Productivity Commission Inquiry into
the Impacts of Native Vegetation and Biodiversity Regulations

Submission by the Department of the Environment and Heritage

Introduction

The Australian Government Department of the Environment and Heritage welcomes the opportunity to make a submission to the Productivity Commission Inquiry into the Impacts of Native Vegetation and Biodiversity Regulations.

The past seven years have seen major reform to the management of biodiversity and native vegetation in Australia. These reforms were driven by the need to deliver better environmental outcomes in a manner that increases certainty for all stakeholders, reduces intergovernmental duplication, increases transparency of decision-making, and minimises delay.

At the Council of Australian Governments meeting in 1997 (COAG 1997), all Heads of Governments and the President of the Australian Local Government Association gave in-principle endorsement to the *Heads of Agreement on Commonwealth/State Roles and Responsibilities for the Environment*. The Agreement aimed to define roles and responsibilities, to remove duplication and establish more effective and efficient delivery mechanisms and accountability regimes for national environmental programs of shared interest.

The Australian Government's approach to meeting its national responsibilities for biodiversity conservation and native vegetation management is outlined in *National Framework for the Management and Monitoring of Australia's Native Vegetation*, the 2001 *Commonwealth Native Vegetation Policy*, and the *National Strategy for the Conservation of Biological Diversity*. The approach includes nationally agreed goals; setting management standards; improving access to information; education and training; supporting innovative approaches such as market driven approaches, or incentives such as tax deductions; regulation; increasing efficiency of existing regimes; and monitoring to measure progress.

Since 1996, reforms to Australian Government biodiversity conservation legislation have included the implementation of the *Environment Protection and Biodiversity Conservation Act 1999* (the EPBC Act).

The EPBC Act provides a regulatory framework to protect matters of national environmental significance, including threatened species and ecological communities. The Act reflects a national approach to environmental management and it clearly and logically defines Australian Government roles, thus providing a framework to reduce the potential for intergovernmental overlap and duplication. In the event that an action requires approval under the EPBC Act, the Act provides for accreditation of State and Territory assessment processes to avoid intergovernmental duplication.

The reforms to environmental legislation through EPBC Act are complemented by the *Natural Heritage Trust of Australia Act 1997* (the NHT Act). The NHT Act established a Trust for the largest ongoing program of environmental repair in Australia's history. The $2.7 billion Natural Heritage Trust represents the biggest financial commitment to environmental action by any Australian Government.

In 2001-02 alone, protection of remnant native vegetation and revegetation works through Natural Heritage Trust projects covered over 32,000 square kilometres with 640 projects. More than 10,000 people participated in native vegetation management and restoration training activities delivered regionally.

One of the highest priority environmental objectives being addressed by the Australian Government through the Natural Heritage Trust is to substantially reduce clearing of native vegetation. As announced by the Deputy Prime Minister, the Hon John Anderson MP, the Australian Government's objective is to ensure that, for the first time since European settlement, the rate of revegetation in Australia exceeds the rate of vegetation clearance (CoA 1996). The *National Framework for the Management and Monitoring of Australia's Native Vegetation*, unanimously agreed by all agriculture and environment Ministers through the Natural Resource Management Ministerial Council in August 2001, provides a framework for achieving this goal.

A National Action Plan for Salinity and Water Quality (the National Action Plan) was endorsed by the Prime Minister, Premiers and Chief Ministers at the Council of Australian Governments in November 2000 (CoAG 2000). The National Action Plan involves a funding package of $1.4 billion from the Australian, State and Territory governments. Recognising that land clearing in salinity risk areas is a primary cause of dryland salinity, all governments agreed that effective controls on land clearing are required in each jurisdiction. As part of the package, governments agreed that any Australian Government investment in catchment/region plans will be contingent upon land clearing being prohibited in areas where it would lead to unacceptable land or water degradation, and that vegetation management regulations be used or, where necessary, amended to combat salinity and water quality issues.

1. Impacts on landholders and regional communities

The EPBC Act applies to actions that are likely to have a significant impact on matters of national environmental significance. Decisions are made case-by-case on whether an action is likely to have significant impact and so requires Australian Government approval. In contrast to most State and Territory vegetation protection legislation that directly regulates the clearing of areas of native vegetation, the EPBC Act does not specifically apply to native vegetation *per se*. Rather the EPBC Act is triggered only when a specific action has a significant impact on a matter of national environmental significance such as listed threatened species. The matters of national environmental significance and a diagrammatic representation of the referral, assessment and approval process under the Act is provided at Appendix 1.

The EPBC Act does not apply to actions that were authorised before the commencement of the Act in July 2000 or represent a lawful continuation of land use started before July 2000 and continued in the same place without any enlargement, expansion or intensification. Accordingly, the overwhelming majority of agriculture activities do not trigger the EPBC Act. Examples include routine grazing (including periodic grazing), cropping and crop rotation, maintenance of existing dams, roads and fences, and continuation of existing weed control programs.

Even for actions that come within the scope of the EPBC Act, experience has been that the actions of individual farmers rarely meet the threshold test of having a 'significant impact' on a matter of national environmental significance as defined in the Act. Typically, actions by individual farmers impacting on native vegetation and biodiversity will trigger the Act only when they have a significant impact on nationally protected species or ecological communities, whether threatened or migratory. The vast majority of agricultural activities undertaken in Australia, by themselves, do not have a significant impact on protected species or ecological communities *per se* even if they might impact on individual members of the species or parts of a protected community.

In the unlikely event that the operation of the EPBC Act would result in the acquisition of property from a farmer or other landholder, then the Act provides for appropriate compensation in accordance with the Constitution.

That regulation of agricultural activities under the EPBC Act has had minimal impact on farming practices and productivity is borne out by the statistics. Table 1 details the actions that have been subject to the EPBC Act. As at 31 July 2003, a total of 958 actions have been referred during the three years since the commencement of the Act on 16 July 2000. Of the processed referrals only 27 were for activities in the agriculture and forestry sector. Seventeen of these actions were determined not to be controlled actions (or were withdrawn or lapsed) so therefore could proceed without the need for assessment or approval under the EPBC Act.

Of the ten agriculture and forestry actions requiring assessment and approval, one was withdrawn, three have been approved and one was rejected on the basis of its unacceptable impact on a listed threatened species. Five are currently undergoing assessment. All the ten actions are detailed in Table 2.

Some controlled actions in other sectors also have implications for farmers and landholders in a general sense. For example, major infrastructure projects in water management and use include the Paradise and Nathan Dams in Queensland and the Meander Dam in Tasmania. Such projects are invariably subject to State Government assessment and approval regimes and the Department works closely with relevant State agencies to ensure accreditation of, or coordination with, State processes.

To put the ten controlled actions within the agriculture and forestry sector into context, it should be noted that for the 12-month period to June 2000, there were 146,000 agricultural enterprises having an estimated value of agricultural operations of $5,000 or more with 319,000 people employed in agricultural businesses (ABS 2001). The Australian Government provided assistance equivalent to $657 million to the land, labour and capital resources used in agricultural sector (Productivity Commission 2002).

Additionally, through the Natural Heritage Trust established under the NHT Act, the Australian Government has provided very significant assistance to land managers to help with their vegetation protection and management activities.

Table 1: Actions subject to the EPBC Act since commencement (as at 31 July 2003)

Industry sector	Referrals	Controlled actions	Non-controlled actions & withdrawals*
Urban & commercial new development	179	28	151
Mining	100	45	55
Tourism, recreation & conservation management	91	16	75
Land transport	90	19	71
Energy generation & supply	81	23	58
Exploration - mineral, oil and gas	78	6	72
Water management & use	52	9	43
Waste management	41	8	33
Aquaculture	38	13	25
Water transport	35	11	24
Manufacturing	34	14	20
Urban & commercial redevelopment	31	1	30
Agriculture & forestry	27	10	17
Communication	27	2	25
Sale/lease of Commonwealth property	21	0	21
Defence	14	4	10
Science, research & investigations	11	0	11
Air & space transport	8	4	4
Totals	**958**	**213**	**745**

* Referrals that have been withdrawn or have lapsed are included here.

Table 2: The agriculture and forestry actions that have been subject to the assessment and approval provisions of the EPBC Act

Proposed Action*	**Method of Assessment**	**Status**
To expand the area of irrigated cotton to 810 hectares on a property in central New South Wales	Public Environment Report	Clock stopped. Proposal refused by NSW
To develop and operate expanded facilities (capacity of 1,030,700 tonnes) at a grain receival silo near Esperance in Western Australia	Preliminary Documentation	Approved
To construct and operate a rotary dairy shed and effluent management system on a farm in central Victoria	Preliminary Documentation	Approved
To remove existing vegetation and plant 26,000 hectares of hardwood plantation in the Tiwi Islands	Preliminary Documentation	Approved
To use an electric grid to take or destroy approximately 5,500 Spectacled Flying-foxes at an orchard in north Queensland	Preliminary Documentation	Rejected
To clear approximately 93 Buloke trees and install a centre-pivot irrigation system over 64 hectares of land on a farm in the Wimmera region of Victoria	Preliminary Documentation	Approval phase (awaiting notice from State under s130(1B) of the Act)
For the local community to undertake an annual harvest of red-footed booby birds in the Cocos(Keeling) Islands		Awaiting Preliminary Information from proponent
To convert broadacre dryland cereal production across 10,000 hectares on a farm on the Whala floodplain in New South Wales to irrigation	Environment Impact Statement (Accreditation of State process)	Proponent preparing EIS
To harvest approximately 6000 Red Gums from an area of 1,600 hectares in the Wimmera region of Victoria and replant with Red Gum and Blue Gum plantation		Awaiting Preliminary Information from proponent

* A proposal to construct and operate a cattle feedlot with feeding capacity of 1975 domestic trade cattle near Milang in South Australia was withdrawn in September 2003.

As noted above, impacts on nationally protected species or ecological communities are most likely to be the reason for actions of farmers to be controlled under the EPBC Act. This reflects the situation more generally where impacts on protected species are controlling provisions in almost eighty per cent of controlled actions (although controlled actions often have more than one controlling provision). Conceptually, therefore, it is difficult to envisage how or why the farming sector might be treated differently from other sectors, particularly given other sectors are more affected by the protection of species and communities afforded by the Act both in overall numbers of referrals and in the overall value of projects.

Details of the number of actions by industry sector for which protected species are controlling provisions are provided in Table 3.

Table 3: Distribution of controlled actions for protected species between industry sectors*

	Controlling Provisions	
Industry Sector	**Listed threatened species**	**Listed migratory species**
Mining	37	16
Energy generation & supply	19	17
Urban & commercial new development	24	7
Land transport	17	8
Tourism, recreation & conservation management	12	9
Water transport	8	11
Manufacturing	8	9
Water management & use	8	7
Aquaculture	7	8
Agriculture & forestry	4	7
Exploration - mineral, oil, gas	5	5
Waste management	6	4
Air & space transport	3	4
Defence	2	2
Communication	1	1
Urban & commercial redevelopment	1	0

* Note that these figures do not add to the number of controlled actions. Many controlled actions have two or more controlling provisions.

Despite the small number of agriculture and forestry activities that have triggered the Act and the relatively low impact on the farming sector, the Department recognises there is a public perception, reflected in the media and in submissions to this inquiry, that Australian Government legislation is causing a significant impact on agricultural activities. Responding to this situation, the Department has put in place a number of initiatives to support landholders in meeting their obligations under the EPBC Act and to protect matters of national environmental significance. These initiatives include:

- Publication of a range of Administrative Guidelines on Significance to help people to decide whether their actions are likely to impact significantly on matters of national environmental significance.
- Publication of a range of related publications including fact sheets, consultation papers, plans and booklets.
- Development of an award winning EPBC web site including the above publications plus all decisions under the Act, reports and statistics and other news and information about the Act, and an interactive map to find matters that may occur in an area.
- Funding for an EPBC Act information officer seconded from the Department to the National Farmers' Federation to assist farmers in their interactions with the Act.
- Preparing new information materials, including a web-site upgrade specifically for farmers.
- Providing specific assistance to farmers through site visits and funding support for their efforts to protect matters of national environmental significance.
- Development of new incentive programs.
- Reviewing the EPBC Act Administrative Guidelines on Significance to ensure the views and concerns of stakeholders, including farmers, are adequately dealt with.

CASE STUDY

Protection of Brigalow, Queensland

The Brigalow ecological community is protected under the EPBC Act as an endangered ecological community. Not all Brigalow country is within the listed community, however, as the listed community must retain the species composition and structural elements only found in undisturbed areas.

The EPBC Act information officer seconded to the National Farmers' Federation assisted a Queensland farmer who wished to develop his 5000 hectare property containing large areas of Brigalow, not all of which constituted the listed community. The officer visited the property with an officer from the Queensland Department of Natural Resources and Mines to identify the listed community and assist the farmer with his proposal. The farmer then submitted an EPBC referral to clear 2300 hectares of Brigalow country but to protect an important 1100 hectares of the listed community that had never been cleared. The proposal was constructed such that areas of remnant Brigalow mapped by the Queensland Herbarium were retained and protected under the Queensland *Vegetation Management Act 1999*. The farmer also proposed to develop a Property Vegetation Management Plan (as required under State legislation) to protect remaining remnant stands of Brigalow and to maintain suitable buffer areas adjacent to the remnant stand.

The Australian Government is funding surveys and assisting the farmer with the development of his plan, which is required under Queensland legislation prior to any Queensland approval to clear. By involving a Queensland Government officer in assisting the farmer, the EPBC Act Information Officer ensured that Commonwealth considerations were consistent with Queensland requirements in relation to native vegetation retention.

As a result, when this proposal was referred under the provisions of the EPBC Act the decision was made that it was not a controlled action (that is it did not require assessment and approval under the provisions of the Act) if the steps described above were undertaken.

2. Efficiency and effectiveness of environmental regimes

The streamlining of the assessment and approval processes under the EPBC Act has resulted in an efficient and timely process with the following outcomes:

Improved environmental outcomes for matters of national environmental significance
The EPBC Act provides improved protection for matters of national environmental significance. A major deficiency of the previous regime was that Australian Government involvement in environmental matters was determined by *ad hoc* and indirect triggers, such as foreign investment approval and Australian Government funding decisions. Under those laws, the Australian Government was often not able to contribute to an issue of genuine national environmental significance because of the absence of an indirect trigger. Conversely, the Australian Government was often involved in issues of State or local environmental interest simply because it was making separate decisions about foreign investment or other non-environmental issues.

Reduced duplication
Australian Government responsibilities and interests are now focused on matters that are of agreed national environmental significance. State and Territory assessment and approval processes can be accredited to streamline the operation of the Act and avoid duplication between the governments. The Australian Government has entered into bilateral agreements with Tasmania, the Northern Territory and Western Australia that formally accredit the assessment processes in these jurisdictions. A bilateral agreement with Queensland is well advanced and it is expected that it will commence shortly. The Australian Government is awaiting a response from New South Wales on progressing finalisation of a bilateral agreement. Victoria and the ACT have indicated a willingness to enter into bilateral agreements once they have completed reviews of their environmental assessment processes and legislation which are currently underway. South Australia is still considering their position. In the absence of accreditation through a bilateral agreement, State and Territory assessment processes can be accredited case-by-case.

In situations where accreditation under a bilateral agreement or case-by-case accreditation is not possible or appropriate, the Department of the Environment and Heritage cooperates with State and Territory governments and the proponent to avoid unnecessary duplication to the greatest extent practicable. Such measures can substantially reduce cost for proponents, confusion for stakeholders and ensure all relevant impacts are addressed in a timely and coordinated manner.

The Australian Government is working with the States and Territories to better coordinate the listing of threatened species and ecological communities. The Threatened Species Scientific Committee, established under the EPBC Act, has regular contact with its counterparts in the States and Territories to remain informed on the current nominations and listings in other jurisdictions. As part of the listing process, States and Territories are contacted for expert advice on the conservation status of the species or community and are formally invited to comment on all proposed listings.

Greater 'up-front' certainty
The EPBC Act relies upon direct, specifically defined environmental criteria. Proponents will therefore know up-front whether a project or activity will trigger the involvement of the Australian Government. If the proponent is in any doubt as to whether the legislation applies, the matter may be referred to the Australian Government Environment Minister for a binding decision within 20 business days on whether assessment and approval is required. The proponent can then confidently rely on this binding decision. In some cases, even though proponents may hold the view that the impact of their proposals on matters of national environmental significance is insignificant, they will refer under the EPBC Act for due diligence purposes to obtain a formal decision that the project is not subject to the Act.

Guidelines are available to assist people to determine whether an action is likely to have a significant impact on a matter of national environmental significance and thus needs to be referred under the EPBC Act. These guidelines are accessible on the Department of the Environment and Heritage website.

Greater openness and transparency
A key objective of the EPBC Act is 'to promote a co-operative approach to the protection and management of the environment involving governments, the community, land-holders and indigenous peoples'. To achieve this,

the EPBC Act promotes a partnership approach to environmental protection and incorporates extensive opportunities for community consultation, including opportunities for the community to contribute comments throughout the assessment process. The Australian Government has introduced several innovative measures to improve transparency of decisions made under the EPBC Act and awareness and understanding of the Act in the agriculture sector. This is further detailed in section 4.

More effective and efficient decision-making

The EPBC Act defines specific statutory timeframes within which decisions must be made. These provisions ensure a timely and efficient assessment and approvals process. These timeframes can be extended only in strictly limited circumstances. In the April 2003 audit report *Referrals, Assessments and Approvals under the Environment Protection and Biodiversity Conservation Act 1999*, the Australian National Audit Office (ANAO) concluded that 'the timeliness of decision-making is generally in accordance with the time frames specified in the Act' (ANAO 2002). The ANAO also concluded that 'generally, the actual total time that elapses during the decision-making processes compares favourably with similar processes at State and Territory level'.

Improved consideration of environmental, economic and social factors

The EPBC Act requires that, in deciding whether to grant approval, the Australian Government Environment Minister must consider any impacts on matters of national environmental significance and economic and social matters. In considering these matters, the Minister is required to take into account the principles of ecologically sustainable development including that 'decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations.'

Changing behaviour

Increasingly proponents are designing their proposals in a way that both meets their management objectives and avoids significant impacts on matters of national environmental significance. This changing approach to managing the environmental impacts of an activity reduces regulatory intervention in projects while minimising impacts on matters of national environmental significance.

CASE STUDY

Protecting habitat for the endangered Red-tailed Black Cockatoo in West Wimmera Shire, Victoria

The Red-tailed Black Cockatoo – southeast variant occurs over a restricted range in western Victoria. Fewer than a thousand individuals are thought to remain in the wild and the population is declining.

Ongoing threats to the cockatoo include clearing of Buloke trees that are an important part of their habitat as they provide a seasonal foraging resource. Buloke trees are found on richer soils that have been intensively cleared within the West Wimmera Shire. Nevertheless, many trees remain in roadside reserves, in undeveloped farm areas and as single paddock trees. Single paddock trees generally provided much less important habitat than clusters of trees.

Many farmers in the West Wimmera Shire are seeking to install pivot irrigation systems to produce clover seed for domestic and overseas sale, as part of ongoing farm diversification. These systems require the clearing of paddock trees, including Buloke trees, to allow the pivot to run.

The Department has undertaken consultations and site visits with farmers, the Wimmera Shire Council, the Victorian Department of Sustainability and Environment and other stakeholders to promote understanding of the EPBC Act and issues involved. The Department's proactive involvement has fostered a common understanding amongst stakeholders of EPBC Act requirements and the habitat needs of the cockatoo, as well as identifying practical measures to allow ongoing flexible and sustainable use of the land.

Four referrals have been made under the EPBC Act for the clearing of substantial numbers of Buloke trees to establish pivot systems. Three have been determined not controlled actions because, even though some Buloke trees would be destroyed, the actions also involved protection of higher density areas of Buloke trees on their property and/or suitable replanting programs. One proposal has been determined a controlled action and, at the time of writing, is at the approvals stage.

The Department has found that farmers are willing to design and implement pivot systems that avoid impacts on habitat for the cockatoo as far as practical, and to replace habitat lost by replanting or rehabilitating disturbed habitat.

3. Economic and social impact assessments

Assessment and approval under the EPBC Act
When undertaking assessments of individual actions under the EPBC Act, economic and social matters must be considered when making an approval decision and determining what conditions should be attached to the approval. Information on economic and social matters is obtained from a number of sources including from:

- Australian Government Ministers with administrative responsibilities relating to the action who are invited to comment on the approval decision
- the proponent in the preliminary information required for the assessment to be undertaken
- the assessment documentation
- interested community members who may also comment on social and economic matters through the opportunities available for consultation.

Further information may also be sought, including from the proponent, if it is considered that there is inadequate information to make an informed decision on an activity, including in relation to social and economic matters.

Integrated consideration of environmental, social and economic matters ensures that approval decisions provide for the protection of matters of national environmental significance and reflect the short and long-term social and economic benefits or costs of the proposed action.

As far as possible, the Department seeks to set outcome-based conditions in EPBC Act approvals to provide the flexibility for the proponent to choose the most appropriate and cost-effective method to achieve the environmental objectives, and make adjustments over time, particularly where new and more effective technology becomes available. The EPBC Act provides that a variation to conditions may be sought if, for example, a more commercially favourable method of achieving the same environmental objectives becomes available.

Listing of threatened species and ecological communities
The EPBC Act provides that in deciding whether to list a nationally threatened native species or ecological community, matters that do not relate to the survival of that species or ecological community must not be considered. The decision on whether a species is threatened is based solely on scientific evidence regarding population status, as the species or community is either at risk or not.

While the Minister cannot consider social and economic matters at the listing stage, such information is still invited during public consultation on a nomination for listing. Any social or economic information so obtained is used by the Department to identify potentially affected stakeholders and concerns in relation to a listing, and to develop effective and appropriate communication strategies and other measures to explain the implications of a new listing on industry and the community, facilitate compliance with EPBC administrative procedural requirements and allay concerns.

Once a species or community is listed as threatened, a range of recovery actions is put in train to prevent extinctions and improve the status of the species including, the formulation of recovery plans for threatened species and ecological communities and threat abatement plans for key threatening processes. The EPBC Act requires that regard be had to minimise any significant adverse social and economic impacts during the formulation of such plans. Guidelines for developing recovery plans are available on the EPBC Act web site.

Social and economic impact assessment of major reforms

There is much debate about the social and economic impact of major biodiversity and vegetation management reforms. Informed debate and assessment of impacts requires a consistent framework to analyse the costs and benefits of vegetation and biodiversity reform.

For example, a comprehensive social and economic assessment of the potential impact of a major reform to reduce the rate of land clearing would:

- identify the area that is affected by the reform
- estimate the net area of remnant vegetation that would have been available for clearing for economically viable productive uses in the absence of the reform
- estimate the net opportunity cost for landholders who might otherwise have cleared this land for production
- identify the number and degree to which landholders will be affected
- identify the potential broader impacts, including both costs and benefits, to rural and regional communities and the broader population
- clearly outline assumptions used in the analysis
- undertake an analysis of the sensitivity of the results of changed assumptions.

An example of a comprehensive social and economic impact assessment was that undertaken by the Australian Government through the Australian Bureau of Agricultural and Resource Economics and the Bureau of Rural Sciences of a Queensland government proposal, announced in May 2003, to significantly reduce land clearing (ABARE & BRS 2003). Broad details of the proposal (Qld 2003) include:

- The immediate protection of vegetation communities with less than 30% of their original extent remaining
- The phase down of broad acre clearing of remnant vegetation to zero by 2006 under a transitional cap of 500,000 hectares
- Continuation of regrowth clearing
- Continuation of some exemptions such as for woody weed control, infrastructure development, legitimate forest practices, appropriate thinning and fodder harvesting under permit
- An adjustment assistance package of up to $150 million with three key elements:
    - $130 million for financial incentives to assist with the transition (or, where necessary, for exit assistance)
    - $12 million for incentives to improve management of the more valuable remnant vegetation
    - $8 million for incentives to develop best practice farm management plans.

The economic and social impact assessment confirmed that an assistance package of $150 million delivered over four years would be consistent with the current estimated cost of foregone development opportunity over twenty-five years, given a phase-out of remnant clearing by 2006.

The assessment identified the net area potentially affected by the proposal as the total area of remnant vegetation minus areas already unavailable for clearing due to protection status or restrictions due to land degradation vulnerability. The opportunity costs of not clearing were determined by comparing the estimated economic returns in the absence of the proposal to the estimated economic returns under the proposal. A rate of clearing consistent with existing rates was assumed.

The opportunity costs were calculated as the estimated increase in agricultural output in the absence of the proposal multiplied by the net return per additional unit minus the cost of clearing. The opportunity costs were estimated over twenty-five years. A sensitivity analysis was undertaken to determine the impact of changing the underlying assumptions.

The assessment considered that the social impact of the proposal would be small if the adjustment package was implemented effectively. Potential social impacts identified were associated with the cessation of an activity which is an established part of the traditional Queensland pastoralist farming system; the information and training needs associated with the necessary changes to farming practices; and the possibility of reduced employment in land clearing and related industries, and flow-on effects to local communities.

For simplicity, in many analyses of the social and economic impacts of native vegetation reform, as with the ABARE and BRS analysis, native vegetation is assumed to have no economic or social value due to the complexity of accounting for them. The inclusion of such benefits would have the effect of reducing the opportunity cost of the reforms to land holders.

Governments recognise, however, that conservation of biodiversity can have significant economic benefits. For example, the *National Framework for the Management and Monitoring of Australia's Native Vegetation* recognises that native vegetation provides economic and social benefits including:

- land degradation control
- improved water quality
- habitat for invertebrate pest predators
- timber for firewood and fencing
- farm forestry
- native plant products
- honey
- pollination
- removal of nutrients
- drought-proofing
- integrated pest management (reduced use of chemical poisons)
- improved living and working conditions (moderation of extremes, provision of shade and shelter, dust suppression, reduced spray drift)
- improved aesthetics and recreation.

Documented economic and productivity benefits of native vegetation include, for example:

- gross value of pasture output at its maximum when proportion of treed area is 34% in Gunnedah, north-west NSW (Walpole 1999)
- 22-47% increase in wheat and crop yields in sheltered zones in Rutherglen Victoria (Bird et al 1993)
- 19-22% increase in lupin yield/ha with shelterbelts when the area of the shelterbelt was included in the net yield/ha, and an increase of 27% on the crop area between shelterbelts in Gibson, southwest WA (Richmond 1992)
- 31% increase in wool production and 21% (6kg) increase in live weight for sheep in sheltered versus unsheltered paddocks (18% pasture increase in sheltered paddocks) in Armidale, NSW (Lynch & Donnelly 1980; Dengate 1983; Bird et al 1984; Richmond 1992)
- at 27^{o}C unsheltered cows will have 26% less dairy milk production than shaded stock (Fitzpatrick 1994)
- 50% reduction in lamb losses due to availability of shelter (36% down to 18% for twin births and 16% down to 8% for single births) in Southwest Victoria, eastern highlands (Bird 1981; Dengate 1983).

Bird et al (1993) suggest that the systematic planting of 5-10% of land in a network of shelterbelts in the cropping and higher rainfall grazing areas could achieve a 50% reduction in wind speed, which would substantially improve livestock and pasture production in the short and long term.

While some media coverage and rural advocacy groups suggest that preventing vegetation clearing always has a negative impact on land values, Sinden (2003) in his submission to this inquiry summarised the findings of independent studies as follows:

1. At low amounts of native vegetation, land value increases as the per cent native vegetation increases.
2. At high amounts of native vegetation, land value decreases as the per cent native vegetation increases.
3. At intermediate amounts, land values do not change as per cent native vegetation increases.

These findings are consistent with Lockwood et al (2000), which reported that the proportion of native vegetation had little effect on land values when native vegetation occupied less than 50 per cent of the farm. Lockwood et al assessed the relationship between property prices and land characteristics by assessing land sales records for properties that had areas of remnant native vegetation, landholder survey responses, and land biophysical information.

From this analysis the following observations of land characteristics and real estate prices were made:

Properties in northeast Victoria:

- Purchase criteria in order of importance were water availability, landscape appearance, view, potential income, and a place to bring up a family in the presence of remnant native vegetation.
- 34% of the surveyed properties were purchased prior to the November 1989 introduction of the Victorian *Planning and Environment Act* 1987. There was no significant difference in the per hectare sale price before or after the introduction of this legislation.

Properties in NSW Murray

- Purchase criteria in order of importance were potential agricultural income, water availability, access to property already owned, landscape of the property and potential capital gain.

The Victoria and Murray analysis revealed that the four main factors that have a significant positive relationship with the property price are property size, presence of a house, purchase of the property in addition to land already owned, and presence, placement and condition of fences.

In a market with full information, the property price should reflect the economic benefits associated with the existence of remnant native vegetation. These economic benefits would include increased stock and crop production from shelter and shade, increased agricultural production due to mitigated land degradation and increased access to firewood and fencing resources.
The above studies demonstrate the considerable regional variability in economic costs and benefits from native vegetation. Such variation would need to be taken into account in any robust framework for the assessment of economic and social impacts of major biodiversity and native vegetation reform.

4. Degree of transparency

The development of the EPBC Act involved extensive consultation. A paper for public comment on the proposed reform was distributed to interested government and non-government organisations and individuals and was made available on the Internet. The EPBC Bill was the subject of an inquiry conducted by the Senate Environment, Communications, Information Technology and the Arts Legislation Committee.

Information and publications
A key feature of the Act is its open and transparent decision-making. This is achieved through the Act requiring public consultation on key decisions. Specifically, the public is consulted on:
- the development of bilateral agreements
- monitoring compliance with bilateral agreements
- deciding whether an action requires approval
- the environmental assessment process
- the preparation management plans, recovery plans, wildlife conservation plans and threat abatement plans
- strategic assessments.

The Act also requires consultation with State and Territory governments throughout the assessment and approval process. Specifically, consultation is required on:
- the decision as to whether or not the action requires approval (the controlled action decision)
- the level of assessment
- approval decision
- conditions attached to the approval decision.

The Act also requires that a wide range of decisions and important milestones and events are notified on the Department of the Environment and Heritage website every week including:
- referrals received by the Australian Government Environment Minister
- decisions on referrals
- notice of reconsideration of decisions
- decisions on assessment approaches
- preliminary documentation for assessments on preliminary documentation
- guidelines for draft public environment reports and environmental impact statements
- notice of draft public environment reports and environmental impact statements
- notice of finalised assessment reports
- decisions on approvals
- instruments for the suspension, revocation, or reinstatement of an approval
- instruments for the variation of conditions
- declarations of lapsed assessments
- notice of the intention to develop a draft bilateral agreement
- notice that a bilateral agreement has been entered into.

The nationally award winning EPBC Act website also provides a wide range of information about the operation and requirements of the Act including a search tool to identify protected matters that may occur in an area.

A large number of publications have been developed to assist people to prepare referrals and preliminary information and meet other requirements of the referral, assessment and approval process. For example, referral and preliminary information forms and guides are available in both hard copy and on the website.

A new section of the EPBC Act web site has recently been developed to provide rural landholders easy access to relevant information. A referral 'toolkit' is also being prepared to provide information about how to access maps and data on matters of national environmental significance, and provide examples of referrals for agricultural activities.

Guidelines have been developed to help determine whether an action is likely to have significant impact. The guidelines provide criteria against which actions can be assessed to determine if they should be referred. Specific guidelines are also available to assist determine whether actions are likely to have a significant impact on newly listed threatened species and communities, including the Bluegrass ecological community and threatened flying-fox species. For other species and communities, the Department has published fact sheets that provide information on the occurrence of the species or ecological community, and the key threats to the species and measures that can be taken to avoid or minimise impacts. The guidelines are currently being reviewed and improved.

EPBC Act information officer

An information officer from the Department of the Environment and Heritage has been seconded full-time to the National Farmers' Federation to assist rural landholders and agricultural organisations to understand the operation of the EPBC Act. The officer travels in regional areas making presentations and meeting with rural stakeholders, agricultural organisations, State and Local Government representatives and property valuers. The officer provides direct assistance to farmers in their interactions with the EPBC Act.

The information officer has assisted the National Farmers' Federation (NFF) in its information campaign about the EPBC Act. Specifically the information officer assisted in the preparation of an NFF information sheet which informs the farming community that the EPBC Act does not apply to any action that was authorised before the commencement of the Act in July 2000, or represents a lawful continuation of land use started before July 2000 and has continued in the same place without any enlargement, expansion or intensification. . The information sheet addresses a misconception that a cyclical increase in use occurring sometime after the commencement of the Act is an enlargement, expansion or intensification and therefore subject to the assessment and approval requirements of the Act.

The information officer also has assisted several farmers in making referrals involving agricultural activities affecting the listed threatened ecological communities Bluegrass and Brigalow in Queensland.

The information officer has helped rural organisations to comment on nominations of threatened species and ecological communities. There have been concerns about the nomination and listing of new threatened species and ecological communities so this area has been targeted for improved consultation. The information officer has regularly consulted with agricultural industry and conservation representatives about the possible listing of threatened species and communities. The NFF have indicated its strong satisfaction with how successful this position has been as it has improved communication between farmers and the government and has taken a large amount of angst out of the issue.

CASE STUDY

Planting a fodder crop (Leucaena) in strips through the endangered Bluegrass ecological community to provide improved pasture for cattle grazing

The EPBC Act information officer seconded to the National Farmers' Federation assisted with the referral of a proposal to improve pasture within a stand of the endangered Bluegrass ecological community. With the assistance of the information officer the proponent (the farmer) modified the proposal to avoid the possible adverse impacts on the endangered ecological community.

As part of the revised proposal the current frequency and intensity of grazing is to be maintained and surveys will be conducted on the Leucaena plantings to provide a better understanding of how the Bluegrass ecological community reacts to this sort of intervention. Department funds are covering the costs of these surveys.

The proposal was referred and it was decided that it was not a controlled action provided it was undertaken in the specified manner. That is, there was no need for assessment and approval provided the current grazing regime was not intensified and that the surveys were conducted in the manner agreed.

Regional forums and site visits

Department of the Environment and Heritage staff visit many regional areas to deliver presentations to landholders, industry associations and State and local government representatives. For example, the Australian and Victorian Governments have worked together to organise site visits in the Wimmera region of Victoria, where proposed agricultural activities involving pivot irrigation were of concern due to the possible impact of clearing Buloke trees, which is habitat for the listed threatened Red-tailed Black cockatoo. Following the visits, a protocol was developed where the Victorian government will advise a planning permit applicant during its site visit, and/or the council through its formal planning response, of the need to give the Department of the Environment and Heritage notice of the proposal.

The Department has actively engaged with a wide range of industry sectors. For example, in relation to the infrastructure development and mineral exploration sectors, the Department has made presentations and provided continuing assistance to industry organisations and proponents of actions including the Urban Development Institute of Australia, the Australian Petroleum Production and Exploration Association, the Australian Planning Institute, NSW Road and Transport Authority, Vic Roads, Minerals Council of Australia, Woodside Energy, Apache Energy Ltd, Duke Energy (International) Ltd, Transgrid and the Engineering Institute of Australia.

Toll free information line

Department of the Environment and Heritage officers also provide assistance over the phone to proponents of actions, industry and conservation organisations and other stakeholders on a daily basis. In a recent report the Australian National Audit Office concluded that 'staff in Environment Australia have been active in assisting organisations undertaking an action to determine whether their action is likely to have a 'significant impact', and would need approval under the Act.'

Annual reporting

The EPBC Act provides for the reporting on activities relating to the Act. Every year a report on the operation of the Act is tabled in Parliament.

5. Options to further assist rural landholders

The introduction of the EPBC Act has improved environmental outcomes for matters of national environmental significance, reduced duplication between governments, provided greater 'up front' certainty, increased transparency, improved the efficiency of decision making, and provided for greater consideration of social and economic impacts when making decisions. This has been complemented through the Natural Heritage Trust and the National Action Plan for Salinity and Water Quality by the establishment of the largest ongoing programs of environmental repair in Australia's history.

Throughout the introduction and implementation of these reforms, the Department of the Environment and Heritage has demonstrated that it is responsive to the concerns of stakeholders, and has introduced a range of measures to assist landholders meet their obligations.

However, more can always be done in this regard. Some options to consider include:
- working with States and Territories to better align their regulatory approaches with that of the Australian Government
- increasing the use of existing non-regulatory approaches where appropriate to achieve environmental objectives
- exploring new complementary approaches to meet environmental objectives.

Consistent and equitable implementation of vegetation and biodiversity management regimes across Australia also requires clearly defined rights and responsibilities of land managers, which reflect regional variation in the environment.

Increasing consistency
Reducing duplication between environmental regimes at all levels of government will help reduce the costs of complying with environmental regulation. This can be done by using common definitions, and accrediting processes at one level of government to meet collective responsibilities of other levels of government such as occurs with assessments conducted under the EPBC Act.

An example of the use of common definitions is when matters of international or national environmental significance that apply within a region are a subset of matters of state or regional significance. For instance, Ramsar wetlands of international significance are a subset of wetlands identified in the Australian Directory of Important Wetlands.

There would be less duplication if the scientific and geographic definitions of species and ecological communities were consistent, whether at national, State or regional level. Greater consistency of Australian Government/State processes in identification of threatened species, threatened ecosystems and threatening processes, would reduce confusion, provide a more coherent approach to the management of those species and ecosystems, and provide greater opportunities for accreditation of processes at one level of government to meet responsibilities at many levels of government.

There are challenges in achieving greater consistency for biodiversity and native vegetation responsibilities, including the variation in:
- regulatory regimes at each level of government, including the differences in exemptions from regulation
- methods used to define ecological communities – both in terms of their composition, and in terms of their spatial distribution, or
- impact assessment regimes - for example, for clearing applications in South Australia there can be a tree-by-tree assessment, with trees given individual scores to assess whether they can be cleared. This level of assessment is not used in States such as NSW or Queensland.

Building on existing government programs to further assist rural landholders while meeting national environmental objectives
In its Annual Trade and Assistance Reviews, the Productivity Commission has identified a range of Australian Government programs providing assistance to land managers and the agricultural sector, including:
- agricultural research and development
- industry specific assistance

- export incentives
- marketing support
- adjustment assistance
- income and business tax concessions
- natural disaster relief
- disease control.

In 2002-03, budgetary assistance from the Australian Government to primary production was estimated to be $718 million (PC 2002). This assistance is in addition to programs such as the Natural Heritage Trust and the National Action Plan for Salinity and Water Quality.

There may be opportunities to also use these existing assistance programs to address specific concerns that rural landholders have with the protection of nationally significant biodiversity values.

As an example, an integrated suite of agricultural research activities could be targeted towards further quantifying the economic benefits of biodiversity and native vegetation, and gaining an understanding of the regional variation of these benefits. Such information could assist reduce the perceived investment risks for landholders of retaining native vegetation.

Most governments encourage the development of property management plans to document resource and management practices and design property changes. The plans can cover natural resources, human resource, financial management, production and marketing. Preparation of property management plans may be a prerequisite for obtaining financial assistance or for undertaking works that require approval.

The cost of developing vegetation management plans could be reduced by greater use of government programs that support development of property management plans. For example, although not linked to regulatory compliance, FarmBis provides financial assistance to primary producers and land managers to undertake business and natural resource management training and education activities. Landholders may be subsidised up to 75% of the cost of an appropriate property management-planning course.

New approaches that further assist rural landholders where national environmental objectives are being addressed

As identified in the *National Framework for the Management and Monitoring of Australia's Native Vegetation*, there are many approaches available to encourage the protection of biodiversity and native vegetation. By choosing an appropriate mix of measures, optimum outcomes for **all** stakeholders can be achieved. The appropriate mix of relevant measures will vary to accommodate differences between jurisdictional and regional circumstances.

The range of available measures that could be used to meet environmental objectives includes (based on Young et el, 1996):

Motivational and voluntary instruments
- Ongoing technical field support to assist and facilitate change
- Accreditation schemes
- Awards to recognise exemplary biodiversity conservation practices
- Product eco-labelling
- Conservation agreements such as wildlife refuges, fauna sanctuaries and Land for Wildlife

Information, research and extension (service delivery information)
- Mapping and assessment of the extent, quality and change in native vegetation and biodiversity
- Improving scientific understanding of ecosystem function and the value of ecosystem services
- Standards for the sustainable use of native vegetation and biodiversity
- Promotion of biodiversity (education, awareness)
- Extension support for community groups (eg through NRM networks, Landcare etc)

Regulation
- Planning legislation and land use zoning

- Legal liability for damage
- Traditional access to resources

Price based and financial instruments (Taxes, fines, subsidies and incentives)
- Grants for biodiversity conservation
- Taxation incentives (including landcare taxation provisions, deductions for donations of cash and land, capital gains tax provisions)
- Land taxes and property rates
- Environmental performance bonds
- Commercialisation of wildlife
- Ecotourism
- Revolving funds
- Biodiversity prospecting contracts
- Mitigation banking
- Beneficiary pays – for example water authorities paying for revegetation to improve water quality
- Auctions to purchase biodiversity conservation services
- Stewardship payments

Assigning property rights, clarifying responsibilities and assigning risk
- Allocation of property rights
- Compensation for withdrawal of legal property rights
- Use of easements, covenants, management agreements
- Property management planning
- Assigning use rights, for example through lease agreements
- Transferable development rights

Examples of complementary approaches

Regulation
Land clearing regulation is generally aimed at preventing the inappropriate clearing of native vegetation and protecting biodiversity. Without appropriate regulation, there is no ability to prevent unsustainable land clearing and consequent negative externalities. Land clearing regulation should provide all landholders with a clear indication of what the community considers as appropriate base-line practice. As with implementation of the EPBC Act, implementation of regulation should seek to reduce duplication, provide greater 'up-front' certainty, increase openness and transparency, ensure consideration of environmental, social and economic factors, and provide for more effective and efficient decision-making.

Information services
Information services to increase transparency of decision-making may include:
- Proposed listings of threatened species and communities
- Integrated information services that assist land managers determine whether they may be affected by regulation if they undertake an activity, and if so what they need to do
- Listing of all applications to undertake an activity, with opportunities for public comment
- Listings of decisions made under legislation
- Information about regionally specific best-practice environmental management and standards for the sustainable use of biodiversity (including grazing, fire management and harvesting).

Tax treatment of conservation covenants
Under existing income tax provisions, the tax treatment of expenditures related to conservation activities (such as weed and pest control) on land managed for conservation purposes may be different to the tax treatment of identical activities undertaken by other businesses conducted on rural land (including primary production) (PC 2001b).

The Allen Consulting Group (2002) recommended that consideration be given to providing an income tax deduction or rebate for management costs incurred in relation to land subject to a conservation covenant or a binding conservation management agreement. They noted that this recommendation would not create a significant precedent within the tax system. A simple mechanism for achieving this would be to treat conservation-related land management costs as gifts to the organisation holding the conservation covenant or agreement, automatically limiting tax support to activities undertaken under the covenant or agreement

Market Based Instruments Pilot
Through the National Action Plan for Salinity and Water Quality, governments are jointly funding a National Market Based Instruments Pilots Program to investigate ways to use innovative financial arrangements to encourage better land and water management and to reduce salinity in irrigation-based agriculture.

Market-based instruments use trading mechanisms, auctions and price signals to change behaviour to address important natural resource issues and fill knowledge gaps across jurisdictions. Ten natural resource management projects are being funded under the pilot.

Conservation agreements – Matters of National Environmental Significance
In 2003, a pilot program funded under the Natural Heritage Trust will commence to support the development of conservation agreements for management of matters of national environmental significance. Under the program, assistance will be provided for projects and activities that through active stewardship enhance the protection of matters of national environmental significance. In particular funding will be provided for high priority ecological services delivered by private landowners.

The program will enable high quality threatened species habitat, listed ecological communities and other areas of national environmental significance on farms to be identified, protected and managed to assist the recovery of species or communities and to preserve or enhance ecosystems or ecological services. This could involve retention and management of native vegetation beyond levels required by legislation, changes to water management at the property level, fencing, rehabilitation of degraded areas, control of exotic pests in areas set aside from production, changed fire regimes, and changes to stocking levels or to the seasonal management of stocking.

Measures to clarify the roles and responsibilities of resources users
Numerous stakeholders have noted the need to clearly define roles and responsibilities identifying entitlements and obligations of land ownership as an essential starting point to address native vegetation issues.

The Productivity Commission (2001) identified that "clear property rights are an important foundation of an incentive-based or effective regulatory approach to biodiversity conservation. Emergence of private markets associated with conservation activities will be hampered where the rights and responsibilities of the private sector are unclear…. Clarifying the rights and responsibilities of the private sector is a fundamental step in determining who should bear the cost of additional conservation on private land."

The Wentworth Group (2002) noted, "Whilst we expect farmers to accept a duty of care to protect the environment, it is not fair to expect them to bear all the costs when the benefit of their actions accrue to others."

In terms of defining the responsibilities of land managers, there is reasonable consensus that land managers have a responsibility to current and future generations to:
- Maintain the native vegetation on land vulnerable to degradation – for example from salinity, erosion, acid sulphate soils, or soil acidification.
- Take all fair, reasonable and practical steps to prevent a nuisance or harm to the property of another person that could have been reasonably foreseen.
- Undertake conservation activities and measures that have on-farm economic benefit – maintenance of soil structure and composition, habitat for pollinators and predators on insect pests, maintain productivity and diversity of native grasses as valuable low input pastures.
- Maintain native vegetation in areas where there are on-site economic benefits of retaining the native vegetation or where there is no economic benefit of clearing.

The National Framework for the Management and Monitoring of Australia's Native Vegetation (NRMMC 2001) also considers that a 'duty of care' faced by a landholder with regard to native vegetation management could reasonably be expected to include the protection of endangered species and/or ecosystems.

The Australian Government recognises that knowledge about the environment, and community expectations and standards may change over time. Where the standard shifts significantly over a short period time, it may be appropriate to provide assistance to speed the transition to new arrangements. Such payments would normally be on a transitional basis in recognition of the need to adjust to a new regime.

Transitional assistance should be underpinned by rigorous social and economic impact assessment of the impacts of the change. Such assistance should recognise that there may be variation in the roles and responsibilities across Australia due to differences in landscapes and climate.

References:

ABARE & BRS (2003) *Queensland land clearing proposal: Socio-economic impact.* Report prepared for the Australian Government by the Australian Bureau of Agricultural and Resource Economics and the Bureau of Rural Sciences. Available from: http://www.affa.gov.au/landclearing [Accessed 20 August 2003]

Allen Consulting Group (2002) Building a strong social coalition: a discussion paper proposing measures to encourage increased philanthropy to benefit the environment and create a stronger civic culture in Australia. Commissioned by the *Steering Group on Incentives for Private Conservation* - Bush Heritage Fund, Greening Australia and Trust for Nature.

Australian Bureau of Statistics (2001) Agriculture, Australia 1999-2000. http://www.abs.gov.au/Ausstats/abs%40.nsf/b06660592430724fca2568b5007b8619/a89f51dcb5e2e31bca2568a900139429!OpenDocument [Accessed 20 August 2003]

Australian National Audit Office (2002) Referrals, Assessments and Approvals under the *Environment Protection and Biodiversity Conservation Act 1999*, Australian National Audit Office, The Auditor-General Audit Report No38.2002-03, Performance Audit Available from http://www.anao.gov.au/WebSite.nsf/Publications/ [Accessed 20 August 2003]

Bird, R (1981) Benefits of tree planting in S.W. Victoria. *Trees and Victoria's Resources* **23**:2-6.

Bird, PR, Lynch, JJ, Obst, JM (1984) Effect of shelter on plant and animal production. *Animal Production in Australia* **15**:270-273.

Bird, PR, Bicknell, D, Bulman, PA, Burke, SJA, Leys, JF, Parkers, JN, van der Sommen, FJ, & Voller, P (1993) The role of shelter in Australia for protecting soils, plants and livestock. In: Prinsley, RT, & Allnut, J (Eds) *The role of trees in sustainable agriculture*. Kluwer Academic Publishers, Dordrecht.

Commonwealth of Australia (1996) Natural Heritage Trust of Australia Bill 1996 – Second Reading Speech. Available from http://www.nht.gov.au/publications/final2nd.html [Accessed 20 August 2003]

Commonwealth of Australia (2001) *Native Vegetation Policy*. Canberra. Available from http://www.ea.gov.au/land/publications/vegetation-policy.html [Accessed 20 August]

Council of Australian Governments (1997) Communiqué of Meeting 7 June 1997, Canberra Available from http://www.dpmc.gov.au/docs/DisplayContents1.cfm?&ID=82 [Accessed 20 August]

Council of Australian Governments (2000) A National Action Plan for Salinity and Water Quality. Available from http://www.napswq.gov.au/publications/vital_resources.html [Accessed 20 August]

Dengate, J (1983) Windbreaks and shade trees help landowners and wildlife. *Habitat* **11(1)**:14-15.

Department of the Environment and Heritage (1998) *Reform of Commonwealth Environment Legislation*, Available from http://www.ea.gov.au/epbc/publications/archive/legislationreview.html [Accessed 20 August 2003]

Department of the Environment and Heritage (2003) *EPBC Act web site* available from http://www.ea.gov.au/epbc
- EPBC protected matters search tool – http://www.ea.gov.au/erin/ert/epbc
- EPBC Act Administrative Guidelines on Significance – July 2000. http://www.ea.gov.au/epbc/assessmentsapprovals/referrals/significanceguide.html
- Bluegrass administrative guidelines on significance - http://www.ea.gov.au/epbc/assessmentsapprovals/guidelines/bluegrass
- Annual report - http://www.ea.gov.au/epbc/statistics
- Farming web-site - www.ea.gov.au/epbc/industrylinks/farming
- Public notices - http://www.ea.gov.au/epbc/publicnotices
- Guidelines for developing recovery plans - http://www.ea.gov.au/biodiversity/threatened/recovery/guidelines

Department of the Environment, Sport and Territories (1996) *National Strategy for the Conservation of Australia's Biological Diversity* Canberra. Available at http://www.ea.gov.au/biodiversity/publications/strategy/index.html [Accessed 20 August 2003]

Fitzpatrick, D (1994). *Money trees on your property: profit gained through trees and how to grow them*. Inkata Press, Sydney.

Lynch, JJ, & Donnelly, JB (1980) Changes in pasture and animal production resulting from the use of windbreaks. *Australian Journal of Agriculture* **31**:967-979.

Lockwood, M, Walpole, S, & Miles, CA (2000) Economics of remnant native vegetation conservation on private property. National Research and Development Program on Rehabilitation, Management and Conservation of Remnant Vegetation, Research report 2/00.

Natural Resource Management Ministerial Council (2001) *National Framework for the Management and Monitoring of Australia's Native Vegetation* DEH Canberra. Available from http://www.ea.gov.au/land/publications/nvf [Accessed 20 August 2003]

Productivity Commission (2001) *Harnessing Private Sector Conservation of Biodiversity*, Commission Research paper, Ausinfo, Canberra.

Productivity Commission (2001b) *Constraints on Private Conservation: Some Challenges in Managing Australia's Tropical Rainforests*, Commission conference paper, Ausinfo, Canberra.

Productivity Commission (2002) *Trade and Assistance Review 2000-2001* Annual Report Series 2000-2001, Ausinfo, Canberra. Available from http://www.pc.gov.au/research/annrpt/tar0001/tar0001.pdf [Accessed 20 August 2003]

Queensland Government (2003) $150 million proposal to reduce land clearing. Statement by the Hon Peter Beattie MP. 22 May 2003. Brisbane.

Richmond, E (1992) Economic benefits to the farmer of maintaining and protecting remnant native vegetation on farms in south-west of Western Australia. Water Authority of Western Australia, Leederville.

Sinden J A (2003) A review of the impacts of vegetation protection on farm land values in northern New South Wales: how much do farmers have to pay? Submission to Productivity Commission Inquiry into the Impacts of Native Vegetation and Biodiversity Regulations July 2003 Available from http://www.pc.gov.au/inquiry/nativevegetation/subs/sub015.pdf [Accessed 20 August 2003]

Walpole (1999) Assessment of the economic and ecological impacts of remnant vegetation on pasture productivity. *Pacific Conservation Biology* **5**: 28-35.

Wentworth Group (2002) Blueprint for a Living Continent: a way forward from the Wentworth Group of concerned scientists.

Young MD, Gunningham N, Elix J, Lambert J, Howard B, Grabosky P, and McCrone E (1996) *Reimbursing the Future*, Biodiversity Series, Paper No 9, Department of the Environment, Sport and Territories.

Appendix 1: Matters of national environmental significance and the referral, assessment and approval process under the Environment Protection and Biodiversity Conservation Act 1999

Matters of national environmental significance:
The Act identifies six matters of national environmental significance:

- World Heritage properties
- Ramsar Wetlands of international importance
- Nationally listed threatened species and ecological communities
- Listed Migratory species
- Commonwealth marine areas; and
- Nuclear actions (including uranium mining).

Diagrammatic representation of the referral, assessment and approval process under the EPBC Act