

# The Institute of Foresters of Australia

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Native Vegetation Framework Review Secretariat,  
Biodiversity Conservation Branch  
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## Australia's Native Vegetation Framework - Consultation Draft

Dear Sir/Madam

The Institute of Foresters of Australia (IFA) welcomes the opportunity to provide a submission on Australia's Native Vegetation Framework - Consultation Draft (ANVF).

In our view it is premature to make detailed comments on goals before first listing and clarifying the principles that should underpin any statement on the future management of Australian native vegetation.

The IFA strongly supports the sustainable management of forests, woodlands and other native vegetation types for a range of uses, including biodiversity conservation, as part of a broadly based approach to native vegetation management. Its members have been actively involved in advancing the understanding and conservation of native vegetation, particularly forests and woodlands, for the entire 75-year history of the Institute. Our comments reflect the Institute's commitment to encourage and support managers of both public and private lands to adopt a strategic and coordinated approach to the conservation and sustainable management, including the conservation of native vegetation.

Unfortunately the ANVF falls short of a substantive and strategic response to conservation and sustainable use issues in Australia's native forests and woodlands as it:

- relies on relatively limited analysis,
- misses opportunities to build on the existing national forest development policies and initiatives that embrace sustainable management and conservation,
- proposes actions that are vague and rely on a highly generalised approach to implementation,
- overlooks the importance and value of incentives to encourage landowners to rehabilitate degraded native vegetation and to manage their lands in a sustainable way, and
- implies that reservation alone is the key to the future security of native vegetation.

The framework does not, therefore, provide any advancement beyond existing policy responses, including the 1992 National Forest Policy Statement and related land and forest/woodland management policies and regulations already implemented.

The IFA expresses through its policy statements the values of native forests/woodlands and plantations, and the measures that should be applied to enhance their well-being.

The IFA has a comprehensive suite of policies, many of which are directly relevant to the development of the ANVF and are applicable more broadly than to just native forests/woodlands. The policies support the statements regarding aspects of the framework discussed in the submission. Extracts from relevant statements are included in the submission and copies of these policies are reproduced at the end of the document.

There is merit in focusing the ANVF on woodlands. Australia has lost very significant areas of native woodlands and some types are among the most poorly conserved ecosystems in Australia. Urgent and sustained effort is required to improve the management of many woodlands, particularly the sparse woodlands in lower rainfall areas. In many cases, remnant native woodlands are threatened simply by their inability to regenerate under current land use – due in particular to overgrazing, cultivation, feral predators and the exclusion of fire, or fire which occurs at the wrong time of the year and is too intense, as is the case in tropical savannah woodlands. A strategic approach is required in the assessment of all values of remnant native woodlands and for providing appropriate encouragement and incentives for the sustainable management of the more valuable remnants.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Peter Volker', with a stylized flourish at the end.

**Dr Peter Volker RPF FIFA**  
President  
Institute of Foresters of Australia

## Principles

1. Page 11 (What is native vegetation?) Australia's Native Vegetation Framework - Consultation Draft (ANVF) appears to cover all vegetation types, including forests. The administrative relationship between this document and the National Forest Policy Statement (1992) is not clear, although the two documents are required to be consistent. The IFA recommends that the ANVF states explicitly whether it applies to all native vegetation under all land tenures or whether it applies only to native vegetation outside the National Reserve System and not subject to the National Forest Policy Statement.
2. The IFA applauds the recognition in the ANVF that native vegetation must be managed if it is to survive both past and current disturbances and predicted environmental stresses. This view is entirely consistent with that of the IFA, namely that active professional management is required if forests and woodlands are to be ecologically, socially and economically sustainable.
3. If climate change is causing or is about to cause the degree of disturbance that the ANVF suggests, threatened species will need to be introduced into new environments in order to secure their survival. To achieve this objective, management intervention will be required in all land tenures, including the National Reserve System.
4. Throughout the document, ecosystem resilience is presented as the principal benefit of a desirable native vegetation condition and this condition is described as though it is an automatic consequence of biodiversity, or that it can be 'strengthened' by an improved understanding of native vegetation. The ANVF defines a resilient ecosystem as one that "... can adapt to shocks and surprises, and rebuild itself when damaged." This wording is unfortunate as it could convey to a general reader the notion that an ecosystem is a sentient being. The IFA is not aware of any credible demonstrations of deliberative or cooperative relationships between plant species within ecosystems in response to "shocks and surprises" or that there is a single end point of ecosystem development at any one location. Most of the examples in the scientific literature that describe a lack of ecosystem resilience are associated with systems that have been subjected to gross disturbance or stress, significant fragmentation, or have been invaded by particularly aggressive pest species. Apart from these extreme situations, ecosystems have a capacity to regenerate following disturbances that are the consequence of evolutionary forces operating over millennia. The outcome of this regeneration is not necessarily identical to the ecosystem that previously occupied a particular site.
5. The ANVF implies that the condition of native vegetation throughout Australia is deteriorating at a calamitous pace. The IFA recognises that there are many examples of unsustainable land use practices in agricultural and pastoral areas and that there have been examples of tree plantations being established on unsuitable sites. However, there is no evidence of gross and irreversible changes in land or catchment condition in managed native forests and woodlands where sustainable timber production has been one of the multiple-use objectives. The ANVF leaves the impression that all land-based commercial production activities are so destructive that they should cease immediately. This perception may be the result of mistaking non-productive remnant vegetation for areas on which sustainable productive activities are occurring.
6. The IFA considers that it is very regrettable that sustainable commercial rural production is not recognised as a legitimate use of land as compared with the establishment of a biodiverse native reserve. In the 100 years that professional foresters have been caring for Australian forests and woodlands, ecosystems that have been subjected to moderate disturbance, such as that associated with sustainable timber harvesting, have suffered no losses of biodiversity and they are no less resilient than undisturbed areas of a similar vegetation type.

For example, five river red gum forests were identified in *River Red Gum Forests Investigation: Discussion Paper – October 2006* (Page 51, Vegetation Condition)

(Victorian Environmental Assessment Council) as being “in best ecological condition”. None of these forests had been under long-standing exclusive conservation tenure; all were in existing or former State Forests that had been managed as productive native timber stands for 80 years.

7. In Section 1.2, paragraph 5, attention is drawn to the gross and net areas of forest cleared between 2001 and 2004, namely 1.5 million and 287,000 hectares respectively. Forests are not defined, and most of those 1.5 million hectares of forest would be regarded by many people as woodland rather than forest. Clearing is not defined in the ANVF; it is a permanent change in land use that occurs for agriculture, open cut mining and urban or infrastructure development. Native forests managed for timber production or subject to periodic mild prescribed burning are not ‘cleared’ in the sense of this section and should definitely not be included in estimates of forest clearing. Any management intervention in forests aims to regenerate species and to replace the forest cover.
8. If private landowners and the holders of pastoral leases are to be recruited as managers of native vegetation, it is critical that this work does not become an unacceptable legal, financial, or administrative burden. The tone of the ANVF document could easily create in the mind of a private landholder the view that their land management practices would be determined by a remote capital-city based bureaucracy. There is a lack of recognition that the harvesting of plant products from native vegetation can be carried out in a sustainable manner, even though the ANVF indicates that it is consistent with the principles of Ecologically Sustainable Development. The IFA considers that in order to secure support from all land managers, the ANVF should recognise the legitimacy and appropriateness of sustainable commercial activities in areas of native vegetation on private land. The three critical issues are: (i) having appropriate objectives; (ii) putting in place effective land management practices; and (iii) monitoring actual outcomes and providing feedback to management.
9. The introduction of species into native vegetation areas in anticipation of environmental change is perhaps even more important than their re-introduction into their localities of former occurrence. The ANVF points out that long-term planning is required to take account of long life spans (and delayed maturity or intermittent reproductive output) of some native species. Recognition of this need inevitably requires an understanding of the critical processes in at least the key species in an ecosystem and the incorporation of this knowledge in detailed management plans. However, it should also be recognised that native species have a substantial degree of plasticity in their environmental requirements. The IFA considers that the greatest threat to most native animals is not a minor increase in temperature, but failed land management of current habitat areas, in particular, failure to prevent large intense bushfires and failure to control feral predators.
10. The ANVF appears to overlook the critical need for the development of sustained research and education programs that support and are supported by management agencies. The research is needed urgently to better define the values in areas of native vegetation, to understand the processes within these systems that can be facilitated through management and to develop and test appropriate management practices. At this stage many of these long-term research relationships are in jeopardy because they require the frequent re-instatement of short-term funding. This problem arises because research priorities seldom acknowledge the length of time and the effort that it takes to understand and manage native systems. The research cannot be conducted or management implemented without the existence of a body of competent professional people graduating from carefully designed and adequately resourced educational programs. The IFA would welcome the inclusion in the ANVF of a statement indicating the need for long term research and education linked to vegetation management goals.
11. The following points relate to expressions used in the document that may warrant review:
  - a. Page 11, ‘What is native vegetation?’ The ANVF uses the term ‘natural biodiverse vegetation’. It later addresses the situation where highly degraded natural vegetation should be the target for special attention. If a test of biodiversity is to be applied to an

area of native vegetation, does this mean that an area of natural vegetation judged to not be biodiverse will be excluded from consideration?

- b. Page 14, Section 1.1.1 last sentence: This sentence does not add to the understanding of the issues. What are the intrinsic values of native vegetation that are not encompassed in the environmental, economic, cultural or social values described in this and other sections? The term 'biodiversity health' is unscientific because biodiversity is a quantitative measure related to the number of species and numbers of individuals of different species. Ecosystem health may be defined in terms of organisation (including biodiversity), vigour and resilience. The final sentence of Section 1.1.1 could be deleted without any loss of information or understanding.
- c. Page 14, Section 1.1.2: In describing the economic benefits of native vegetation, this section overlooks the direct economic benefits that may be derived from managed native vegetation. Because the ANVF appears to apply to all native vegetation, the IFA considers that landholders should be made aware that sustainable commercial activities are a legitimate use of native vegetation areas. Without this recognition, the document may be seen as an attempt to stifle responsible and sustainable land management.
- d. Page 14, Section 1.1.2, dot point on soil fertility and stability: This statement regarding resistance to pest invasions is highly questionable. Native vegetation is not immune from pest invasions. While native vegetation areas may harbour beneficial agents, they can also be habitats for weeds and pests that may do extensive damage to crops and pastures, or indeed the native vegetation itself.
- e. Section 1.2.1, Page 18, Paragraph 1: The IFA considers that it is not correct to claim that more recent fire policies (e.g. in Victoria) provided increased protection from wildfire. In fact the policies may have exacerbated the risk.
- f. Section 1.2.2, Page 20, Paragraph 1: The second sentence conveys the impression that degradation is associated only with clearing, while earlier statements refer to a range of stresses. For practical purposes, it is necessary to admit that most Australian ecosystems have been changed by humans, even the National Parks that have been transferred recently from other land tenures (mostly State multiple-use forests). This predominantly human-induced interference requires informed and active management in order to ensure that future changes are in the direction of some acceptable ecological condition.
- g. Section 1.2.2, Suggested new paragraph: "As indicated in the previous section, there is a need to foster and develop the research capacity underpinning the management needs of the areas of native vegetation. Such an effort will require a strategic and integrated approach including scientists, agricultural scientists, foresters, forest scientists, ecologists and land managers. It also requires the preparation of a sufficient number of professionally competent managers who can evaluate ecosystems, and then design and implement management plans on an unprecedented scale. While much of the vegetation assessment may be completed remotely, the verification of these assessments on the ground and the implementation of any management program in the field will require many more skilled practitioners than policy and planning specialists."

## **Additional Issues to consider (adapted from IFA Policy Statements)**

### **Active management to sustain the values of native vegetation**

Management strategies must be promoted for all native vegetation, including those reserved for conservation within the National Reserve System. There is a need to recognise the importance of active management to sustain native vegetation values, at both stand and landscape scales.

Inadequate resources and a focus on ‘preservation’ means that major threats to forest values - such as fire, disease, pest animals, weeds and an excessive proportion of senescent trees with little regeneration - and their impacts on conservation values are not being adequately addressed. This will require an injection of funding into research and management capability to ensure fire management strategies sustain health and vitality, protect ecological diversity, minimise damage to environmental values and minimise the risk of fire damage to public facilities, neighbours and community assets and infrastructure.

Regular assessments and reporting should include clear and definitive targets that are developed, reviewed and refined to ensure process transparency. This evaluation and monitoring must be underpinned by comprehensive, sustained and focussed research.

### **Supporting the role of plantations in delivering multiple benefits**

Policies for plantation expansion have emphasised the economic and social benefits of plantation investments, but have not promoted the potential of planted forests to deliver environmental services. A policy framework, which assessed and facilitated the delivery of environmental services from all rural land uses, would provide a better basis for managing planted forests to deliver these services. Such a framework could build on ‘*Plantations for Australia: the 2020 Vision*’ to focus on the delivery of environmental services through plantations that provide the optimum environmental, social and economic benefits to the community.

### **Develop enhanced regulatory and reporting systems to support native vegetation**

In many states, the regulatory framework for forest management is fragmented and applied inconsistently across tenures, resulting in high transaction costs and poor sustainable management outcomes. In contrast, some states have developed and implemented outcome-based codes of forest practice, which apply across all tenures. Both third-party, independent forest certification and consistent, triple bottom line reporting on forest management outcomes have important roles in such systems. Streamlined regulation and comprehensive outcome-based codes of practice applying across all land tenures should address major disturbance activities, not just timber harvesting.

### **Foster innovation in forest management and the use of native vegetation based industries**

There is limited and declining investment in forest research and innovation. Greater priority must be given to improving Australia’s capacity to manage for production and sustainability of forest values through research, education and training that takes into account the major long-term challenges to forest management. This should include a focus on the issues identified above, and on the innovative use of forest products, to fully realize the value of their low carbon footprint.

### **Encourage economic opportunities**

The potential environmental and economic contribution from private native forests and woodlands is often under-valued by landholders and the community. As production from public forests and woodlands is reduced there will be increasing demands on and opportunities for private forest and woodland production. In most Australian States and Territories there are inappropriate government policies and inadequate institutional and commercial support for the management of private native forests and woodlands. The IFA considers that private native forests and woodlands provide important multiple benefits to the community and that improved institutional support, appropriate incentives and payments for environmental services are opportunities to facilitate sustainable management of these areas.

### **Plantations in Rural Landscapes**

The IFA recognises that well planned and managed plantations and revegetation areas can generate substantial economic, environmental and social benefits but may also have some negative impacts. The IFA advocates the continued development of plantations in rural landscapes providing that this development balances environmental, social and economic impacts, particularly on cleared agricultural lands. This can assist in, and support management of native vegetation.

### **Management Planning**

Native vegetation has multiple and diverse values that need to be integrated into plans incorporating the principles of ecologically sustainable forest management. Strategic forest management plans guide management activities and takes into account the range of uses and values. The IFA advocates the development and implementation of strategic management plans to guide native vegetation protection and priority investments.

The IFA Policies most relevant to this submission are listed below and are appended in the following pages.

Forest Genetic Resources ([Policy Statement 1.2](#))

Timber Production and Biological Diversity ([Policy Statement 1.4](#))

Maintaining Forest Health ([Policy Statement 1.5](#))

Management of Private Native Forests ([Policy Statement 2.2](#))

Plantations in Rural Landscapes ([Policy Statement 2.3](#))

Forest Management Planning ([Policy Statement 2.6](#))

Timber Production in Native Forests ([Policy Statement 2.7](#))

Forest Regulation and Codes of Practice ([Policy Statement 2.8](#))

Silviculture in Australia's Native Forests ([Policy Statement 2.9](#))

Criteria and Indicators of Sustainable Forest Management ([Policy Statement 2.11](#))

The Role of Fire in Australian Forests and Woodlands ([Policy Statement 3.1](#))

Community Awareness and Knowledge of Forestry ([Policy Statement 5.4](#))

Recreation in Australian Public Forests ([Policy Statement 5.5](#))

Environmental Services from Forests and their Valuation ([Policy Statement 6.1](#))



# Forest Genetic Resources

(IFA Forest Policy Statement No. 1.2)

## Key Statement

The Institute of Foresters of Australia advocates the need for the implementation of in situ and ex situ measures and ongoing research to adequately conserve the full range of Australia's unique forest genetic resources, for both their intrinsic biodiversity value and their existing and potential uses for mankind.

## The Issue

Australia's forests have a high level of endemism and an enormous diversity of genetic resources. As a nation we have a global responsibility to conserve these important genetic resources, including both within species and between species diversity. Clearing, habitat modification, unsustainable land management practices and the impacts of exotic species and "genetic pollution" of native forests all pose potential threats to maintenance of genetic resources. The vast geographic range of Australia's forests, the occurrence of many forest species with limited distributions, and the variation between geographically different populations or provenances of widespread species creates a challenge for the comprehensive conservation of Australia's forest gene resources.

## Background

Australia's large continental area, with its broad geographic range, wide climatic diversity, and long isolation from the other continents has produced a unique flora. Botanists continue to refine our knowledge of the Australian flora, which contains 77 orders, 251 families and more than 15,000 species. About one third of seed bearing plant genera in Australia are endemic, while over 90% of species are unique to Australia. Of the 566 endemic genera, 270 are represented in Australia by endemic species only.

Approximately 164 million ha or 21% of the continent supports forest cover; defined as trees of greater than 2 metres in height with a crown cover of at least 20%. Approximately 74% of the forest is woodland and mallee. Eucalypts and related genera dominate, comprising 80% of forest types. *Acacia* (wattle) forests are common in drier regions, making up around 10%. *Callitris* (cypress) is Australia's most common softwood genus, making up 1%. Rainforests account for 3 per cent of Australia's forests but contain 25% of all plant genera. *Melaleuca* ('paperbark'), casuarinas, mangroves and a range of other species make up the remainder of Australia's forest types.

The fundamental basis of different species, their adaptations to different conditions, and their capacity to adapt to changing conditions is their genetic diversity. This can be viewed at two levels: (i) the genetic diversity between species, and (ii) the genetic diversity within species. Conservation of species variability is obviously important from the viewpoint of responsible stewardship, but conservation of variation within species is equally important: to maintain species viability with respect to inbreeding; and to maintain the resource of allelic variation necessary to allow species to evolve in the long term by adapting to changing environmental conditions. Maintenance of the species and allelic variation within species is also important to maintain the genetic resource that may be exploited for new products, or to introduce useful traits into existing cultivated forms of a species.

Many of Australia's forest species are restricted to particular regions, while others show patterns of variation within species that correlate to particular regions or provenances. Research to quantify within species variation, particularly at the allelic level, is limited, but studies to date indicate that genetic distance is not always related to geographic distance, and may have involved historical introgression with other species via pathways not necessarily obvious today.

The conservation of genetic resources requires a detailed understanding of the natural variation within and between species as well as of the impacts of exotic species, changes in land use practices and climate change. Genetic resources can be conserved "in situ" within forests and conservation reserves and "ex situ" within arboreta, gardens and seed stores. For example, commercial nursery propagation has been used to assist the conservation of the recently discovered rare and endangered Wollemi pine.

Under Australia's National Forest Policy Statement, one of the major strategies used to conserve forest genetic diversity is the establishment of a comprehensive, adequate and representative (CAR) reserve system. The CAR reserve system seeks to ensure reserves that: protect threatened species; capture diversity across forest communities; are large enough to maintain species viability; and are representative of the diversity within native forest communities across their range, and are actively managed to conserve this diversity.

In situ conservation of forest communities and their inherent gene resources remains important outside of reserves. This is achieved through measures contained in Codes of Forest Practice, including the use of local genetic material when regenerating native forests following timber harvesting, and the retention of appropriate examples of remnant native vegetation on farmland and when plantations are established. Ex situ conservation strategies are mainly used for threatened or endangered species. There are more than 500 species of Australian plants regarded as endangered and most of these occur on private land or unreserved Crown land.

Australia has a National Strategy on the Conservation of Australia's Biological Diversity (1996) and a National Biotechnology Strategy (2000). In 2005, the Australian Government developed regulations to facilitate access to,

and regulate the use of, our native genetic and biochemical resources. The regulations will also ensure that Australia's genetic resources are used for research and development on mutually agreed terms, with prior informed consent and an equitable return to Australia, while ensuring the environment is protected.

Clearing and other forms of habitat modification, such as timber harvesting or modified fire regimes, may have impacts on species survival and genetic diversity. Plantations of exotic species, including non-local native provenance material of native species, in some circumstances may threaten the conservation of native stands. Introgression of genes within plantations or from plantations to native forest stands, labelled "genetic pollution", is also increasingly being seen as a threat to genetic and ecological integrity, while climatic and environmental changes such as salinisation and isolation by extensive clearing pose a potential threat to long term conservation of genetic diversity between and within species.

The term "genetic pollution" is often used with little substantive data or understanding of the barriers to natural hybridisation between species, the dynamics of "genetic drift", the difference between conservation of genes *per se*, the preservation of gene frequencies of in-situ native stands, and adaptive changes in response to environmental changes that force drift in population gene frequencies as well as the consequent ecological effects. This issue demonstrates the need to research and reach pragmatic and informed balances between conservation and production objectives.

## Policy

The Institute of Foresters of Australia (IFA) considers:

- Australia has a global responsibility to conserve its unique forest genetic resources, because of the high level of endemism within Australian forests and the international importance of Australian timber species. Australia can also assist with the conservation of exotic forest genetic resources, particularly those of commercial importance in Australia or threatened in their natural habitat.
- Genetic conservation of a species does not depend on the attempted preservation of particular or individual communities, but rather the continued existence of their genes, and that production native forests managed through natural regeneration have an important role in conservation of forest genetic resources complementary to a system of CAR reserves.
- A register should be maintained of endangered species and of species threatened by loss of their natural ecological range or other means and extended to subspecies, varieties, forms and outstanding individuals.

The IFA supports and encourages:

- The primary conservation of Australian forest species and genetic variation within species through the comprehensive, adequate and representative system of reserves, which are actively managed with respect to biotic and abiotic influences including fire, pollen contamination, exotic species .
- Recognition of the role of vegetation clearing legislation and Codes of Forest Practice to protect and regulate the use of genetic resources outside of conservation reserves.
- The use of "ex situ" measures to conserve genetic diversity of rare, endangered or commercially significant Australian flora.
- Continued research into the genetic structure of forest communities, species and populations to quantify genetic relationships and levels of allelic variation in order to provide both a sound basis for conservation of gene pools, as well as to facilitate utilisation of genetic resources.
- Continued research into gene flow between plantations and native stands to quantify the risk of seed and pollen dispersal, allelic introgression, and their impact on native gene frequencies.

## Further Information

<http://www.anbg.gov.au/flora/index.html>

<http://www.deh.gov.au/biodiversity>

Anon (1986) Tropical Rainforests of north Queensland – Their conservation significance. Australian Heritage Commission Special Australian Heritage Publication Series No. 3. Aust. Govt. Publ. Serv., Canberra. 195pp.

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Orchard, A.E. (ed) (1999) *Flora of Australia Vol 1 Introduction 2nd Edition*, Australian Biological Resources Study/CSIRO, Canberra.

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(Policy approved 3 March 2007) Institute of Foresters of Australia PO Box 7002, Yarralumla ACT 2600



# Timber Production and Biological Diversity

(IFA Forestry Policy Statement Number 1.4)

## Key Statement

The maintenance of biological diversity is an important component of sustainable forest management and can be achieved in native forests and plantations managed for timber production through the application of scientifically based forest management plans, forest certification standards and Codes of Practice.

## The Issue

Forest managers (government and private sector) have policies and practices for managing native forests and timber plantations which ensure sustainable timber production in parallel with protection of biological diversity and preservation of landscape values. Implementation of internationally accepted forest management practices can minimise the impact of timber production from forests on biological diversity. However, unplanned short-term impacts may occur and demand remedial action.

## Background

### Biological Diversity

The Convention on Biological Diversity (CBD), to which Australia is a signatory, has used the following definition of biological diversity: *the variability which exists among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems.* The objectives of the CBD are the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising from commercial and other utilization of genetic resources. Australia implements the objectives of the CBD under the National Strategy for the Conservation of Australia's Biological Diversity, the National Forest Policy Statement and through the implantation of Regional Forest Agreements, species management, forest and protected area management plans.

Forest biological diversity is defined as the variability which occurs among forest living organisms and the ecological processes of which they are part; this includes diversity in forests within species, between species and of ecosystems and landscapes. Forest biodiversity provides a wide array of goods and services, from timber, clean water and other non-timber forest resources, to maximising resilience to climate change. At the same time, forests provide livelihoods and jobs for millions of people worldwide. Forest biological diversity also has important economic, social and cultural roles in the lives of many indigenous and local communities.

Native forests and timber plantations contribute differently to biodiversity. Native forests are diverse in their species mix, age and forest structure, have long lifecycles and deliver a broad range of timber and non-timber values. Native forests are living entities with natural life cycles. They are in a perpetual state of change and may suffer significant biological change through natural forces, eg. climate change, wind and fire. However, the conservation of biological diversity is one of the important goals of managing forests in an ecologically sustainable way, particularly with respect to the potential cumulative effects of forest management practices.

The general good health and vigour of regenerated native forests throughout Australia is testimony to the success of past forest management and timber harvesting practices.

Plantations are generally monocultures of single age stands grown for a defined period and are generally planted for timber production. Plantations change size temporally and spatially in the landscape and hence their contribution to biodiversity will be changing and ephemeral. Despite this, through appropriate commercial management, plantations may have an important secondary role in supporting biodiversity by providing corridor frameworks between native forests or forest habitat in agricultural landscapes.

### Timber production and its impact on Biological Diversity

Timber production can be based on plantations (trees planted and grown for timber production) or native forests or a combination of both. Timber production is the primary commercial objective of tree plantations; however some plantations may be planted as carbon sinks, for environmental remediation (ie salinity) or to compliment spatial environmental outcomes. Timber production involves removing trees to be processed for timber and other forest products. The process may include: felling, snigging (transporting logs from where they were cut to where they can be loaded on to transport for processing), road construction, stream crossing, and treatment for regeneration. These activities are required to comply with appropriate standards for sustainable forest management.

Timber production has short-term impacts which include: visual, aesthetic, environmental, water values, fauna habitat, and off-forest impacts. Harvesting may also change the native forest ecosystem through impacts on flora species composition resulting in changed seed pool, species regeneration and structure of the vegetation. These

impacts need not be negative on all native forests species, or have long-term negative impacts – harvesting is followed by a regeneration process, which favours early colonisers of the site – creating new ecosystem processes. In plantations, harvesting generally removes the entire stand, but is generally followed by replanting a new crop of trees on the site; though this will frequently occur within a mosaic pattern within the broader plantation estate.

The response of Australian native forests to disturbance is remarkable. However, the potential impacts of poorly managed harvesting and timber extraction on the environment are well documented. Research and the implementation of improved forest practices are occurring in all Australian States and Territories. Codes of Practice for Timber Harvesting incorporate principles of environmental care to foster the maintenance of biological diversity values.

State Governments have adopted sustainable forest management principles and forest certification systems, which can be independently audited in accordance with Australian and international standards for environmental, social and economic management. Many private forest owners are also adopting this approach. In addition, the application of sustainable forest management certification to plantations and native forests provides demonstrated benefits through continuous improvement, independent recognition of sustainability outcomes and improved market access.

All Australian States have legislation and policies that provide for biodiversity conservation. These include legislation and policies dealing with vegetation management and the protection of endangered and threatened species, old growth and high conservation value forests, and riparian areas.

### Policy

The Institute of Foresters of Australia (IFA) advocates that biological diversity can be effectively conserved in native forests and plantations used for timber production through scientifically-based management plans and prescriptions as well as through the implementation of forest certification and Codes of Practice.

The IFA supports and encourages:

- Adoption of the relevant principles under the Convention on Biological Diversity and the relevant objectives and actions under the National Strategy for the Conservation of Australia's Biodiversity in the sustainable management of native forests and plantations;
- Establishment and effective management of a comprehensive, adequate and representative conservation reserve network together with the complementary management of biodiversity outside of forest reserves;
- Protection of significant biodiversity values, including threatened species, by the application of scientifically-based management prescriptions;
- Consideration of the ecosystem and landscape approaches for maintaining biodiversity in large native areas of native forest;
- Development, implementation and monitoring of codes of practice for timber production and associated harvesting plans that recognise and protect biological diversity;
- Mitigation of unplanned short-term impacts and rehabilitation of degraded ecosystems (including off-forest) where long-term impacts are identified in native forest harvesting; and
- Ongoing research and development on adaptive management practices to protect biological diversity.

The IFA considers that:

- Timber production is a renewable, low energy use industry that need not threaten biological diversity;
- Excluding timber production from native forests does not guarantee protection of biological diversity; and
- Native forest ecosystems can recover from disturbance caused by timber harvesting and fire.

### Further Information

Department of Environment, Sports and Territories (1996) National Strategy for the Conservation of Australia's Biodiversity. <http://www.environment.gov.au/biodiversity/publications/strategy/index.html>

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Vanderwoude Cas, Lobry De Bruyn, Lisa A.,and House, Alan P. N. (2000) Long-term ant community responses to selective harvesting of timber from Spotted Gum (*Corymbia variegata*)-dominated forests in south-east Queensland *Ecological Management and Restoration*.1(3). p.204-214.

(Policy approved 3 June 2007) Institute of Foresters of Australia PO Box 7002, Yarralumla ACT 2600



# Maintaining Forest Health

(IFA Forest Policy Statement Number 1.5)

## Key statement

Increased public and private sector funding is needed to improve the capacity to manage for production and sustainability of forest values through research, education and training that takes into account the major long term challenges to forest health.

## The Issue

There are many threats to forest health that can affect their commercial and environmental values, including biodiversity. These threats include biological factors such as weeds, animals, insects, fungi, viruses and physical factors such as drought, flooding and fire. While forests are adapted to tolerate some level of these biological and physical threats, excessive levels or incidences can cause damage and disease. Plantations are especially susceptible to disease. The threat is particularly high for exotic pathogens and pests to which there may be only a low natural level of tolerance. Anthropogenic climate change may exacerbate these threats.

## Background

This section provides referenced examples of existing and potential threats to forest health in Australia covering the range of factors described above. The section also briefly describes the risks arising from increased use of plantations for wood production and the need for regular forest health surveillance.

The cinnamon fungus (*Phytophthora cinnamomi*) is an example of an introduced pathogen that caused widespread damage to eucalypt forests in temperate regions of Australia after being first identified in various parts of Australia in the 1960s (Newhook and Podger 1972). Considerable research was required to identify the cause, to develop management strategies to control spread and to identify resistant tree species for reforestation of damaged areas (Cahill *et al.* 2008). These management strategies, including monitoring procedures, are now effectively controlling spread and limiting damage in affected areas.

Guava rust (*Puccinia psidii*) is an established complex of pathogens in the Americas but is not currently present in Australia (Simpson *et al.* 2006). If introduced, this fungus could devastate *Melaleuca* and many other taxa from the plant family *Myrtaceae* across tropical and sub-tropical regions of Australia. *Phytophthora pinifolia* has caused widespread mortality of *Pinus radiata* in Chile (Duran *et al.* 2008). Casuarina blister bark disease caused by the fungus *Subramanianospora vesiculosa* is causing serious damage to stands in Africa, South and South-East Asia (Narayanan *et al.* 2003). Lymantriad moths, including gypsy moth, *Lymantria dispar*, also pose a serious threat (MAF 2008). These pathogens and insects illustrate the need for border biosecurity protocols and systems but also the need for preparedness to react to detection of new pathogens and pests.

Australia's forests are adapted to fire regimes ranging from frequent, low-intensity to infrequent, high-intensity. This adaptation is shown in features including bark, presence of dormant buds and lignotubers, seeds and seed pods (Florence 1996). Changes to fire frequency following the agricultural and urban settlement of Australia have necessitated changes in fire regimes to protect crops, homes and people. Attitudes to public forest management have also caused changes in fire regime. These changes have implications for forest health (Bartlett *et al.* 2007). Inappropriate fire frequency can change the distribution and density of some species with an overall decline in forest health and resilience.

Riverine forests and wetlands, including the red gum (*Eucalyptus camaldulensis*) forests of the Murray-Darling basin floodplain, are adapted to natural cycles of flooding and drying (Dexter *et al.* 1986). The regeneration and health of the plant species and their dependent birds, fish and other animals depends on those cycles. Dam construction and regulation of river flows to supply water to irrigate agricultural crops and for industrial and urban use affects those cycles, reducing or increasing the frequency and changing the duration and seasonality of flooding.

Government policies in Australia have for many years encouraged the development of commercial timber plantations as a complement and or substitute for timber production from native forests. Plantations now produce around two-thirds of the timber products used by Australians. Cost-effective commercial timber production in plantations typically requires that a narrow range of species and genotypes be selected. As well, natural control factors may be missing or less effective than in native forests. Plantations are therefore more susceptible to damaging disease and pests than native forests.

Monitoring of forest health is a typical feature of forests managed for wood production. Forest health surveillance involves the formal inspection of planted and natural forests by trained observers to assist the early detection of developing pests and disease problems. Australian state forest services have undertaken surveillance for pathogens, insects and symptoms of poor forest health for many years.

Forest industry biosecurity planning involves the identification and minimisation of risks posed by exotic pests through actions such as exclusion, containment, eradication, and control. The '*National Plantation Timber Industry*

*Biosecurity Plan* is aimed at reducing the risk posed by exotic organisms to the plantation timber industry through exclusion, containment, eradication and control.

## Policy

Professional foresters, managers of forests of all tenures and the public need to be educated about forest health issues. All forest managers should apply systems of forest health surveillance and implement strategies to control the spread and impacts of threats to forest health.

Maintaining forest health depends on forest health managers taking appropriate action not just understanding the impact of natural and human activities on forest ecosystems. Global trade has increased the need to protect plants and forests from exotic pest incursions. This requires rigorous application of pre and post border biosecurity protocols. Forest managers must understand and apply a wide range of scientific research and expertise. For example, epidemiologists who study the dynamics of pest and pathogen populations, entomologists who study the ecology of particular groups of insects, and pathologists who study plant diseases caused by pathogens.

Integrated planning, at the national and local levels, is required to deal with existing, new and potential forest health threats through prevention, surveillance and rapid response. Effectiveness of the '*National Plantation Timber Industry Biosecurity Plan*' relies on adequate funding and collaboration by all stakeholders, including government agencies, industry, and the public.

Production forests have species in common with conservation, urban and amenity forests. Exotic pests and pathogens will most likely enter and establish near international sea and airports near urban areas. It is therefore essential that forest health managers maintain close linkages with people responsible for care of urban and amenity trees. Forest health management needs to be an integral part of the continuum of health management in Australia (Beale *et al.* 2008). This will help to ensure that Australia maintains an effective diagnostic capability.

Australia can improve its capacity to maintain forest health by investing in research, education and training that takes into account long term challenges to forest health. The urgency for action is made more acute by the current decline in specialist and practical forest management expertise and the unknown rate and degree of future climate change effects. Action will require public and private sector funding into research and management capability addressing forest health.

The Institute of Foresters of Australia (IFA) advocates a national commitment to actively manage threats to forest health such as invasive insects and pathogens, invasive plants and animals, and inappropriate fire and water management.

The IFA supports and encourages:

- coordinated implementation of the '*National Plantation Timber Industry Biosecurity Plan*' recognising the continuum of health management in Australia
- systematic implementation of regular forest health surveys
- appropriate silvicultural practice and prescribed burning programs to maintain forest health

The IFA considers that:

- increased public and private sector funding is needed to improve the capacity to manage for production and sustainability of forest values through research, education and training that takes into account the major long term challenges to forest health.

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# Management of Private Native Forests

(IFA Forestry Policy Statement No. 2.2)

## *The Issue*

Many of Australia's private native forests are not well managed. In most States and Territories there is a lack of government policy and institutional support for the management of private forests and the marketing of wood from private forests is generally poorly coordinated. The potential environmental and economic contribution from private forests is also poorly recognised by landowners and the community, which contributes to the continuing conversion of private forests to other land uses.

## *Background*

Private native forests (including woodlands) are those in freehold ownership and those in public ownership but privately managed through leasehold arrangements. There are approximately 108 million hectares of native forest in Australia held under either freehold (42 million hectares) or leasehold tenure (66 million hectares). They represent 68% of Australia's forests and include the full range of forests and woodland ecosystems.

Private native forests are owned by a large number of landowners, with varying sizes of ownership. They are used for a variety of purposes including sawn timber, veneer, speciality timbers, posts and poles, woodchips, firewood, and provide a range of non-wood values such as apiary, grazing, water production, soil protection, salinity mitigation, landscape, biodiversity conservation and recreation.

Australia's timber industry has a heavy reliance upon private forests especially in Northern NSW, Southeast Queensland and Tasmania, where 45-75% of the total sawlog production is from private forests. Australia's privately owned woodland forests are also important sources of firewood and other forest produce.

Tasmania has comprehensive and effective institutional, regulatory and extension arrangements to support for the long-term sustainable management of private forests. Arrangements in other States and Territories are less comprehensive.

Most privately owned forests have a long history of human intervention, hence undisturbed forest and old growth forest are uncommon on private land. However, private native forests have important conservation significance as many forest and woodland ecosystems are poorly represented on public land. Private forests increasingly are being recognised for their water production, biodiversity, carbon sequestration, salinity mitigation and landscape values (environmental services).

The wide range of conservation and public good benefits from private forests are not well understood by the community and there are limited market mechanisms to allow economic valuation of these environmental services. Consequently, private native forests have been converted to other land uses, including agriculture and urban development. In the absence of incentives or environmental services markets to promote sustainable forest and woodland management there will continue to be strong drivers to clear forests for agriculture.

## *Key aspects of sustainable forest management of private native forests*

- Effective policy, legislative and institutional framework to encourage retention and sustainable management, including right to harvest arrangements and Codes of Forest Practices;
- Valuation of environmental services or incentives to encourage native forest retention and sustainable management through stewardship arrangements;
- Accurate inventories of the extent, distribution, types, uses and values;
- Provision of competent forest management extension advisory services and forest management services from qualified professionals to private landholders;
- Promotion of markets, access to market information and encouragement of investment infrastructure;
- Development of property management plans that incorporate the forested land component and specify requirements for its sustainable management;
- Promotion of private native forest management as a sustainable and profitable land management system;
- Management and economic measures that protect high conservation value forest;

## *Policy*

The Institute of Foresters of Australia considers that private native forests provide important multiple benefits to the community and that improved institutional support is generally needed to facilitate sustainable management of these forests.

The Institute of Foresters of Australia supports:

- Sustainable management of private native forests to provide renewable timber resources and to maintain environmental and conservation values;
- Development of an appropriate policy, legislative and institutional framework conducive to profitable and sustainable management of private native forests for production, environmental and conservation values;
- Recognition of the important stewardship role of private forest owners and the need for appropriate incentives and environmental service payments to encourage sustainable management of private forests;
- Application of appropriate management plans and Codes of Practices for timber harvesting to protect the many values of private forests;
- Regular inventories of privately managed forests to monitor their composition, extent and condition.

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# Plantations in Rural Landscapes

(IFA Forestry Policy Statement No. 2.3)

## The issue

The development and expansion of plantations requires that sufficient areas of cleared land are available to be planted. Remnant native vegetation may impact negatively on the establishment, growth and management of plantations. However, clearing of substantially intact areas of native vegetation for plantations can threaten regional conservation objectives.

## Background

The National Principles on Forest Practices Related to Wood Production in Plantations, agreed between the Commonwealth and the States, says "Native forests should not be cleared for plantation establishment where this would compromise regional conservation and catchment management objectives."

Large areas of substantially cleared land are required for the expansion of the plantation resource in Australia to meet the goals contained in the policy statement "Plantations for Australia: The 2020 Vision". In the past, many of Australia's plantations were established by clearing native forest. In recent years, most plantations have been established on marginal agricultural land that has already been cleared of forest.

Most agricultural land suitable for plantation forestry also includes areas of remnant native vegetation, varying in size from single trees to substantial areas. These areas of remnant native vegetation and their impacts must be considered in new plantation developments. Remnant trees may impede plantation establishment and growth, but in some circumstances may have important conservation values, such as nesting sites for birds and mammals. Larger patches of remnant vegetation have greater conservation benefit, and can generally be accommodated in large plantation areas. In some circumstances, the maintenance of native vegetation within plantations can have benefits for stand productivity and the maintenance of key ecosystem processes.

Most States and Territories now have legislation that aims to protect significant native vegetation from clearing. However, this legislation can be complex to implement at the local scale, and may act as an impediment to the development of plantations on agricultural land. The challenge for plantation developers is to achieve the appropriate balance on a landscape scale of native vegetation retention and clearing for plantation establishment.

## Policy

The Institute of Foresters of Australia (IFA) advocates the continued development of plantations in rural landscapes to meet the 2020 Vision target provided this development balances environmental, social and economic benefits.

The IFA supports and encourages:

- expansion of plantations on cleared farmland where long-term economic, employment and environmental benefits outweigh the social and environmental impacts.
- application of industry Codes of Practice and Environmental Management Systems in plantation development
- open industry communication leading to increased community understanding of potential impacts and benefits of plantations development.
- ongoing research and development into appropriate species and management practices that will enhance the development of plantations.

The IFA considers that:

- the benefits of plantation development in rural landscapes can be maximised and the impacts minimised by:
  - ◆ development of opportunities for downstream processing
  - ◆ support by the forest industries of local businesses and communities
  - ◆ equitable contribution by the industry to fire prevention and suppression
  - ◆ infrastructure planning on a regional rather than industry basis and appropriate plantation industry contribution to road maintenance
  - ◆ integration of forestry plantations into farming enterprises where appropriate.

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(Policy approved 20 November 2003) Institute of Foresters of Australia PO Box 7002 Yarralumla ACT 2600



# Forest Management Planning

(IFA Forestry Policy Statement No. 2.6)

## The Issue

Foresters prepare management plans to guide forest management activities taking into account the range of forest uses and values. Forest management occurs at several levels, from State-wide, regional to operational, depending on the relevant laws and land tenure. In recent years there has been an increasing demand for effective stakeholder participation in developing these plans for public forests as well as for effective planning processes for forest management certification schemes.

## Background

In Australia, management plans are required under State and Territory legislation for public forests and increasingly plans are prepared for all forest lands involved in forest certification schemes. Generally forest management plans are prepared at either the strategic or operational level. Strategic plans may cover a State, region or property and establish broad strategies for forest management. Operational plans are more detailed plans for smaller areas to guide particular forest operations such as forest harvesting.

The earliest forest management plans in Australia, written in the 1920s, focused on long-term timber production on public land. They were often detailed, highly prescriptive documents with limited external input. Since that time management plans have undergone considerable development and are now based on data from extensive environmental and resource surveys and inventories. These provide for the balanced use and care of forests in order to meet a wide range of conservation, resource use, social and cultural requirements.

In addition to meeting the statutory requirements, forest management plans in the 21<sup>st</sup> century take account of national, state and local government policies, as well as Regional Forest Agreements (RFAs), Codes of Forest Practice and the requirements of certification schemes. On private land, forest management plans need to take account of regional natural resource management, catchment management and vegetation plans as well as statutory planning and approval processes. Because of the variability of situations, it is important that planning processes are flexible and reflect the management intent, area and type of forest and ownership.

Throughout the world and around Australia, there is a recognition that sustainable forest management requires meaningful and effective participation of stakeholders who have an interest in the management of the forest or who will be affected by decisions about its management. Increasingly the preparation of forest management plans is not the sole responsibility of foresters. On public land botanists, zoologists, ecologists soil conservationists and other specialists contribute to the development of the plans and a number of agencies may be involved in the approval of the plan. As more and more production forestry occurs in private plantations and forests, forest managers need to consult with stakeholders such as local government, catchment authorities and local communities when developing forest management plans.

Generally strategic forest management plans:

- describe the forest area under management; including the resources, uses and values;
- identify the applicable legal requirements and other external planning requirements relevant to the area;
- identify the management objectives of the area;
- describe the management strategies, zoning and/or prescriptions that will be implemented to achieve the objectives and to protect values;
- provide opportunities for public comment and participation in the planning process;
- provide for an appropriate level of monitoring of implementation of the plan and for a substantive review after five to ten years.

Generally operational forest management plans:

- describe the area including the topographical features and boundaries of the area where the operation will be conducted;
- describe the forest operation to be conducted and any prescriptions that apply to ensure that desired outcomes are achieved;
- indicate sites of significance or areas to be excluded from the forest operation.

## Policy

The Institute of Foresters of Australia (IFA) advocates the development and implementation of strategic and operational management plans on all forest land tenures to guide sustainable forest management and provide for the diverse range of uses and values.

The IFA recognises:

- that forests have multiple and diverse uses and values that need to be sustainably managed;
- the value of appropriate stakeholder input in the development of strategic forest management plans for forests on all tenures.

**The IFA considers that:**

- strategic forest management plans should be integrated and holistic taking into account the risks and threats to the range of environmental, cultural, social and economic forest values at a landscape level as well as the management strategies on any adjoining forested land;
- operational plans should facilitate efficient management of forest operations and the protection of important values.

The IFA supports:

- forest planning processes that are appropriate to the scale, ownership and type of forest and its management intent;
- monitoring and review of strategic management plans every five to ten years as well as periodic auditing of the implementation of operational plans;
- the use of appropriate criteria and indicators as a framework for monitoring sustainable forest management.

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(Policy approved 16 November 2005) Institute of Foresters of Australia PO Box 7002 Yarralumla ACT 2600



# Timber Production in Native Forests

(IFA Forestry Policy Statement No. 2.7)

## **Key Statement**

Timber production in Australian native forests is a valid and legitimate long-term forest use, when managed using the principles of ecologically sustainable forest management to achieve the objectives of the forest owner and the community's expectation that all forest values will be maintained in perpetuity.

## **Issue**

Timber production from Australian public native forests has declined over the past decade largely due to changing community expectations and the policies of the Commonwealth and State Governments. With ongoing transfers of public native forests to conservation reserves and the application of stringent regulations on timber harvesting within native forests available for timber production., an impression is created in the community that harvesting of timber from native forests is not a preferred use.

## **Background**

Implementation of the 1992 National Forest Policy Statement through the development of Regional Forest Agreements, combined with ongoing community opposition to timber harvesting in public native forests has led to a series of changes that have impacted on timber production in native forests. There have been large transfers of timber production forest to conservation reserves, where no timber harvesting occurs, as well as significant reductions in allowable harvest levels and significant changes to the regulation of timber harvesting.

There is an overwhelming body of scientific evidence that Australian native forests can be harvested for timber production while maintaining ecological sustainability. Australian silviculture often mimics natural disturbance processes, such as wildfire or storm events, where regeneration follows the creation of openings in the forest. There is a long history of harvesting native forests in Australia with resultant regrowth.

Native forests often have complex ecological interactions of flora, fauna and soil. Forestry professionals with up-to-date knowledge and skills are capable of managing the harvesting of native forests to achieve stated objectives within the framework of ecological sustainability.

Australia has large areas of native forest, which can produce high quality hardwood timbers to meet domestic demand. Many of these products can not yet be produced in plantations. Failure to produce such timber products within Australia will lead to increased imports, often from developing countries whose forests are not managed to the same high standards as those in Australia, and a consequential imbalance in Australia's forest products trade.

Native hardwood forests produce very high value durable timbers for round and sawn products, including girders, poles and piles, which are used in high value infrastructure projects in roads, rail, wharves, powerlines and buildings. Such timbers are difficult to grow in plantations and substitutes of other building materials have been shown to be either inferior or higher cost. Native forest timbers are also used for furniture, flooring, exposed structural elements, panelling and craft products. These timbers come from a wide range of native species, which have a variety of distinctive colours and grain. These timber products are uniquely Australian and provide a quality of life benefit to society.

Native forests also produce a wide range of other important timber products, including pulpwood for paper and panel boards and firewood. These products may have different uses and values, but they are produced as a part of the total allowable harvest.

Australian native forests cover a wide spectrum of climate and landform, with many forests providing a low yield of timber per hectare compared to plantations. Nevertheless, timber production from these native forests supports industries in remote rural communities where plantation forestry would not occur due to insufficient economic return or available cleared land.

Harvesting of native forests for timber production also provides road access for other compatible activities including recreation, ecotourism and the production of non-timber products such as honey.

Native forests are often subject to damage agencies such as insect, fungi, fire and extreme weather events which can be mitigated by harvesting activities to either prevent the damage occurring, or to salvage timber which would otherwise be wasted. Thinning of dense regrowth forests provides a source of timber while at the same time promoting healthy forests and minimising the risk of wildfire and insect attack.

## **Policy**

The Institute of Foresters of Australia advocates that significant areas of public and private native forests continue to be managed for timber production while maintaining ecological sustainability and other forest values.

The IFA supports and encourages the:

- adoption and maintenance of standards for management for native forests which are based on scientific principles and research evidence, to achieve ecological sustainability;
- management of native forests to produce high value timber products that can not easily be produced in plantations;
- implementation of thinning programmes in regrowth forests as well as the utilisation of all timber products that are unsuitable for high value uses during harvesting operations; and
- maintenance of sufficient flexibility in the calculation of sustainable timber yields for native forests to accommodate changes to the knowledge of the ecology of such forests.

The IFA considers that:

- producing timber from native forests provides many benefits to all Australians; and
- forestry professionals have the skills to implement management strategies to meet forest owner's objectives and community expectations regarding production of wood products and maintenance of other forest values in native forests.

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# Forest Regulation and Codes of Practice

(IFA Forest Policy Statement No. 2.8)

## Key Statement

Codes of practice provide an effective tool to regulate forest management activities, such as timber harvesting and roading. All significant forest activities should be subject to codes of forest practice, irrespective of land tenure, which are effectively implemented, regularly reviewed and audited with public reporting or audit results.

## The Issue

Forest management activities and practices, such as timber harvesting and roading, have the potential to impact adversely on other forest values if not carried out in an appropriate manner. Effective Codes of Forest Practice, are essential to control the standards of on-ground implementation of all significant forest practices in order to protect forest wood and non-wood values for the community.

## Background

Over the last decade initiatives, such as the Regional Forest Agreement process, and other forest conservation and protection measures has substantially reduced the proportion of the forest estate managed for timber production and related activities in public multiple-use forests. In most public native forests, substantial areas are set aside for conservation and the protection of water quality and other forest values.

Forest management planning for multiple-use forests provides a means to meet statutory requirements and provide for the full range of forest values in areas which are available for timber harvesting. Comprehensive forest management plans take account of national, state and local government policies, as well as the requirements of Regional Forest Agreements. In forests and plantations where timber harvesting is permitted, Codes of Forest Practice provide the basis for regulating on ground implementation of timber production and roading.

Most States and Territories have developed Codes of Forest Practice, which apply to public and/or private forests. Some jurisdictions also have significant regulatory controls over forest management activities such as timber harvesting. Codes of Forest Practice provide for the most effective balance between production and conservation and a flexible model to deal with the variability of situations, management intent, area and type of forest and ownership. Such Codes are based on best available science and knowledge and provide a set of guidelines and standards to ensure reasonable protection of the environmental and cultural values of the forest during the implementation of forest practices.

When effectively implemented Codes of Forest Practice can ensure that commercial timber growing and harvesting operations are carried out on both public land and private land in such a way that:

- is compatible with the conservation of the wide range of environmental and social values associated with forests;
- promotes the ecologically sustainable management of native forests proposed for continuous timber production; and
- enhances public confidence in the management of native forests and plantations for timber production.

The major challenges related to Codes of Forest Practice are to:

- ensure effective implementation of existing Codes of Forest Practice across all timber production and roading activities, regardless of land tenure;
- enhance coverage of regulations and codes of practice to deal with other significant forest activities;
- ensure there is regular review, auditing and public reporting of Codes of Forestry Practice;
- promote training and support to all forest managers in developing and implementing codes, particularly in small scale harvesting activities; and
- ensure that codes of practice on private land are developed in a way that is appropriate to the scale, ownership and type of forest and management intent.

## Policy

The Institute of Foresters of Australia (IFA) advocates the ongoing development, implementation, auditing and review of Codes of Forest Practice and associated forest regulations, to cover all significant forest management activities, irrespective of land tenure.

The IFA considers that:

- codes of practice provide an effective tool to regulate forest management; and

- appropriate training and support is needed to assist forest managers and those who implement forest activities to meet code of practice requirements.

The IFA supports and encourages Codes of Forest Practice which:

- promote best practice forest management;
- are based on best available science and knowledge;
- set minimum environmental standards;
- are subject to regular public review; and
- are backed by appropriate support, monitoring, compliance, audit, public reporting and where required, enforcement.

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# Silviculture in Australia's Native Forests

(IFA Forestry Policy Statement Number 2. 9)

## Key Statement

Silvicultural practice in Australian native forests represents applied ecology where natural ecosystem processes are managed to create and maintain a structure and species composition that best fulfills the diverse needs and values of landowners and society on a sustainable basis. Silvicultural intervention in native forests can enhance the supply of desired forest goods and services while ensuring all ecological processes are maintained.

## The Issue

Given the great diversity in species, stand structure, tree condition, regeneration requirements and management objectives in native forests, no single silvicultural system will be appropriate in all situations. An appropriate silvicultural decision requires knowledge of the ecology and current circumstance of each stand and agreement on the desired management objectives. Silvicultural practice in this way can enhance forest health and productivity, water yield and biodiversity as well as reduce adverse impacts of severe wildfires and other perturbations, thereby contributing to sustainable forest management.

## Background

Silviculture is the art and science of controlling the establishment, growth, composition and quality, health, protection and utilization of stands of trees or forests to meet the diverse needs and values of forest owners and society on a sustainable basis. Silvicultural practice embodies a range of treatments to maintain and enhance the utility of the forest for any defined management purpose.

Silvicultural systems generally refer to the processes and practices used to regenerate, tend and harvest forests and are classified in terms of whether they produce even aged or uneven aged forests, and by the size of canopy openings created in order to achieve regeneration. Given the great diversity in native forest ecosystems there is no single system which can be applied to all forest types, even if the management objectives are similar. The most common silvicultural systems used in Australian forests are based on clearfelling, clearfelling with seed trees, and the harvesting of single trees or groups of trees. Recently, aggregated retention systems have been trialed in tall wet forests. As fire has helped shape Australian forest ecosystems, its use can be an integral and extremely important part of silvicultural practice. Chemicals may also be used to thin dense stands of regrowth or to remove weak or poorly formed trees that are inhibiting the growth of potentially vigorous trees.

Australian native forests are diverse - including rainforest, multi-aged wet sclerophyll forests, dry sclerophyll forests, even-aged forests or stands resulting from fire, the river red gum forests reliant on water flow for regeneration, and the inland cypress forests. Each forest type requires the application of appropriate and often specific silvicultural practices to achieve both ecological sustainability and management objectives - be they timber production, water management or conservation. Within any given forest, silvicultural practice should also take account of the diversity in stocking and structural attributes of forest stands and, particularly, historical influences on the tree condition and stand productivity. For example, where forests have been selectively cut over periodically to remove only high quality logs, the forest may now be dominated by trees of non-commercial species or trees in a growth-restricted, defective or otherwise non-commercial condition.

One of the challenges of implementing silviculture in public native forests is ensuring that land managers and society agree on management objectives and the priorities attached to the various uses and values, especially where there are multiple and conflicting objectives. Other challenges include provision of required funding and maintenance of the skills required to implement silvicultural practices and monitor outcomes.

Research has been essential to the development and improvement of sustainable management strategies for Australia's native forests. The development and testing of silvicultural practice requires an ongoing adequately funded and co-ordinated research program linked to operational scale monitoring and a network of long-term research sites.

Native forest silviculture is no longer concerned simply with traditional sustained yield forestry for wood production. Society's expectations are now much broader, requiring an integrated ecosystem based or 'new forestry' approach. Native forests are now managed at multiple scales: trees, stands, and landscapes. Silviculturists are required to develop and apply approaches that produce landscapes with stand structural diversity, very different from an ordered sequence of stand ages. Modern silvicultural systems integrate multiple and often conflicting objectives, and consider forest stands as elements in a broader landscape, and not as isolated patches.

The production of timber, although a common objective, is neither the only objective nor necessarily the dominant one. Conservation of wildlife and timber production may be co-equal objectives in many forests –as will management for timber and grazing in others. Biodiversity takes precedence in forest with high conservation values, and water yield and quality are pre-eminent in dedicated water supply catchments. In many native forests the

impacts of severe wildfires and other perturbations, soil erosion, a decline in biodiversity, water yields, forest health and economic productivity are issues which good silviculture can address.

### **Policy**

The IFA advocates that silvicultural practice in native forests, incorporating prescribed burning, is a necessary part of sustainable forest management on all land tenures and should be attuned to natural ecosystem processes and conducted to achieve forest management objectives to meet the diverse needs of landowners and society.

The IFA supports and encourages:

- The development and implementation of silvicultural systems that take an ecosystem based approach, considering multiple scales of management that are designed to create and maintain the type of native forest that best fulfills the diverse needs and values of landowners and society on a sustainable basis;
- The use of a variety of silvicultural systems and practices in native forests, that are economically, socially and environmentally appropriate for the forest type in which they are applied;
- Greater use of silvicultural intervention in native forests, to maintain and improve their health, regenerative capacity and productivity, according to the priorities attached to the various forest goods and services;
- The application of silvicultural standards, relevant to a particular forest type, that include explicit objectives linked to quantitative standards and scientifically based monitoring protocols;
- Continued research into improved silvicultural techniques to match natural processes and competing demands for timber, water, biodiversity and other forest values; and
- The use of prescribed burning, appropriate chemicals and selective or non-commercial harvesting as silvicultural tools.

The IFA recognises that:

- Balancing the diverse values and management objectives from native forests involves trade-offs between particular outputs; and
- The choice of appropriate silvicultural practice requires knowledge of the ecology and condition of the forest as well as the desired management objectives and outputs.

The IFA considers that:

- Land managers need to develop clear priorities and realistic objectives for the management of native forests as a precursor to implementing appropriate silviculture;
- Silvicultural practices contribute to ecologically sustainable forest management in terms of maintaining forest community patterns and processes as well as the health and productivity of the forest;
- Silvicultural treatments are required in some multiple use forests and conservation reserves to improve forest health and counteract undesirable ecosystem changes resulting from previous poor management practices;
- Decisions on appropriate silvicultural practices should ensure effective regeneration of the range of species within a forest, maintain forest health and consider occupational health and safety requirements; and
- Thinning and or culling of trees in multiple use forests can maintain their productive capacity and in some cases enhance growth on trees important for biodiversity conservation.

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(Policy approved 7-08-2008) Institute of Foresters of Australia PO Box 7002, Yarralumla ACT 2600 Australia



# Criteria and Indicators of Sustainable Forest Management

(IFA Forest Policy Statement No 2.11)

## Key Statement

Sustainable forest management involves managing a wide range of economic, social and environmental values in perpetuity. To ensure a consistency in assessing sustainable forest management, forest owners should assess their forest management against appropriate criteria and indicators covering the full range of benefits that forest ecosystems provide.

## The Issue

Sustainable Forest Management should be the goal for management of all forests to maintain their full range of benefits - environmental, economic and social, for both present and future generations. The development of internationally recognised criteria and indicators provides a common understanding for sustainable forest management and an agreed framework for assessing "How well are we managing our forests?"

## Background

The 1992 UN Conference on Environment and Development (UNCED) recognised the importance of sustainably managing all types of forests and woodlands in order to meet the needs of present and future generations. The UN Non-Legally Binding Instrument (NLBI) on all types of forests recognises that sustainable forest management, as a dynamic and evolving concept, is intended to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations.

The Montréal Process is the Working Group on Criteria and Indicators for the Conservation and Sustainable Management of Temperate and Boreal Forests.. Separate processes were established to develop criteria and indicators for European and tropical forests. These processes all have common 'thematic elements' that are now used as a basis for the UN Global Forest Resources Assessment.

The criteria and indicators developed under the Montreal Process provide a common framework for describing, assessing and evaluating a country's progress towards sustainable forest management at the national level. The criteria describe the broad forest values that society seeks to sustain while the indicators are more specific measures that can be used to assess changes over time. They also help provide an international reference for policy-makers in the formulation of national policies and a basis for international cooperation aimed at supporting sustainable forest management.

The Montreal Process criteria and indicators have been used to guide the development of Australia's approach to sustainable forest management. These indicators take into account relevant international agreements, Commonwealth, State and Territory legislation and policies. The State of the Forests Report uses these criteria and indicators to report on forest management in Australia.

Some forest managers, for both public and private forest, have developed and implemented additional sustainability indicators that sit within the Montreal Process framework. These address particular local sustainable forest management parameters.

The approach reflected in the criteria and indicators is the management of forests as ecosystems. It is recognized that no single criterion or indicator is, in itself, an indication of sustainability. Specific criteria and indicators should be considered in the context of the other criteria and indicators.

Changes in the status of forests and related conditions over time, and the direction of the change, are relevant to assessing sustainability. Reporting data on indicators for a single point in time is of little value and monitoring changes in indicators is essential to evaluating whether and how progress is being made toward the sustainability of forest management.

## Policy

The Institute of Foresters of Australia (IFA) advocates the use of internationally agreed criteria and indicators of sustainable forest management. In Australia the indicators need to be adapted to reflect specific regional conditions, forest types and management approaches.

The IFA supports and encourages:

- Forest managers to adopt internationally accepted criteria for sustainability on forest under their management control to enable review of existing practices and promote continuous improvement in forest management.
- The use of internationally accepted criteria for sustainable forest management in certification schemes for Australian forests.

The IFA considers that:

- Criteria and indicators of sustainable forest management should be reviewed and refined on an on-going basis to reflect changing circumstances, new knowledge as a result of research, advances in technology, increased capability to measure indicators, and an improved understanding of what constitutes appropriate indicators of sustainable forest management on all forest lands and tenures.
- The importance of collecting accurate data about forests to support the interpretation of indicators is not sufficiently recognised and that many forest owners, including Governments, are not making sufficient investment in monitoring and data collection.
- Within countries and individual regions, the application and importance of the criteria and their respective indicators will vary between land tenures, forest use and their applicability to native forest and plantations.

### **Further Information**

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### **Definitions**

#### Criterion

- A category of conditions or processes by which sustainable forest management may be assessed.
- A Criterion is characterized by a set of related indicators which are monitored periodically to assess change.

#### Indicator

A measure (measurement) of an aspect of the criterion. A quantitative or qualitative variable which can be measured or described and which, when observed periodically, demonstrates trends.

(Policy approved 16 November 2009) Institute of Foresters of Australia PO Box 7002, Yarralumla ACT 2600 Australia



# The role of fire in Australian forests and woodlands

## Forest Policy Statement No. 3.1

### The Issue

Fire is critical to the maintenance of biodiversity and ecological processes and contributes to the distinctive nature of Australian forests and woodlands. At the same time, uncontrolled fires pose a serious threat to human life, property, community assets and forest values including water, wood and biodiversity. Large-scale high intensity fires, often referred to as firestorms, have periodically inflicted major losses on the community since European settlers arrived in Australia. Inappropriate fire regimes may also threaten ecological values. In most Australian forests, complete fire exclusion is neither feasible nor ecologically desirable. Forest managers must therefore seek to understand the role of fire and to manage it in ways that complement broad objectives for land management.

### Background

Fire is one of the most important factors in the ecology of Australian forests and woodlands. Charcoal deposits in lake sediments and pollen evidence indicates that forest fires have occurred periodically since Tertiary times, more than 16 million years before present. Aboriginal people have inhabited much of the continent for more than 40 000 years and over this period have used fire as a management tool for cooking, hunting, maintaining access and for spiritual reasons. The landscapes that European colonists and their descendants have come to recognise as being distinctively Australian have been fashioned by fire over many generations of aboriginal burning. Lightning causes a substantial number of bushfires, and is likely to have been an important source of ignition in pre-historic times. Bushfires are a characteristic feature of forests and woodlands throughout Australia. At one extreme, extensive areas of grassy forest and woodland in northern Australia burn annually or every few years. In contrast, tall moist forests in southern Australia may experience high intensity fires at irregular intervals of decades or even centuries. Between these extremes combinations of frequency, intensity, season, scale and patchiness of burning characterise various fire regimes.

Fire regimes are influenced by environmental factors including climate and weather, topography, soils, and the characteristics of the vegetation itself. In many forest landscapes, fire regimes have changed dramatically in the last two centuries as a result of agriculture and urban development, changes in land management practices, legislative restriction of the lighting of fires, and organised fire control.

Occasional extreme events such as prolonged droughts and severe fire weather conditions can greatly increase the scale and intensity of fires beyond what is experienced in an average season. The effects of extreme bushfire events on human society and the environment can be profound.

Fire plays an important role in a number of ecological processes within forests and woodlands. Heat, smoke and ash provide triggers for germination of many plant species, and a number of eucalypts regenerate best on ash seedbeds produced by burning. Fire regimes affect nutrient cycling processes in forests, and fire is instrumental in mobilising some elements into inorganic forms that are available for uptake by plants. Fires also result in loss of nutrients from forests and woodlands in the form of particulates in ash and smoke, and volatilisation. Stand development processes including recruitment, mortality, senescence, hollow formation and litter accumulation can be substantially influenced by fire, with resulting effects on structure, density and composition of understorey and overstorey layers. For this reason there is often a direct relationship between fire regimes and structural features of the vegetation that determine habitat condition and population densities of many fauna species. In some environments, fire regimes play an important role in determining the ecotone between different vegetation types including rainforest, eucalypt forest, shrubland and grassland.

Excluding fire from naturally fire prone forests and woodlands can result in conditions quite different from those that have historically given rise to these ecosystems. Altered fire regimes may be linked to changes in ecosystem health and vitality, regeneration patterns, weed invasion and occurrence of pests and diseases. Fire exclusion is also very likely to increase the risk of large-scale high intensity bushfires. While such fires are an important trigger for regeneration in some forest and woodlands, they can also have adverse effects including loss of heterogeneity in vegetation structure, temporary increases in stream sedimentation, and persistent reductions in stream flow from forested catchments.

Fires in forests and woodlands can produce very large quantities of smoke and release significant amounts of greenhouse gases. Heavy concentrations of bushfire smoke can inconvenience the community and cause significant economic loss if the use of airports and major roads is restricted. At a national scale, fire regimes have considerable scope to influence greenhouse gas emissions and carbon balances and need to be managed accordingly. It is likely that these global issues will increase in prominence in the years to come.

### Policy

The Institute of Foresters of Australia (IFA) advocates the need for a better appreciation of the important and complex role that fire plays in the evolution and maintenance of Australian ecosystems, including the collection and

analysis of comprehensive scientific information and the effective distribution of information to policy makers, land managers and the community.

The IFA recognises that:

- fire is an agent of ecological change which has an important and on-going role in maintaining biodiversity and ecological processes in Australian forests and woodlands;
- the ecological effects of fire vary according to the season, frequency, intensity, scale and patchiness of burning in a landscape;
- forest fires can have effects that are significant at local, regional and global scales

The IFA considers that:

- State, Territory and the Australian governments have a responsibility to provide adequate resources for and coordinate research into the behaviour, environmental effects and social impacts of bushfires;
- A decision to deliberately exclude fire from naturally fire-prone forests and woodlands as an extreme fire regime that can have adverse consequences for ecosystem condition in the longer term;
- communities, agencies and governments should foster cooperative arrangements in relation to understanding and managing the impacts and use of fire in Australian ecosystems;

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# Community Awareness and Knowledge on Forestry

(IFA Forest Policy Statement No. 5.4)

## Key Statement

Current, accurate and accessible information is essential for the community to understand and support the social, economic and environmental outcomes from forest management practices on State and private land.

## The Issue

Community awareness and interest in forestry has intensified in recent years as governments, interest groups, the community and forest managers have engaged in debate over forest land use and management practices. However, community awareness and knowledge of forest management practices is often hampered by lack of factual information. Community perceptions about forestry are often influenced by the negative portrayal of the short-term impacts of disturbances, such as timber harvesting, without a proper understanding of the dynamic nature of forests or the importance of the forest industries.

## Background

Differing views on how, when and where forest management should occur have prevailed for almost as long as forests have existed. Forests have multiple uses and accordingly each user has particular views on how these forest values are managed and how other uses impact on the values of interest to them. The differing views about forests can be very emotive and at times in conflict with those of other forest users. It is therefore important that organisations, community and the general public have factual information about forest management available to educate and inform them.

Forest managers have typically not responded strongly to criticism of forest management practices because the conditions of their employment prevented that, and they have relied upon members of the public to source factual information through their own initiative. This has allowed misleading or incorrect information or an incorrect interpretation of information to prevail.

Initiatives to raise community awareness need to highlight both the long-term nature of forestry and the importance of the forest industries to supply the nation's demand for forest products. Short-term impacts from activities, such as timber harvesting, should be considered within the broader context of maintaining forest values across the forest estate and the implementation of scientific-based forest management practices.

Looking to the future, forest managers must build trust and foster effective relationships with the community at large to ensure that forest processes and practices are better understood and that the broad range of forest values and the dynamic nature of forest management are supported.

## Policy

The Institute of Foresters of Australia (IFA) advocates for enhanced government and industry initiatives to make factual information on the social, economic and environmental outcomes of forest management practices available to students, interested community groups, forest-industry focused entities and the community at large.

The IFA supports and encourages:

- Raising the awareness of the community of the full range of forest values and of the role and impacts of scientifically-based forest management, as practiced and advocated by professional forest managers;
- Engagement by professional foresters with community and environmental organizations as well as the media to enhance public understanding of sustainable forest management;
- Educational initiatives by forest management agencies for teachers and students that focus on enhancing understanding and knowledge of forest management and environmental protection;
- Developing and maintaining demonstration forests and interpretative forest drives to enable the public to view and understand active forest management; and
- Continued strengthening of the knowledge base upon which sustainable forest management is based through ongoing research as well as monitoring and evaluation.

The IFA will:

- Work with governments, interest groups and communities to increase knowledge of forest management;
- Provide independent, professional advice and information about forest management and its impacts;
- Encourage the forestry sector to promote positive messages about forestry science and practice;

- Promote understanding of forest management as a science profession which includes a wide-range of fields including timber production, water catchment management, and recreation management; and
- Engage with environment and community organizations through designated media liaison officers in each State Division.

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# Recreation in Australian public forests

(IFA Forest Policy Statement No. 5.5)

## ***Key Statement***

Recreational and tourism opportunities in public forests should be encouraged within the limits imposed by conservation and management of other forest values.

## ***The Issue***

Recreation and tourism are in accepted uses of most areas of public forest. The various activities undertaken differ in their impact on the land, vegetation, wildlife and other forest values such as water quality. Generally, any activity pursued occasionally and at a low level of intensity, and within management constraints, poses little threat to the environment. However, as the intensity and frequency increase, or when constraints are not followed conflicts and negative impacts on forest values can arise. There is always the potential for recreation to damage the environment it uses.

## ***Background***

People seek a variety of recreational experiences during their leisure time and forests provide a myriad of opportunities for recreation and tourism. Some use areas with well-developed and maintained facilities where large numbers of people would be expected, and a management presence is obvious and regular. Others seek remote locations where they can avoid the intrusions of vehicles and other people and where the emphasis is on self-dependence and self-sufficiency. Between these extremes, recreation settings with a variety of facilities, access and levels of use are sought.

Recreation is an activity or planned inactivity undertaken without compulsion during a person's leisure time. Most recreation is undertaken for personal or social benefits. Tourism (recreational travel) tends to focus on the marketing of travel and generally visitors travel to multiple destinations in a region and have packaged commercial services and itineraries.

While various outdoor recreation activities may be undertaken in most public forests, some areas have exclusions or restrictions for visitor safety, or to protect specific scientific, natural, cultural or water-supply values. State forests complement recreational opportunities in National Parks by permitting activities that are not allowed or are restricted on parks. Clubs and recreation providers increasingly are organising large recreation events in public forests.

Recreational activities undertaken in forests range from passive to active, may be dispersed or concentrated, and may be undertaken with or without the use of motor vehicles, bicycles, horses or specialised equipment, such as for climbing. Some activities, like nature study, photography and bushwalking are dependent on access to the natural environment; for others, such as camping or picnicking, the natural environment provides a pleasant backdrop. In other cases, the infrastructure within the forest, such as a challenging four-wheel-drive track network, or the activity, such as fishing or hunting are more important than the natural environment itself.

Recreation and tourism can consume resources, provide educational opportunities and economic benefits, create employment and improve community health. Many regions in Australia rely significantly on public forests to contribute to the diversity of tourism opportunities demanded by tourists.

The potential beneficial or harmful effects impacts of various recreational and tourism activities on the environment can be local (like trampling of vegetation, disturbance to wildlife or erosion) or dispersed (contamination of water or transport of weeds). Recreation users also can compete for the same limited space or recreational opportunity. Active management, including zoning, is required to control and mitigate the impacts of these issues and to reduce public liability risks.

## ***Policy***

The Institute of Foresters of Australia (IFA) advocates for the ongoing provision for a wide range of recreation and tourism opportunities in public forests, in a manner that protects other forest values and doesn't limit options for future generations.

The IFA supports and encourages:

- The use of management plans, zoning systems, Codes of Conduct and permits to minimise conflicts between different forest uses and values;
- The provision adequate funding for the development and maintenance of recreation and tourism facilities in public forests; and
- The development of specialised recreation and tourism facilities within and adjacent to public forests, including through the use of public-private partnerships.

The IFA considers that:

- Forest-based recreation and tourism should be managed according to the capability of the respective areas to sustain such use and to avoid adverse impacts on other forest uses and values, while avoiding unnecessary restrictions;
- The nature and extent of activities permitted in a specific area must be consistent with the legislation under which the area is reserved and other relevant legislation (such as for fire, hunting, vehicle use or fossicking for gold or minerals); and
- Forest users should be aware of the inherent dangers of the natural environment, be responsible for their own actions and respect the forest owner's objectives and the rights of other users.

**Further Information**

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(Policy approved 8-11-2007) Institute of Foresters of Australia PO Box 7002, Yarralumla ACT 2600 Australia



# Environmental Services from Forests and their Valuation

(IFA Forestry Policy Statement No. 6.1)

## The Issue

Forests produce a wide range of non-wood products and services that have been traditionally treated as public goods with no explicit financial value. Examples include carbon sequestration, ground-and surface-water management, land rehabilitation, erosion control and biodiversity enhancement. Effective valuation of environmental services will assist forestry in competing with other forms of land use which may have higher short term returns.

## Background

A fundamental premise of sustainable forest management is that forests are managed sustainably for a range of benefits. However, financial returns from forest management have been restricted to traditional wood and wood related products, to non wood products and services where beneficiaries are clearly identifiable (e.g. beekeeping, seed collection, tours, some proportion of fire management), and to services where a general user fee may be payable, such as recreation.

The broader environmental services provided by forests have been treated as public goods, i.e. many people benefit but at no direct cost to themselves. For example, forests provide regulation of water flow and the maintenance of water quality, are reservoirs for biological diversity and play a key role in the long term survival of many species. Individuals do not pay for these benefits, at least not directly and certainly with no specific relationship between payment and service provision. Charges are often levied to help defray costs for some national parks. Recognition of the financial values of environmental services is creating opportunities for demonstrating the full value of forests as a land use thus increasing the potential for returns from existing forests and attracting investment to new forests.

Increasingly, planted forests are being established to deliver environmental benefits which have often been lost due to historic removal of native vegetation, particularly trees. Examples include planting trees for groundwater management to address dryland salinity; planting along riparian corridors to filter runoff, reduce erosion and enhance biodiversity; and planting trees to act as carbon sinks. Native forests are also being managed to deliver specific environmental services, such as protection of biodiversity and catchment management.

Lack of financial values attached to environmental services can make it difficult to attract investment funds to enhance management of existing forests or create new forests. The value of existing forests is not adequately accounted for because the economic value of environmental services and the cost of losing them is not being recognised. As a consequence, there is greater pressure to convert the forest to another land use that is apparently more profitable.

Purchasers of environmental services can be governments on behalf of the community when the benefits are broadly based or private entities when the benefits accrue to companies or individuals. Payment for environmental services can be based on a relatively simple contract that sets out the nature of the service and the terms under which they are supplied. This will require:

- quantification of the environmental service in a way that can be measured consistently and objectively;
- independent verification and validation of the service to engender confidence among potential buyers;
- identification of property rights to the environmental service since it is difficult to sell something where ownership is uncertain;
- identification and management of risks associated with delivering the service over time and ensuring appropriate financial settlement.

The potential for identifying and securing financial returns for the environmental services supplied by forests offers opportunities to revolutionise the way in which current forests are managed and investment in new forests is driven. In particular, there will be wider opportunities for attracting both private sector and more cost-effective public sector investment for reforestation in rural areas, because at least some of the environmental benefits from that activity could attract real financial returns.

## Policy

The Institute of Foresters of Australia (IFA) advocates a greater recognition by governments and the community of the range of environmental services supplied by forests as well as proper consideration of these values when land use decisions are made.

The IFA supports and encourages:

- continuing efforts to identify, quantify and financially value the full suite of environmental services from forests, including the development of standardised measurement, verification and risk management procedures;
- assessment of implications for environmental services associated with land use policies;
- development of market mechanisms to value and trade environmental services.

**Further Information**

Murtough, G., Aretino, B. and Matysek, A. (2002). Creating markets for ecosystem services. Productivity Commission Staff Research Paper.

O'Hara, Tony (2001). Environmental Services from Forests. [www.forest.nsw.gov.au](http://www.forest.nsw.gov.au)

Forest Trends [www.foresttrends.org](http://www.foresttrends.org)

(Policy approved 20 November 2003) Institute of Foresters of Australia PO Box 7002 Yarralumla ACT 2600

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