest gains in ecosystem protection are now to be made on private lands

Protecting greater areas of grasslands and grassy woodlands by facilitating their inclusion in public reserves or under covenant

Involving the private sector in active ecosystem protection

Preparing ecosystem management plans to guide burning and other vegetation treatment

Developing and implementing adequate monitoring frameworks

Communication and Capacity Building

Community Education

There is a plethora of people involved with Bushcare, Landcare, Trust for Nature, DNRE Catchment and Agricultural Services extension staff, Land for Wildlife, Greening Australia etc., all of whom have community education included in their charter. The jurisdiction feels that whilst schools are relatively well serviced (with native vegetation and biodiversity values embedded in the environmental education curricula), the general approach to educating adults is far from perfect. Issues raised included the lack of available market research, and the tendency to measure activities rather than outcomes i.e. quantitative rather than qualitative.

Landholder Support

Landholders are also specifically targeted via the activities of Bushcare, Landcare, Trust for Nature, Land for Wildlife, Greening Australia, etc. Victorian Landcare has about 700 groups and an estimated membership of over 20,000. However, for the purposes of this overview the Land for Wildlife program, which originated in Victoria, warrants particular mention. It was developed in the 1980s by the Fisheries and Wildlife and Bird

Observers Club of Victoria to “provide a voluntary vehicle for landholders to actively and openly protect, enhance and restore wildlife habitat on their properties. The scheme now has over 4800 members who manage over 120,000 hectares throughout the State” (1997 Victorian Biodiversity Strategy). The program provides landholders with support and information on the management of habitat on their land. The scheme has been adopted as a national model for voluntary participation of landholders. However, it should be noted that despite its success it has been severely cut back in recent years. Most of the 16 regional facilitators positions in 1990 no longer exist.

Revegetation ‘Hardware’

Greening Australia (Victoria) operates native seed stores. The Natural Resources Conservation League operates native plant nurseries and equipment is made available through the Landcare networks.

R&D

There is no R&D strategy and as yet, no clearly designated R&D budget. This is not to say that there is no R&D occurring, but rather just an acknowledgement that it is not well focused. The State is well advanced with R&D associated with mapping and inventory aspects. As well as technical biophysical issues, the jurisdiction recognises a need for a greater understanding of the human dimension – for example, factors affecting uptake etc. Some work has commenced in grassland areas on these issues.

Key Challenges

Developing a strategic approach to adult education

Enhancing the understanding of what motivates landholders to improve management practices

Expanding current action learning approaches such as the Alpine Ecology and the Box-Ironbark courses to other areas, such as training trainers

Showing appreciation to volunteers to retain their interest and involvement

Linking landholders with researchers, to promote mutual understanding

Ensuring extension efforts are complementary and coordinated

Reviewing and focusing R&D efforts

Incentives

Grants

There is a range of grants programs operating in Victoria, including Tree Victoria, 2020 Revegetate Victoria, Landcare, Bushcare and the Land Protection Incentive Scheme. Tree Victoria has operated since 1989 and provides ~\$500,000 per annum in grants to various community groups. 2020 Revegetate Victoria has an even more substantial grants element. Landcare and Bushcare provide funds for both facilitation/staff positions and on-ground works/demonstrations, etc. Landcare has remained a relatively strong movement throughout Victoria. Bushcare is providing funding for facilitators attached to each CMA and also, as in other jurisdictions, to technical support. In Victoria this is via Greening Australia. Of the \$6 million provided in 1998/99 to Victoria from Bushcare, ~\$4.5 million went to groups. The Land Protection Incentive Scheme has also provided ~\$1 million mostly for vegetation protection and revegetation. Astute facilitators coordinate funds from different sources (public, philanthropic etc.), match it with community effort and try to get a positive result.

Market-based

A range of market-based incentives is being investigated. These include differential ratings, cost-sharing arrangements and off-sets. Another interesting mechanism being investigated is the use of ‘auction’ systems aimed at allocating scarce resources efficiently. At present all these mechanisms are in their infancy.

Key Challenges

Group burnout due to groups being expected to deliver community benefit outcomes whilst taking on more and more of the previously government responsibility for reporting and accounting

Devising realistic methods of monitoring the impact of grants programs . Everybody wants to claim success, but measuring it is problematic

Getting the best out of the grant-funded 'native vegetation' or NRM workforce and also ensuring the various funding sources minimise the conflict or unnecessary duplication in their performance reporting requirements

Some of the most poorly represented ecosystems occur mainly on private land. There remains a need to develop effective market-based incentives which are efficient and complement other mechanisms on private land

Regulatory Arrangements

Threatened Species/Ecosystem Protection

In addition to legislation and the previously mentioned formal Reserve System, there are various efforts in Victoria to meet the biodiversity strategy objectives as they relate to threatened species and ecosystem protection. They include processes supported by legislation, particularly the *Flora and Fauna Guarantee Act 1988*. The Act contains regulatory provisions, however, these have rarely been used.

The Act also directs that the status of individual species and ecological communities be examined. If assessed as 'threatened' these are 'listed' and become the subject of Action Statements which must be prepared, implemented and monitored. Preparing Action Statements is resource-intensive and there is only modest progress in preparing the statutory plans required each time a species or community is listed. Treating biodiversity collectively, by 1997 there were:

- 22 potentially threatening processes listed, of which three had Action Statements
- 23 ecological communities were also listed as threatened, of which three had Action Statements
- 245 vertebrate animals and vascular plants and 25 invertebrates also listed; 85 of these species were covered by Action Statements

Land Clearance Regulation

The Native Vegetation Retention (NVR) controls provide a consistent approach across all tenures. It is intended that the NVR controls will be regionalised via the RVPs, taking full account of the Victorian bioregional status. Issues relate to equity ("others have cleared theirs, why not us?"), cost sharing ("if we are doing it for the public good, is the public prepared to pay?"), illegal clearing, and monitoring and enforcement (requires ownership and resourcing by communities and Local government). A more detailed analysis of the effectiveness of NVR controls would be useful. For example, how effective have they been in protecting non-woody ecosystems such as grasslands? Also, are the exemptions provisions still appropriate?

Codes of Practice

At present the only relevant Code of Practice is that for timber production from forests. This applies to both public and private lands. Whilst essentially self-regulating it can be enforced by Local government as it is part of the statutory planning role. The issues, generic to all jurisdictions, include whether or not CoPs should be 'minimum standards' and whether or not they are actually observed.

Key Challenges

Provision of adequate resources to prepare and ensure implementation of Action Statements

Developing more efficient ways of preparing Action Statements, perhaps by reducing the size and complexity of the plans or by considering multi-species or bioregional approaches

Routinely building in a monitoring and evaluation component to assess the effectiveness of Action Statements and actions

Developing cost effective, rapid monitoring procedures to measure land clearing activities at the EVC scale

Reviewing the past and present effectiveness of NVR controls

Retaining, regaining or obtaining widespread support for the NVR controls particularly by Local governments

Building credibility of Codes of Practice with the community improving and compliance at the local level

Ensuring 'minimum standard' Codes of Practice do not discourage pursuit of best practice by industries

Monitoring and Evaluation

Trends derived from monitoring vegetation cover have significantly increased recognition of the issues of habitat loss and land/climate protection at all levels. These understandings have broadened community acceptance of policies which aim to reverse the decline in native vegetation extent and quality in the medium-term future. In addition, datasets on pre-1750 extent (the original benchmark for monitoring extent and quality) have illustrated historical depletion and thus improved community understanding of the significance of depleted vegetation types.

However, the 1:100,000 scale mapping does not effectively pick up roadsides or stream frontages in cleared land or scattered trees in pastoral landscapes/small-scale revegetation activities, and thus fails to record incremental losses and gains which may prove to be a critical part of the total picture.

Significant progress has been made to improve the resolution of remote sensed mapping. Across the state Tree Cover is currently being mapped at the 1:25,000 scale using SPOT satellite imagery with an automated classification of density class. This approach will provide information on linear vegetation and scattered trees.

Monitoring of quality is a more challenging task. Appropriate techniques for on-ground monitoring of condition are being developed for implementation through the regional vegetation plans. Research to benchmark the extent and condition of native vegetation at the catchment level is being undertaken in south-west Victoria. SPOT satellite imagery (1:25 000), existing EVC mapping and rules for estimating indicative condition (derived by associations of EVC, typical disturbance history, vegetation density and field observations) are to be used. It will be necessary to complete the State-wide coverage of this dataset to allow measurement of progress towards the 'no net loss by 2001' goal of the Victorian Biodiversity Strategy.

Key Challenges

Developing effective ways of measuring incremental losses and gains in native vegetation

Developing effective ways of on-ground condition measurement and monitoring

Developing effective ways, involving map annotations, of providing an indicative record of native vegetation condition, rather than just extent

Resolving the issue of how changing condition may contribute to calculations of 'net loss/gain'

Resolving cross-border methodological differences which diminish the overall value which could be obtained from the M&E efforts of different jurisdictions

VICTORIA STOCKTAKE

KEY STRENGTHS

Institutionally straightforward coherent and comprehensive.

Well-developed, sophisticated and integrated information base for planning and assessment.

Legislation has very strong protection mechanisms, particularly via the Native Vegetation Retention (NVR) controls and the *Flora and Fauna Guarantee Act 1988*.

Strong links between State policy and legislation and regional/local administration and implementation via Local governments.

Strong extension and incentives infrastructure.

New and evolving regional structures for NRM, ie. the nine Catchment Management Authorities plus the Port Phillip and Westernport Catchment and Land Protection Board. Regional Catchment Strategies and the Regional Vegetation Plans (currently in preparation) represent progress being made by these institutions.

A well-established Reserve system which, while there are significant gaps, provides representation for a variety of vegetation types.

Development of Regional Vegetation Plans that meet the best practice attributes identified in the National Framework.

KEY CHALLENGES

Biodiversity accounting for operationalising 'no net loss': Operationalising the 'no net loss' policy is a key challenge for Victoria. As with other jurisdictions, there is a need to further clarify the ways in which 'no net loss' is to be measured. For example, if negotiating trade-offs, how much revegetation is needed per unit of intact remnant vegetation? How is the condition of various remnants of native vegetation reflected in the value? The challenge is to develop and implement a measuring and accounting system. The overarching policy principle is clear; however, the devil is in the detail of implementation.

Cost-sharing: Quantifying landholder benefits foregone (if any) in order to serve the public good will have public policy and possibly budgetary implications if it raises the issue of cost-sharing. Managing the development of a conservation ethic via voluntary programs such as Land for Wildlife can be undermined if a compensation mindset develops. There is a need to develop market-based mechanisms applicable to larger, commercially operated properties where most of the larger remnants occur. There is a challenge to develop long-term rewards for remnant protection and management via market mechanisms such as rate relief, removal of some taxes and charges, concessions etc.

Roles and responsibilities: Clarifying the roles of various institutions is important. A current example issue is the expansion of farm forestry and plantations throughout the State which is testing the roles of Local governments, Catchment Management Authorities and the Department of Natural Resources and Environment.

Power devolution: There is a significant difference between devolving responsibility and truly devolving power. Clarifying – in practice – the powers being devolved to regional organisations and/or Local governments is an ongoing challenge.

Threatened species and ecosystem protection: Challenges include obtaining adequate resources to prepare and ensure implementation of Action Statements. This may also involve developing more efficient ways of preparing Action Statements, perhaps by reducing the size and complexity of the plans or by considering multi-species or bioregional approaches. It may also involve building in a monitoring and evaluation component to assess the effectiveness of Action Statements and actions.

Native Vegetation Retention (NVR) controls: Challenges remain in developing cost effective, rapid monitoring procedures to measure land clearing activities. Retaining, regaining or obtaining widespread support for the NVR controls particularly by Local governments is also an ongoing challenge. An objective review of the past and present effectiveness of NVR controls would assist.

Integrating agriculture with biodiversity conservation: A major challenge for the Regional Vegetation Plans is to ensure they effectively integrate agricultural production objectives with biodiversity conservation objectives. This is far from straightforward and will rely upon continued efforts by policymakers, researchers and the community in the quest for sustainable rural communities. To an extent this remains a universal tension, as real and perceived short-term imperatives conflict with longer-term sustainability and conservation pursuits.

Local government performance: Inevitable on-going challenges involve obtaining and retaining the genuine support of Local government to 'make the system work'. It is important to ensure that there is sufficient resourcing of Local government to ensure these responsibilities are adequately discharged given rate-capping, etc. Local government challenges include ensuring there is support for the technical assessment of clearing applications. Local government also need encouragement and support if they are to pursue NVR control breaches.

Information management: The challenge here is not so much the amount of information or its analysis, but coordinating and facilitating its use by the large number of stakeholders around the State – getting the various players to use the latest available information in a consistent manner.

Western Australia

CONTEXT

WA Context

WA has a wide range of policies and programs relevant to the conservation and management of native vegetation. This is most strongly evidenced by the government's commitment to engage with the community in addressing degradation processes within the State primarily through:

- Addressing dryland salinity through the State Salinity Action Plan
- Emerging approaches to urban bushland through the Urban Bushland Strategy and Perth's Bushplan
- Increasing the focus on pastoral rangelands, particularly through the Gascoyne-Murchison Strategy
- Developing regional NRM strategies

Western Australia does, however, face a number of overarching challenges in the management of native vegetation:

- As a result of WA's diversity of natural landscapes, ecological communities and species; high level of localised endemism; richness in natural resources; and complexity of natural systems; a high level of understanding and assessment of the needs of different ecological communities is required for successful management and/or rehabilitation
- The urban and agricultural regions of WA are confronting a range of broad scale processes that threaten the sustainability of natural resources. Salinity is the most significant of these, with up to 40% of the agricultural land of the south-west wheatbelt predicted to ultimately be affected by salinity. Other significant impacts include habitat fragmentation on biodiversity, urban development, dieback, weed invasion, altered fire regimes and other threats in natural areas which also need to be considered. The scale of these NRM issues requires a significant commitment to achieving structural changes in land use and management, particularly within agricultural regions
- Vegetation in the pastoral rangelands and the non-pastoral arid areas has been degraded through overgrazing by stock and feral herbivores
- The majority of the community and a significant proportion of the agency-based support and advisory services are operating with only short-term funding commitments

WA is a very large State, covering approximately one third of the land area of Australia, with a small and highly urbanised population, most of whom live in the Perth metropolitan area. This has implications for the extent to which WA's vegetation has been adequately described and mapped, and for the resources available for its management, relative to other States/Territories.

Overall, WA has many of the elements of a best practice framework for native vegetation management and monitoring either in place or in the process of development. Key achievements include a commitment to improving inter-agency cooperation and integration of NRM strategies, and the progressive introduction of controls to manage the clearing of native vegetation, together with programs such as the Remnant Vegetation Protection Scheme (RVPS) and Land for Wildlife (LFW). Challenges in these and other areas remain, and are the focus of this report.

Extent and Status of Native Vegetation

Extensive land clearing occurred in south-west Western Australia up until the 1980s when restrictions on clearing native vegetation were introduced. These restrictions have been tightened further since that time.

The area of the south-west agricultural region is ~25.3 million hectares, of which private lands account for 20.8 million hectares (~18.0 million hectares cleared; 2.8 million hectares of remnant vegetation), with the remaining 4.5 million hectares being public lands. Only the tall forests of the south-west have been retained to a significant extent across approximately their original distribution. Most of the remaining vegetation surviving in the wheatbelt is as scattered patches on private farmlands and in public reserves. Grazing by livestock and rabbits, weed invasion, rising soil salinity and land use pressures all contribute to the degradation of the remaining native vegetation. Rangeland areas are largely uncleared but have been subject to extensive grazing. This has resulted in significant degradation.

Results from the national BRS/ALCC indicated that between 1990 and 1995 ~106,000 hectares of native vegetation were cleared for agriculture. Other human activities including urban development accounted for the loss of a ~34,000 hectares. Increases in cover from human activities, including regrowth of partially cleared areas and plantation establishment, accounted for ~163,000 hectares. During the study period, the estimated revegetation area exceeded clearance of native vegetation. However, it is recognised that the revegetation of species such as oil mallee and blue gum, whilst having many benefits, has less biodiversity value than the native vegetation cleared.

Removing so much of the original cover of deep-rooted perennial native vegetation and replacing it with shallow-rooted annual crops and pastures has dramatically altered the hydrological cycle over much of the region. The ground-water table, previously drained by the deep-rooted vegetation, is now rising bringing with it the deep mineral salt store. In many wheatbelt areas these salts have now reached the surface. Very few plants are able to survive in these conditions and agricultural lands are becoming denuded. It is estimated that the area of key agricultural catchments affected by salinity may rise from the present ~10% of area, to 40% before an equilibrium reached. Already affected, or at risk, is 80% of susceptible remnant vegetation on farms and 50% on public lands.⁵ A Salinity Action Plan has been developed to deal with the extensive problem of rising water tables and the associated problems of dryland salinity and consequent degradation of wetlands and waterways. Due to the existing and projected scale of the problem, the issue of salinity management, and the role of native vegetation within this, dominates approaches to the management of natural resources in the agricultural regions.

Formal conservation reserves cover approximately 16 million hectares or 6.4% of the State. A further 1.9 million hectares are in State forest and timber reserves. In addition, 2.5 million hectares of pastoral leasehold lands have been purchased for conservation and are awaiting formal reservation. There is a variety of other types of public reserves which contain native vegetation, but the long-term security of the vegetation is uncertain. This category of land includes water reserves and Local government reserves.

There is a substantial area of unallocated Crown land in the State, most of which has its natural vegetation cover and therefore makes an on-going contribution to nature conservation. However, this land has no security of tenure and no management arrangements are in place.

⁵ See Hatton, T and Salama R (1999) *Is it Feasible to Restore the Salinity-Affected Rivers of the Western Australian Wheatbelt?*, CSIRO Land and Water, Western Australia

Vision

The overarching native vegetation vision articulated in the WA Bushcare NHT Partnership Agreement is – mirroring the national objective – to reverse the long-term decline in the quality and extent of WA's native vegetation cover.

In a broader context, the WA vision for NRM is supported by the following strategic policy objectives across different land use systems:

- *Integrated NRM:* The management of native vegetation should be undertaken in the context of other NRM objectives, interpreted and applied across national, State, regional and local scales. Close interaction between State government planning, environmental and resource management processes and institutions is required to build effective partnerships with local communities and industry through regional and local structures. These processes require information, and monitoring and evaluation programs that support strategic action planning.
- *Public reserves:* There is a commitment to the establishment of a CAR conservation Reserve system within WA. Approximately 6.4% of the State's land area is allocated to the formal conservation Reserve system. There remain significant gaps in representing the full range of ecological communities within the CAR Reserve system. Strategies for meeting these gaps include acquisition of key sites and re-categorisation of unallocated Crown lands of high conservation value. There is a strong commitment to management, through the development and implementation of management plans. It is envisaged that the Reserve system will be supported by a range of complementary mechanisms on other lands, particularly for those ecological communities where public acquisition and management is not viable.
- *Urban land and land under pressures for subdivision:* There is a strong commitment to sustainably managing native vegetation within the Perth metropolitan area, as evidenced through the development of Perth's Bushplan, released in 1998. In the future, native vegetation of regional significance will be most effectively conserved through appropriate land use planning (including assessing proposals for subdivision and the intensification of land use, the protection of significant areas in the formal Reserve system and via complementary measures). This will require greater integration between planning, conservation and environmental assessment mechanisms, administered by the Ministry for Planning and other NRM agencies.
- *Private agricultural land:* Administrative procedures that restrict the clearance of native vegetation in the agricultural region based on nature conservation values have been introduced through a 1997 Memorandum of Understanding (MOU) between the key State NRM agencies, using existing legislation. These have been tightened further with the WA Minister for Primary Industry announcing in March 1999 more stringent administrative arrangements to control agricultural land clearing, such that the onus is on the land holders to demonstrate their proposal will not cause degradation. These regulatory arrangements are supported by a range of information and incentive programs for private stewardship. It is intended that the range of incentives available to landholders will be extended.
- *Pastoral leases:* New legislation enacted in 1997 introduced the explicit requirement that pastoral leases be managed on an ecologically sustainable basis. The key pressure on native vegetation in these regions relates to the management of stocking rates and grazing pressure through the Pastoral Lands Board. The 1999 WA policy 'Managing the Rangelands' includes commitments to the conservation of biodiversity and sustainable land use.
- *Crown land:* Unallocated Crown lands and unvested Crown reserves, which together cover more than 30% of the State, contain considerable areas of high conservation value. They currently receive minimal management. These lands are progressively being reviewed, with those of high conservation value to be allocated to conservation reserves, subject to resolution of competing land use claims. Integrating conservation with other potentially conflicting land uses, including exploration and mining, is a particular challenge. Collaboration with other managers of Crown land, including Local government, is required.
- *Aboriginal land:* Aboriginal managed lands are subject to those regulations, policies and programs that are applied to the tenures in which those lands are held. In addition, it is recognised that co-management structures such as those being developed through the Indigenous Protected Areas Program may be required.

LEGISLATION, POLICIES & INSTITUTIONS

Legislation

- *Soil and Land Conservation Act 1945*: Agriculture Western Australia (AgWA) has primary responsibility for the administration of this Act, which relates to the conservation of soil and land resources and to the mitigation of effects of erosion, salinity and flooding. AgWA is supported by a number of State and regional structures, including: Soil and Land Conservation Council (State); Rural Adjustment and Finance Corporation of WA Board (State); and Land Conservation District Committees (Local). AgWA has created a structure of six regions for the delivery of its policies and programs.
- *Conservation and Land Management Act 1984*: Under this Act the Department of Conservation and Land Management (CALM) is responsible for the management of WA's conservation Reserve system and State forests, the conservation and protection of flora and fauna throughout the State, in particular through the administration of the *Wildlife Conservation Act 1950*, and forest production. The *CALM Act* also provides for conservation agreements over private and pastoral leasehold lands. The Department operates through a structure of nine regions and reports through the National Parks and Nature Conservation Authority (State) and the Lands and Forest Commission (State) and a wide range of issue-based and local consultative or advisory groups.
- *Country Areas Water Supply Act 1947*: The State agency and the Board of the Water and Rivers Commission have responsibility for managing the water resources of WA for the benefit of present and future generations. Their charter is to include the community in planning and implementation, and this is supported through Catchment Coordinating Groups (local, regional) and Waterways Management Authorities (local). The *Rights in Water and Irrigation Act 1914* and the *Waterways Conservation Act 1976*, together with the *Country Areas Water Supply Act 1947*, are the key pieces of legislation administered by the Board and the agency.
- *Environmental Protection Act 1986*: This Act is administered by the Department of Environment Protection (DEP) and the Environment Protection Authority (EPA), which are responsible for environmental impact assessment processes within the State, including proposals which may impact on vegetation. The Act also provides for statutory environmental protection policies (EPP) to protect any portion of the environment. EPPs are in place to protect nominated wetlands (including the fringing vegetation) of the south-west agricultural area and the Swan Coastal Plain.
- *Town Planning and Development Act 1928*: This Act, together with the *Western Australian Planning Commission Act 1985* and the *Metropolitan Region Town Planning Act 1959*, is the key legislation administered by the WA Planning Commission which provides advice to the Ministry for Planning on strategic land use planning, Town Planning Schemes, subdivision and development control, urban design and demographic trends. It implements approved planning strategies. They are supported in these roles by Regional Planning Committees and Local governments.
- *Land Administration Act 1997*: The Department of Land Administration (DOLA) is responsible for administration of Crown lands other than those reserved or vested in other agencies or authorities.
- *Rights in Water and Irrigation Act 1914*, administered by the Water and Rivers Commission (WRC)
- *Local Government Act 1960* administered by the Department of Local Government (DOLG) and Local Government Authorities (LGAs)
- *National Trust of Australia (WA) Act 1964*, administered by the National Trust
- *Waterways Conservation Act 1976*, administered by the WRC
- *Agriculture and Related Resources Protection Act 1976*, administered by AgWA and the Agriculture Protection Board (APB)
- *Mining Act 1978*, administered by the Department of Minerals and Energy (*DOME*)
- *Western Australian Planning Commission Act 1985*, administered by the Ministry for Planning (MfP) and WA Planning Commission (WAPC)
- *Rural Adjustment and Finance Corporation Act 1993*, administered by AgWA and the Rural Adjustment and Finance Corporation of WA Board (RAFCORB)

Policies, Strategies and Plans

WA attempts to coordinate NRM issues across portfolios, agencies, statutory authorities and the community through a range of structures and processes. Under the Salinity Action Plan, a Ministerial Committee (the Cabinet Standing Committee on Salinity Management) has been established and is advised by the State Salinity Council (SSC). While their primary focus is salinity, they are also addressing broader NRM and issues, including native vegetation. The SSC membership overlaps significantly with the NHT State Assessment Panel. The Ministerial Committee and SSC are supported by a coordinating group comprising the CEOs from each of the agencies with a key role in NRM.

Key State strategies include:

- Salinity Action Plan
- A Memorandum of Understanding (MOU) for the protection of remnant native vegetation on private land in the agricultural region of WA (coordinated by another inter-agency working group)
- State Planning Strategy
- Wetlands Conservation Policy
- NHT Partnership Agreement
- Urban Bushland Strategy
- Perth's Bushplan
- Managing the Rangelands
- A proposed WA Biological Diversity Conservation Strategy will complement new biodiversity legislation which is currently being developed.

These State strategies are designed to inform and support more specific regional strategies.

Institutional Arrangements

Government

State government is supported and advised by a range of community based boards. Statutory bodies include:

- Environment Protection Authority (EPA)
- Lands and Forest Commission (LFC)
- National Parks and Nature Conservation Authority (NPNCA)
- Pastoral Lands Board (PLB)
- Rural Adjustment and Finance Corporation of WA Board (RAFCORB)
- Soil and Land Conservation Council (SLCC)
- WA Planning Commission (WAPC)
- Water and Rivers Commission Board (WRCB)

Other non-statutory advisory boards include:

- State Salinity Council (SSC)
- Regional NRM Group Chairs
- Roadside Conservation Committee (RCC)

Government/Community

Various organisations have evolved to support NRM initiatives in places such as:

- Blackwood catchment of the south-west by the Blackwood Basin Group
- South Coast region by the South Coast Regional Initiative Planning Team (SCRIPT)
- Northern agricultural region via the Northern Agricultural Integrated Management Strategy
- North Eastern Goldfields via the Rangeways Project
- Gascoyne-Murchison via the Gascoyne-Murchison Strategy
- Avon catchment by the Avon Working Group
- Swan catchment by the Swan Working Group

Although these groups and their associated plans and strategies do not have a statutory basis, they are being supported by government, to a greater or lesser extent, and are evolving approaches to a wide range of NRM issues (including vegetation) and broader community-economy-environment regional development issues. They are characterised by growing community engagement, participation and involvement and were generally catalysed by a specific issue, such as the threat to livelihoods posed by dryland salinity. Although they are increasingly developing more comprehensive approaches to NRM which address the full range of objectives for the management of native vegetation, they require further development particularly in relation to the delivery of biodiversity outcomes.

Analysis

As with all other jurisdictions WA is grappling with the most effective way to develop government and community partnerships to tackle NRM problems in an integrated way. In WA this requires integration of policy and program responses across a suite of State government agencies with differing statutory and policy imperatives. To develop and implement successful policies, further coordination is required across scales ranging from State, regional, catchment and local.

Structures for improved coordination have been put in place through the Cabinet Standing Committee on Salinity Management, the State Salinity Council and the NRM CEOs and Senior Officers group. The roles of these groups are critical in developing synergies between policies and approaches for NRM.

A particular challenge facing the government is to improve the linkages between the strategic policies of the State government and the strategies and plans that are being developed through groups at regional and local scales. Integration between these processes is critical to ensure effective targeting and delivery of policies and programs. Such integration will require balancing of State-wide expertise and objectives with local/regional expertise, needs and aspirations.

Ministers, the CEOs coordinating group, Regional NRM Group Chairs and the State Salinity Council are currently developing new options for institutional arrangements that will:

- Support and build partnerships with local and regional structures to develop plans and strategies that cover the full range of NRM objectives, represented by all agencies
- Put in place a process of review to ensure these plans meet the statutory requirements of all NRM agencies
- Provide formal recognition of plans to give them greater public legitimacy and scope for implementation through government/community partnerships

The further development of effective new institutional arrangements is a key challenge for the WA government.

In addition to improved coordination between agencies and regional structures, there are more specific challenges that need to be addressed. For example, the State has committed to the development of legislation addressing biodiversity conservation and implementing a WA Biological Diversity Conservation Strategy. This initiative has the potential to address the urgent need to further integrate strategies for the conservation of biodiversity with other NRM strategies, particularly the Salinity Action Plan and region/local government/community planning processes. This is a significant challenge, as many of the existing regional

and local strategies have been developed predominantly to address sustainable primary production and land degradation processes and do not explicitly or adequately address biodiversity issues.

Another challenge relates to ensuring greater consistency between planning for rural lands through NRM agencies and the management of urban and peri-urban lands through land use planning and environmental assessment processes. This is particularly significant in relation to the regulation of urban subdivision and land use intensification along the coastal zone north and south of Perth. The development of Perth's Bushplan is a recent achievement in this area. A challenge is to extend similar arrangements to other regions experiencing similar development pressures. Related to this is the need to clarify the roles and responsibilities of Local governments and build their capacity to manage lands and issues for which they have responsibility.

A further challenge relates to addressing the need for government/community/industry adjustment to achieve sustainable NRM at landscape, catchment and sub-catchment scales. This issue is particularly relevant to the management of land degradation in the agricultural and pastoral regions of the State. Many policies act at a scale below that required to effectively address the broad scale land degradation processes. These are difficult issues for any government. However, because of the structural nature of many of the problems confronting these regions, particularly in relation to the management of salinity in the agricultural region and the viability of many pastoral leases, it remains a critical element of any best practice approach.

EVALUATION OF MECHANISMS

Planning and Assessment

Inventory and Mapping

WA is a large and biologically diverse State. Although much work remains to be done, there is a solid base of scientific knowledge and understanding of native vegetation and the role it plays in sustainably managing natural resources. A large number of studies have been undertaken and provide a broad overview of the State. These studies have been driven by policy imperatives and management needs and as a result have been undertaken at different scales and for different purposes. For example, State-wide analysis of the coverage of native vegetation has been undertaken at the scale of 1:500,000, whilst more detailed studies have been undertaken for individual areas and issues such as data collected to support the RFA process and Perth's Bushplan.

A key issue facing the State is the coordination and management of native vegetation and related data. A starting point has been the development of the Western Australian Land Information System, but this has not been developed for the purpose of coordinating all data related to NRM. As a result a key challenge will be to ensure data coordination mechanisms and information sharing protocols are developed. Improved technologies for accessing data are also required. This will provide the basis for undertaking a stocktake of the extent, scale and quality of existing data sets and for identifying and prioritising future data needs. The clarification of data management arrangements for NRM is an urgent task.

Biodiversity Status Assessment

A clear basis for biodiversity status assessment at IBRA scales and effective best practice methodologies for finer scale analysis have been developed. Due to the resource-intensive nature of finer scale studies, these will need to be carefully planned and targeted at high priority regions. There is a challenge to establish and maintain a long-term program to support biodiversity assessment in order to improve the targeting and delivery of conservation programs. Particular opportunities lie in reviewing the status of biodiversity on unallocated Crown lands and unvested Crown reserves and ensuring appropriate management regimes are put in place.

Regional Planning

Regional and local plans for native vegetation management are emerging, with some leading examples in agricultural regions, particularly within priority catchments under the Salinity Action Plan. As discussed the key issue for the State is to improve the linkages between these plans and the requirements of State agencies in meeting statutory requirements. A related issue is to establish cooperative arrangements that ensure community/government regional planning processes are adequately resourced and have access to the technical expertise and data held by State agencies. This will facilitate the development of robust regional strategies that address the full range of NRM issues, and that concurrently have strong community ownership.

Key Challenges

Improving the coordination, management and access to natural resource data, which is currently fragmented across government agencies. This will require the development of data management systems and information sharing protocols

Undertaking a stocktake of all existing NRM data sets to determine their extent, scale and quality in order to provide a basis for identifying gaps and targeting future data collection

Establishing and maintaining a long term commitment to biodiversity status assessment and ensuring that biodiversity values are integrated within State and regional natural resource strategies, plans and programs

Reviewing the status and management of native vegetation on unallocated Crown land and unvested Crown reserves

Ensuring regional planning by community/government groups effectively integrates the many NRM issues in any region, and is easily able to draw upon the expertise from and data held by different government agencies

Reserve System

There is a commitment to the establishment of a CAR conservation Reserve system. The current Reserve system is characterised by a large number of small reserves in agricultural regions and on the Swan Coastal Plain, and a much smaller number of larger reserves within pastoral regions, the arid interior and the far north of the State. The Reserve system for native forests has undergone a comprehensive review through the WA RFA process and as a result significant areas will be added to the formal Reserve system. In total 6.4% of the State is allocated to formal conservation reserves. In addition, more than two and half million hectares of pastoral leases are currently held by CALM for addition to the Reserve system. The issue of allocation and management of pastoral leases for conservation remains controversial, with tensions remaining between sustainable agricultural production and biodiversity conservation objectives. A key issue is to clarify the mechanisms through which the objectives of the Reserve system are to be met in pastoral regions.

However because of the diversity of natural landscapes within WA, there remain many gaps in the Reserve system. The aim is to address these gaps through a variety of strategies including acquisition, incorporation of high conservation value Crown lands that are currently unallocated, non-renewal in 2015 of designated leases in pastoral regions and secure management agreements on private and leasehold lands. An active program of land purchase for the Reserve system continues, with support from the National Reserve System program of the NHT.

In relation to management, all reserves are required to have management plans developed. Due to the large number of reserves, the program of developing management plans for individual reserves on a priority basis is augmented by regional plans that broadly cover all the reserves in a CALM region. Of the nine regions, five have management plans in place, two are in the process of development and two remain to be undertaken. Public consultation is required in the preparation of plans, which once put in place are legally binding on CALM. The plans are designed to be active documents that guide operational planning on an annual basis. Key management challenges relate to the management of threatening processes, particularly weed invasion, dieback, salinisation, feral animals and altered fire regimes.

Key Challenges

Continuing to acquire areas of poorly represented ecological communities for the Reserve system. This will require a variety of strategies including:

- acquisition of key high priority sites
- appropriate classification and management of unallocated Crown lands of high conservation value
- non-renewal in 2015 of designated leases in pastoral regions
- secure management agreements on private and leasehold lands

Strengthening the linkages between on and off-Reserve programs, particularly for highly fragmented ecological communities within the agricultural and urban/peri-urban regions that are poorly represented within the existing Reserve system

Clarifying mechanisms through which Reserve objectives are to be met on or within pastoral leases

Continuing to develop and put in place regional and locally specific management plans for conservation reserves and ensure these are linked to operational and budget planning

Communication and Capacity Building

Community Education

WA has a number of community education programs in place, primarily targeted at individuals involved in on-ground works, land managers and people with an interest in conservation. A few examples include CALM's Land for Wildlife scheme and Landscape magazine, AgWA's extension and advisory services, community Bushcare and Landcare support services, education programs of the Department of Environment Protection and communication of the development of Perth's Bushplan. Key challenges are to develop consistent communication programs between government agencies and the development of education programs for school curricula. A particular challenge is to communicate the scale and urgency of NRM issues to the broader community.

Landholder Support

WA has a long history in community education and agricultural extension, with a strong focus on primary production issues. Nature conservation communication services have traditionally focused on the role of the Reserve system and protection of wildlife. However in the last five years, dedicated extension programs for native vegetation conservation have emerged, including highly successful programs such as 'Land for Wildlife' and 'Ecoplan'; and more recently the active network of Bushcare advisors (both government and non-government), mainly servicing the south-west.

There are currently more than 100 publicly funded facilitators/coordinators/advisors devoted to extension services for NRM in WA, particularly through funding from the Bushcare, Landcare and Rivercare programs. A relatively small proportion of these facilitators are focussed on providing advice on the management of native vegetation. Key challenges relate to building the capacity and core competencies of all local facilitators to address both sustainable production and nature conservation objectives to ensure consistent advice is given to landholders. Further, a careful balance needs to be struck between extension services that are attached to local structures, including LCDCs and Local governments, and the maintenance of State agency-based extension services aimed at developing over-arching programs and coordinating delivery at a grassroots scale.

Another issue is the provision of extension services to individual landholders including those who are not active in Landcare or similar organisations. Land for Wildlife is performing this function for biodiversity conservation, with modest resources. There is also a need to ensure that extension services provided by the private sector, including those attached to agribusiness and farm management consultants, are aware of and able to advise on the full range of native vegetation management options.

Revegetation 'Hardware'

Revegetation and native vegetation management programs are currently having their needs for basic equipment and native vegetation seed and seedlings met. Where required local organisations, such as LCDCs

and Local governments, generally provide basic equipment and services. Commercial nurseries are increasingly meeting seed and seedling requirements. Challenges relate to ensuring that adequate supplies of local provenance seed are available to and used by commercial nurseries and providing lists of appropriate species to local groups. In the longer term, improving technologies for seed collection, direct seeding and harvesting of oil mallee and other products derived from native vegetation will be required to encourage larger scale revegetation.

R&D

WA has a relatively strong scientific base and knowledge. There is a solid commitment to the integration of scientific expertise and research within government agencies both in relation to policy development and program design. Most government funded research is directly related to specific strategies, policies or programs. The strategic plans of agencies and whole of government initiatives such as the Salinity Action Plan provide a framework for identifying research needs, and the WA Biological Diversity Conservation Strategy will help do so when developed. While several State agencies have well developed research capacity and programs, there is nevertheless also reliance on independent research organisations for research on the management needs of native vegetation. Challenges relate to the need to develop connections between research on the management, rehabilitation and re-establishment of native vegetation and research on new agricultural technologies that often work against native vegetation objectives. Another challenge arising from public sector funding constraints is to employ, train and retain younger scientists within government agencies.

While measurement and monitoring of the extent of vegetation are relatively straightforward, more effort is required to determine how to measure and monitor the quality (or condition or health) of vegetation, in order to meet the goal of reversing the long-term decline in the quality of native vegetation cover.

Key Challenges

Securing a whole-of-government approach to communication on native vegetation and NRM issues, including in relation to formal school curricula

Coordinating across agencies and NGOs the delivery of services and policy objectives to ensure a consistent view is put to the community, particularly in relation to extension services. This will involve:

- developing improved linkages between different extension services including Bushcare, LCDCs and Landcare
- building the core competencies of local extension officers, for example those attached to LCDCs and Local governments, to deliver against both sustainable production and nature conservation objectives
- continuing the development of extension services targeted at individual landholders through programs such as Land for Wildlife

Identifying appropriate information needs to encourage best practice native vegetation management and development of technologies for larger scale revegetation

Identifying research and development needs and improving coordination with research on new agricultural technologies

Developing methodologies for measuring and monitoring the quality of native vegetation

Incentives

WA has a mixture of different grant structures including:

- the Remnant Vegetation Protection Scheme which provides direct grants for fencing to protect native vegetation on private property
- targeted funding of priority on-ground works through the Salinity Action Plan including: natural diversity recovery catchments, water resources recovery catchment, focus catchments, and a rural towns rescue program
- non-government sector via organisations such as Greening Australia WA, the World Wide Fund for Nature Australia and the Gordon Reid Foundation for Conservation
- private sector programs, such as on-ground programs supported by Alcoa

Through these programs the State is committed to achieving a balance between community driven grants, and programs that are targeted to high priority sites and issues. A key challenge is to foster greater consistency between targeted and community based grant programs and supporting devolved delivery by regional structures by developing clear criteria for targeting programs. WA's grant programs are significantly boosted with Commonwealth funding through the NHT, and will still struggle to meet the challenge of reversing degradation problems within agricultural regions. A key challenge will be to secure long term funding for these programs following the current NHT term.

In common with other jurisdictions, WA has made limited use of incentive, property right and market-based mechanisms. A fuller suite of incentives and property agreement/covenant arrangements is in the process of being developed by the government and non-government sectors. Relevant activities include the following:

- In April 1999 the National Trust established a program that enables landholders to enter conservation covenants at arms length from government
- CALM is working towards implementing the government's commitment to establish an independent Trust for Nature that would have the capacity to enter into conservation covenants, receive donations, operate a revolving fund and so on
- A range of measures are being considered for the implementation of Perth's Bushplan, to which the State government has committed \$100 million over the next 10 years. Mechanisms being considered include management agreements, conservation covenants, land swaps, rate relief, land donations with leaseback arrangements, revolving funds, and voluntary group purchase

In relation to development of commercial markets for native vegetation products, there has been considerable development in the establishment of blue gum and oil mallee plantations. Blue gums are well established as a

commercial crop, although there is some distance to go in developing viable technologies and markets for mallee oil and other native products in lower rainfall regions. Significant effort is being directed towards exploring the commercial potential of a wider range of native plants.

A final set of challenges relate to targeting structural adjustment programs toward strategic protection of high conservation value native vegetation.

Key Challenges

Developing consistent objectives and criteria at State, regional and local scales for targeting funding and incentive programs and, where appropriate, devolving delivery to regional and local organisations and other non-government organisations

Securing long term funding for the grant and incentive programs required to secure structural land use change

As a matter of priority moving to put in place, adequately resource and promote new incentive structures including covenanting programs, rate rebates and revolving funds

Removing disincentives such as land tax and Local government rates where landholders make secure, long-term commitment to the protection of native vegetation

Strategically targeting Commonwealth and State Rural Adjustment resources to protect and manage areas of native vegetation, within a catchment framework

Extending off-Reserve mechanisms (such as those detailed in Perth's Bushplan) to State-wide application

Regulatory Arrangements

Threatened Species/Ecosystem Protection

The process for listing and the preparation and implementation of recovery plans for threatened species and ecological communities is heading in the right direction, as demonstrated by the successful recovery of several species through the WA program, although the size of the task outweighs the resources available. Processes for public nomination of threatened species, scientific assessment and recovery planning are in place. There is a strong base of volunteer activity to support the program. However, WA's threatened species legislation is outdated and threatened ecological communities are not covered. It is intended that these issues will be addressed in the proposed new biodiversity legislation.

Land Clearance Regulation

Since 1995 WA has controlled the clearing of vegetation through procedures which explicitly address nature conservation as well as land degradation values. These procedures were formalised in a 1997 Memorandum of Understanding between the key NRM agencies, using a range of existing legislative mechanisms. The approach has been to require landholders to apply to clear native vegetation and then subject these applications to a four level assessment process. The assessment process involves assessment by the Commissioner of Soil and Land Conservation and, if the issues of concern are beyond the powers of the Commissioner, the Environment Protection Authority (EPA). Four agencies (AgWA, CALM, DEP and WRC) bring their information and perspectives to this process is working to regulate land clearance, although the assessment process has at times proven cumbersome.

The approach taken has been to avoid developing new legislation to specifically regulate land clearing. However, in the preparation of this report, concerns have been expressed about the effectiveness and enforcement of the existing clearing controls. Issues warranting further refinement in the current approach relate to the consideration of biodiversity values and criteria for determining the conservation significance of sites proposed for clearing. The proposed biodiversity legislation may provide an opportunity for strengthening the legislative base through which biodiversity values are taken into account in assessment processes, including land clearing. Also, the role of the Environment Protection Authority in evaluating proposals for clearing could be tightened and clarified.

Outside the agricultural regions, areas in the south-west of the State are regulated through land use planning and environmental assessment processes. As noted, a comprehensive strategy for the Perth metropolitan area has been developed. The challenge is to ensure the program put forward in the Perth Bushplan is implemented and to extend this program to other urban and peri-urban regions subject to urban and rural subdivision and land use intensification pressures.

In pastoral regions the major threat to native vegetation is degradation through grazing pressures. Stocking levels are regulated through the *Land Administration Act*, administered through the Pastoral Lands Board. The Act contains the explicit requirement that pastoral leases be managed on an ecologically sustainable basis. Maximum stocking rates are set for each lease, but there is also significant grazing pressure from feral herbivores as well as native animals. Improved monitoring by leaseholders will help them make better decisions about grazing and land management. AgWA maintains on-going monitoring at a regional scale which is complemented by five-yearly lease condition reports. Improved monitoring and assessment of pastoral leases has the potential to reduce pressures on arid lands. Current monitoring arrangements do not take adequate account of biodiversity values. Further, to be effective monitoring and enforcement arrangements will require improved consultation, compliance mechanisms and appropriate structural adjustment.

Codes of Practice

WA has very few codes of practice in place that are directly relevant to the management of native vegetation. A range of voluntary guidelines/codes have been developed for specific issues, for example roadside vegetation management, flower and seed collection and apiculture. Some industries, particularly the mining industry, are active in the development of environmental codes of practice. All of these codes are of an informal nature and do not directly affect regulatory, licensing and approval processes. Guidelines for assessment against State legislation have been developed by a number of government agencies, the most notable being the guidelines for applying the MOU on vegetation clearance. These guidelines are maintained and reviewed by State agencies, with input and oversight from relevant community-based statutory bodies.

Overall the State has a clear understanding of the need to separate the development and use of voluntary codes of practice and formal approval processes. The only challenge is to continue to foster improved management of native vegetation, particularly in industries that make direct use of, or harvest products from, native vegetation.

Key Challenges

Ensuring that adequate monitoring of biodiversity in the rangelands is in place and that adequate compliance mechanisms are applied

Improving the linkages and consistency between the regulation of native vegetation clearing on rural lands and urban land, particularly in relation to the application of land use planning legislation to subdivision and changes in land use

Refining the clearing control processes on agricultural lands, including ensuring biodiversity values are better taken into account

Clarifying the role of the Environment Protection Authority in the clearing control processes

Improving the legislative base for biodiversity conservation. This should include providing an updated legislative base for the endangered species program which allows listing of ecological communities

Monitoring and Evaluation

A State of the Environment reporting framework is in place that uses indicators of the extent and condition of native vegetation. Baseline studies have been undertaken to establish the broad cover and distribution of native vegetation across the State. More detailed studies are required to establish finer scale indicators based on ecological communities in key regions.

Although the CALM Biological Survey Program and CALM/AgWA Land use and Vegetation Mapping projects are contributing to state-wide assessment of native vegetation condition, significant research and development is still required.

Within agricultural areas indicators are being developed under the Salinity Action Plan. In common with other jurisdictions, there is some distance to go in developing robust indicators for the extent, and especially the quality, of native vegetation.

Key Challenges

Coordinating existing monitoring and evaluation activities and developing a strategic plan that is focused on management needs, develops clear baseline indicators and that is realistic in terms of resource constraints

Developing an improved scientific understanding of management needs of different types of native vegetation which more effectively target and deliver programs for the conservation, management, rehabilitation and reconstruction of areas of native vegetation

WESTERN AUSTRALIA STOCKTAKE

KEY STRENGTHS

Commitment to the development of more integrated approaches to NRM.

Marked reduction in the level of vegetation clearing.

Extensive revegetation activity.

Commitment to the development of a CAR Reserve system.

Memorandum of Understanding between agencies for the protection of remnant vegetation on private land in the south-west agricultural area.

Grant programs that balance the need for community-based and targeted delivery. Examples include the incentive and stewardship programs such as the Remnant Vegetation Protection Scheme and Land for Wildlife, which support landholders to make long-term commitments to the conservation of native vegetation.

Urban Bushland Strategy and Perth's Bushplan, which can be extended state-wide.

Increasing focus on the pastoral rangelands, for example through the 'Managing the Rangelands' policy and the Gascoyne-Murchison Strategy.

KEY CHALLENGES

Threat to natural resource base, including native vegetation: The key overarching issue confronting WA is to address land degradation processes, some consequences of which include the loss and fragmentation of remaining native vegetation, particularly within agricultural regions. Long-term, large-scale policy and program responses are required. WA is progressing and putting in place many mechanisms. However, in common with other jurisdictions it will take a sustained and increased commitment over a long period of time to adequately address the NRM issues confronting the State. The State Salinity Action Plan is endeavouring to coordinate and target agency and community resources and effort to address major degradation associated with dryland salinity in the south-west agricultural area.

Integrated NRM within and between government and agencies: An acknowledged challenge is to integrate statutory processes and activities of State agencies involved in NRM. There is a need to continue to develop institutional arrangements that actively support and build agency/agency partnerships.

Integrated NRM and agency/community partnerships: An important challenge is to succeed with current efforts by Ministers, the CEOs coordinating group, Regional NRM Group Chairs and the State Salinity Council to devise new institutional arrangements that will support and build equitable partnerships with local, sub-regional and regional structures to develop plans and strategies that cover the full range of NRM objectives, with input from the broad community and all relevant agencies. This should involve ensuring these plans meet the statutory requirements of all NRM agencies. It may also require formal recognition of plans in order to give them greater public legitimacy and provide more scope for implementation through government/community/industry partnerships.

Prioritising: The development and application of regulations, policies and programs for the management and monitoring of native vegetation is a large task. Determining the 'most important' next steps is critical in order to most effectively confront the many challenges.

Biodiversity legislation: There is a need for integrating policies for the conservation of biodiversity with other NRM strategies through the proposed biodiversity legislation and supporting strategy, each of which have been on the forward agenda for some time. A strengthened legislative base is required for both the endangered species program and the consideration of biodiversity values in assessment processes.

Clearing controls: The aforementioned biodiversity legislation is one element of refining clearing control processes which should also involve clarification of the role of the Environment Protection Authority. There is also a need to further improve the linkages and develop consistency between the regulation of native vegetation clearing on rural lands and urban land, particularly in relation to the application of land use planning legislation to subdivision and changes in land use.

Data and assessment: Improving the coordination and management of data relating to NRM, which is currently fragmented across government agencies. This will require the development of data management systems and information sharing protocols. A stocktake of existing data sets to determine the extent, scale and quality would provide an improved basis for identifying future needs for data collection.

Reserve system: Continuing to identify and fill gaps in the Reserve system through acquisition and formal reservation, as well as through complementary programs on private and leasehold lands. Resolving biodiversity and nature conservation management, especially in arid lands, unallocated Crown lands and pastoral grazing lands, is a particular priority.

Extension services: Coordinating and building the competencies of extension programs and officers to facilitate joint learning about sustainable production and biodiversity conservation.

Incentives: Implementing and adequately resourcing emerging incentive structures for the conservation of native vegetation at an appropriate scale, including supporting the delivery of innovative programs by the non-government sector.

Pastoral land management: Ensuring pastoral leaseholders are operating their production enterprises in an ecologically sustainable way. This will require continuing development and maintenance of adequate monitoring and compliance mechanisms, particularly in relation to biodiversity conservation.

Structural adjustment: Where necessary, facilitating further structural adjustment of rural industries to aid the achievement of biodiversity and landscape conservation goals.

Monitoring and evaluation: Coordinating existing monitoring and evaluation activities and developing a strategic plan that is focused on management needs, develops clear baseline indicators and is realistic in terms of resource constraints.