Review of the biodiversity provisions of the Tasmanian Forest Practices Code

A Report to the Forest Practices Authority
April 2009
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Pictures on front cover:
Centre: Eucalyptus delegatensis forest in Central Highlands Tasmania

Top left: A Forestry Tasmania forester working with FPA on a long term study researching Simsons stag beetle, Hoplogonus simsoni

Top right: Golden everlasting bush, Odixia achlaena

Bottom left: Masked owl, Tyto castanops (H. Wapstra)

Bottom right: an FPA researcher carrying out a tree fern survey

Citation

## List of shortened forms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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<tbody>
<tr>
<td>CAR</td>
<td>Comprehensive Adequate and Representative</td>
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<tr>
<td>CARSAG</td>
<td>Comprehensive Adequate and Representative Scientific Advisory Group</td>
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<tr>
<td>CBS</td>
<td>Clearfell Burn and Sow</td>
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<td>CRA</td>
<td>Comprehensive Regional Assessment</td>
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<td>CRC</td>
<td>Cooperative Research Centre</td>
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<td>CSIRO</td>
<td>Commonwealth scientific and industrial research organisation</td>
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<tr>
<td>CCU</td>
<td>Coupe Context Unit</td>
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<tr>
<td>CFEV</td>
<td>Conservation of freshwater ecosystem values</td>
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<tr>
<td>DPIW</td>
<td>Department of Primary Industries and Water</td>
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<tr>
<td>EMPCA</td>
<td>Tasmanian <em>Environment Management and Pollution Control Act</em> 1994</td>
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<td>EPBC</td>
<td>Commonwealth <em>Environment Protection and Biodiversity Conservation Act</em> 1999</td>
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<tr>
<td>ESFM</td>
<td>Ecologically sustainable forest management</td>
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<td>FPS</td>
<td>Forest practices system</td>
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<td>FT</td>
<td>Forestry Tasmania</td>
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<tr>
<td>GIS</td>
<td>Geographic Information System</td>
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<tr>
<td>HCV</td>
<td>High conservation value</td>
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<tr>
<td>IBRA</td>
<td>Interim Biogeographic Regionalisation of Australia</td>
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<td>JANIS</td>
<td>Joint Australian and New Zealand Environment and Conservation Council</td>
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<td>LUPAA</td>
<td>Tasmanian <em>Land Use Planning and Approvals Act</em> 1993</td>
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<tr>
<td>MDC</td>
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<tr>
<td>MEZ</td>
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<td>Private Forests Tasmania</td>
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<td>PNFEP</td>
<td>Permanent Native Forest Estate Policy</td>
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<td>Planning Context Unit</td>
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<td>R&amp;D</td>
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<td>(Tasmanian) Regional Forest Agreement</td>
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<td>SMZ</td>
<td>Special management zone</td>
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<td>SOF</td>
<td>State of Forests</td>
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<tr>
<td>SSR</td>
<td>Streamside Reserve</td>
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<td>TCFA</td>
<td>Tasmanian Community Forest Agreement</td>
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<td>TFA</td>
<td>Threatened Fauna Adviser</td>
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<td>TSPA</td>
<td>Tasmanian <em>Threatened Species Protection Act 1995</em></td>
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<tr>
<td>WHC</td>
<td>Wildlife Habitat Clump</td>
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<tr>
<td>WHS</td>
<td>Wildlife Habitat Strip</td>
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<tr>
<td>UTas</td>
<td>University of Tasmania</td>
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Acknowledgments

This report was produced by the Biodiversity Review Panel.

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Overview of key findings and recommendations

The panel was convened by the Forest Practices Authority (FPA) to review and to provide advice on the science behind the biodiversity provisions of the Tasmanian Forest Practices Code. These provisions are applied in the context of forests that are being managed for wood production. The panel was not asked and did not have the expertise to consider the social and economic values of these forests. This report provides scientific input into the broader review of the Forest Practices Code and the panel notes that the development of improved forest practices should be based not only on sound science, but also on ensuring that the practices are practical, cost-effective and socially acceptable.

The panel’s review has found that the Tasmanian forest practices system provides the basis for an effective framework for ensuring that forest practices are consistent with the delivery of sustainable management from the perspective of biodiversity conservation. It is a regulatory system, not a forest management system, but it takes an adaptive management approach to complement other components of the state’s biodiversity conservation strategy.

The panel support the principle (adopted in the Tasmanian Regional Forest Agreement for forest vegetation communities) that conservation priorities should be accommodated as far as possible on public land. However, some significant biodiversity issues are of concern on private as well as public land and some can only be addressed on private land.

In order to remain succinct, the rationales for the recommendations and findings in this overview are not given here but are cross-referenced to the appropriate section(s) of the report.

A complete list of the recommendations made throughout this report is provided in an adjunct summary (Forest Practices Authority 2009). The following summarises the major comments and recommendations:

Legislation and policy

There is a wealth of policy and legislation which sets the agenda for the conservation of biodiversity in Tasmania. The broad aspirations and guiding principles in most of these instruments are clear and for the most part complementary, but there is considerable ambiguity and uncertainty when it comes to roles and responsibilities and lack of guidance for achieving their practical application. This has ramifications for evaluating the precise role of the forest practices system. The panel notes that the forest practices system has an important role to play in contributing to the integration of biodiversity management planning across tenures, but it does not have primary responsibility for this.

Biodiversity conservation is a primary aim on formally reserved lands and is important also on other lands off-reserves. The panel have proposed a set of biodiversity principles to provide a means of measuring the success of the forest practices system in achieving ‘off-reserve’ conservation. There are other ‘off-reserve’ lands, not subject to the
operation of the forest practices system where biodiversity benefits could be enhanced by
the development and implementation of such principles. The panel notes that a revised
state Nature Conservation Strategy could provide a basis for this.

Recommendation 1: That the FPA canvass with relevant agencies the establishment of a
state-level set of overarching principles and objectives for off-reserve management of
forest biodiversity. The establishment of such principles and objectives will require a
multi-agency approach in consultation with stakeholders. (chapter two and chapter six, table 6.1)

Recommendation 2: As a result of the panel’s review some changes would be needed in
legislation and policies to enable the forest practices system to assist forest management
systems to achieve sustainable management of biodiversity, such as to allow for the
inclusion of measurable objectives in the Forest Practices Code, establishing consistency in threatened species management. (chapter two)

Recommendation 3: The state should review the relevant roles and responsibilities of
affected agencies including interagency working groups with a view to ensuring a more
integrated and coordinated approach to the conservation of biodiversity. (chapter two)

Forest practices system in the state biodiversity conservation context

The forest practices system in large part delivers an integrated system that is appropriate
to the Tasmanian biodiversity framework. The panel endorses the need for the Forest
Practices Code to operate at various scales for the purposes of biodiversity conservation.

Some changes are recommended to improve delivery:

Recommendation 4: Incorporate biodiversity conservation as a specific objective into the
Forest Practices Act 1985 and include clear biodiversity objectives, sub-objectives and
measurable outcomes in the Forest Practices Code. (chapter two)

Recommendation 5: Incorporate those sub-objectives and measurable outcomes
identified in table 6.1 in the Forest Practices Code. Reporting on progress should be
formally linked to FPA annual reporting and/or to State of the Forest reporting as
appropriate. (chapter six, table 6.1). Further development and quantification of several
sub-objectives identified in table 6.1 should be carried out by the FPA in consultation
with stakeholders so implementation is practical and measurable.

The panel consider that the consultation process should not be used to delay
implementation of the measurable objectives.

Recommendation 6: Incorporate the National Forest Policy Statement’s definition of
sustainable forest management (Appendix C) into the Forest Practices Act and revise the
objective of the Forest Practices Act accordingly. (chapter two)

Recommendation 7: Fully implement the Regional Forest Agreement (RFA) and RFA
review recommendations for delivery of ecologically sustainable forest management as
recommended by the Ramsay Report. (chapter two)
Recommendation 8: The forest practices system should increase its capacity to plan and manage strategically to provide more effective landscape level guidance for planners. Four scales of planning should be considered. These scales are:

1. statewide
2. bioregional (IBRA)
3. Planning Context Unit (PCU) - a notional contextual area around the planning node which depends on the scale of operation—the panel suggest using the CFEV major drainage basins
4. Coupe Context Unit (CCU) which on state forest may be a notional 400 ha unit around the coupe, or may be a private property boundary and surrounding land-use context.

(Chapter four)

Adaptive management

The panel notes that the forest practices system generally has an adaptive management approach leading to continually improving environmental outcomes and the system has provided clear guidance at the operational level. However the concept is not explicitly stated in the Forest Practices Act or Forest Practices Code.

Recommendation 9: The concept of adaptive management, and its key components should formally be recognised in the Forest Practices Act and Forest Practices Code so that changes can readily be incorporated. (Chapter three)

Code review

The panel recognises and supports the current review of the Forest Practices Code to cater for the expanded range of legislative responsibility it has to cover, particularly in the areas of threatened non-forest vegetation and non-commercial activities.

Tools and prescriptions

The review has identified a number of areas in which the Forest Practices Code tools and prescriptions need to be revised and some areas where new provisions are required. In particular, effective management of databases and GIS access is critical to effective management of biodiversity values. The panel has noted that the FPA is not a land manager, but a regulator, and needs spatial information in order to provide advice to planners, to monitor and to regulate. A coordinated approach between agencies and independent researchers is needed.

Recommendation 10: Sufficient resources should be made available to allow for maintenance of adequate databases, mapping and GIS facilities. (Chapters three and four)
Research

The panel endorses the active research into biodiversity being undertaken, but notes that many immediate issues relating to forest practices are not being addressed. The relatively small size of the FPA and the lack of resources are of concern and there appears to be no cohesive strategy to facilitate/coordinate the research agendas of parties to achieve forest practices system goals.

Recommendation 11: A review be undertaken into ways of increasing relevant research capacity to support the forest practices system including reviewing the research role of the Forest Practices Authority, academia, industry and other sources. In any event, the FPA should actively seek to increase its capacity to address biodiversity-related issues especially to facilitate and assimilate relevant research as well as addressing needs for GIS and database establishment and maintenance. (chapter five)

Monitoring

Recommendation 12: The FPA actively review and upgrade a systematic program of effectiveness monitoring for biodiversity conservation. (chapter five)

Biodiversity conservation planning

Recommendation 13: The FPA should collaborate with other relevant bodies, including DPIW, FT, PFT and private land stakeholders, to prepare a discussion paper on its role in the provision of strategic level planning, with a view to informing government on the need to clarify roles and responsibilities across government for the strategic level conservation of biodiversity outside of reserves. This paper should include discussion on strategies and processes to deal with emerging issues such as the effects of climate change. (chapters three and four)

Recommendation 14: The panel note and endorse that the current Forest Practices Code’s Wildlife Habitat Strip provision applies to both state and private lands where relevant. They encourage the further development on private land where this is achievable. (chapter four)

Recommendation 15: Biodiversity conservation issues should be considered at each of the four scales (see Recommendation 8), at the planning stage and integrated with other non-wood values (e.g. visual landscape, cultural heritage). (chapter four)

Recommendation 16: Gene conservation issues such as the current management to ameliorate exotic gene flow from E. nitens to E. ovata, should be included in the Forest Practices Code. (chapter four)

Biodiversity conservation principles and objectives

Recommendation 17: The following elements should be incorporated into the overarching Forest Practices Code principles:
17.1 Change flora and fauna in the Forest Practices Code to biodiversity to include three levels of biodiversity—genes, species and ecosystems. (chapter two)

17.2 Planning should consider appropriate spatial and temporal scales and integrate relevant terrestrial and aquatic systems. (chapters two and four)

17.3 Adoption of more surrogate habitat approaches and other systems combined with individual prescriptions where these are needed. In some cases the tools for such an approach are already in place e.g. the Conservation of Freshwater Ecosystem Values database. (chapters three and four)

**Land clearing**

Whilst the forest practices system has responsibility for monitoring forest loss and now regulates clearance of threatened non-forest vegetation, the panel notes that there is no apparent ‘owner’ of data relating to, or responsibility for, monitoring and reporting of non-forest vegetation losses, both threatened and non-threatened.

Recommendation 18: In the absence of any overarching vegetation management authority, this function should be adopted by the FPA. This may require legislative change and adequate resourcing. (chapters two and four)

**Forest practices planning tools**

The panel note that while it is not necessary for the FPA to be custodians of spatial data, the system would be enhanced by a one-stop shop tool for planners and for the FPA to provide advice, undertake monitoring and to regulate.

Recommendation 19: There should be ongoing development of tools required to meet the recommended principles and objectives. The forest practices system planning and information support tools should be captured in a web-based Biodiversity Decision Support System so that it can be easily updated and accessed by planners and practitioners. (chapter four)

**Forest Practices Plans**

Recommendation 20: The history of management for the conservation of biodiversity values under the forest practices system should be formally recorded on an appropriate database to aid future decision making and ensure continuity of management. The degree to which this is undertaken would vary depending on the measure applied and this should be determined by the FPA. (chapter four)

The panel note that the FPA would need to use discretion in implementing this recommendation to ensure it would be practical and cost effective. This should be assisted as far as possible by making relevant information available from existing systems.
Education and training

The panel recognises that effective implementation of the biodiversity provisions of the Forest Practices Code is heavily reliant on good information and training programs for operators as well as planners.

The need for ongoing training in biodiversity conservation management for Forest Practices Officer (FPO) accreditation is a high priority in order for FPOs to maintain on-ground biodiversity conservation planning skills.

Statewide native forest retention

The panel notes that Tasmanian forest loss is now within less than 1% of the permitted threshold maintenance level of 95% of the 1996 native forest area under the Permanent Native Forest Estate Policy. Thus Tasmania will soon be in a position where the total area of native forest will need to be maintained.

Recommendation 21: The state should immediately review the implementation of its Permanent Native Forest Estate Policy because clearance levels are approaching thresholds. (chapter two)

Bioregional, Conservation of Freshwater Ecosystem Values catchment and harvest level biodiversity conservation

The panel considers that retention of forest elements for biodiversity conservation is required at statewide, bioregional, Conservation of Freshwater Ecosystems Values (CFEV) drainage catchment and harvesting levels. The statewide retention is covered by the Permanent Native Forest Estate Policy. The panel recommends some additional levels at the other scales below. The panel notes also that the spatial distribution of forests should also be taken into account.

Recommendation 22: Maintain forest areas so that a 50% loss since 1750 on a bioregional basis is not approached. In those areas where this is being approached, or has already been exceeded, maintain all existing viable forest areas. (chapter two, chapter six, table 6.1)

The panel stresses that this threshold should not be viewed as an acceptable target but as a biodiversity ‘fail safe’ for those areas where significant forest loss has already occurred.

Recommendation 23: Native forest community bioregional thresholds should be set at a threshold of maintaining 75% of the 1996 area or 2000 ha, whichever is the greater, unless a review of mapping and conservation status determines those communities are not of bioregional significance. (chapter two, chapter six, table 6.1)

The panel consider that pre-1996 clearance, which has significant ramifications for bioregional conservation of biodiversity, should also be taken into account.
Recommendation 24: The Forest Practices Code should explicitly recognise the importance of maintaining old growth attributes in the forest and of maintaining structural diversity across the landscape. (chapter four, chapter six, table 6.1)

Recommendation 25: In order to maintain structural diversity in the forests, no more than 15% of the native forested area of any CFEV catchment should be harvested by clearfell burn and sow methods in any 10 year period. (chapter four, chapter six, table 6.1)

Recommendation 26: Aim to maintain at least 30% of native vegetation (e.g. 30% cover or basal area) with a focus on trees with mature and old-growth elements currently available at all four spatial scales. (chapter four, chapter six, table 6.1)

The panel note that the effectiveness of this threshold needs to be monitored and that research should be encouraged in the Tasmanian context. The panel consider that some flexibility in approach is required at the coupe context scale, depending on the harvesting technique, and the landscape and biodiversity context.

Recommendation 27: The Forest Practices Code should recognise that there are a number of ways of achieving structural habitat retention and flexibility of prescription application should be used to meet this objective, albeit with a reporting requirement to ensure that appropriate provisions have been made. (chapter four)

Plantations

The area devoted to plantation forestry is growing considerably and the plantation estate will continue to be an important part of the overall forest estate in future. The panel consider that plantations contribute towards biodiversity conservation across the landscape and plantation management planning should aim to avoid or ameliorate biodiversity conservation issues such as browsing control and wedge-tailed eagle nest protection.

Recommendation 28: The forest practices system and Forest Practices Code should take appropriate account of biodiversity conservation in the context of planning and management of plantations, and the current code review should address this need as an explicit task. (chapter four)
Recommendation 29: In June 2000, a workshop on Fauna Issues and Plantation Design was convened by the FPA and the CRC for Sustainable Forest Production (Munks and McArthur 2001). The outcomes of the workshop provide a set of principles and recommendations which could be incorporated into the Forest Practices Code after a review to clarify conflicts between some recommendations for browsing control and those for biodiversity maintenance. (chapter four)

Climate change

Climate change is a key issue in the planning and management of biodiversity conservation and there is uncertainty about the exact nature and magnitude of future change.

A landscape approach to managing forest biodiversity, modified as the panel recommends, should provide some insurance to allow biodiversity and ecological processes to respond to changing conditions.

Water and aquatic ecosystems

Aquatic ecosystems are dynamic and resilient to a wide range of natural disturbances. Many but not all requirements for conserving in-stream biodiversity are met by the current forest practices system.

Recommendation 30: The FPA should develop water-specific planning tools to maintain a proportion of unharvested headwater catchments and to maintain the spatial and temporal integrity of longitudinal and lateral connections of river headwater networks. These planning tools should take a flexible approach and the proportion of catchment required may be achieved as part of the CCU planning aim to maintain 30% of native vegetation. The effectiveness of the measures applied need to be monitored and the measures need to be further developed through research. (chapter four, chapter six, table 6.1)

Rehabilitation and restoration

Recommendation 31: Rehabilitation to become a ‘should be considered’ requirement in general and a ‘will’ requirement where required to meet specified ecological objectives. For example, rehabilitation of stream side vegetation may be required where clear and positive biodiversity outcomes can be achieved in a practical way. (chapter four)

Remnants

Recommendation 32: In the absence of an integrated statewide approach to the conservation of remnant vegetation, the forest practices system should specifically address the retention and management of remnant vegetation in different situations, with an emphasis on remnants of high conservation significance. (chapter four)
Management of genetic resources

Recommendation 33: The following aspirational objective be included for the management of genetic resources in areas covered by the forest practices system:

Maintain natural levels of genetic diversity and patterns of differentiation in forest tree species and species complexes to ensure their long-term evolutionary potential retain natural values and retain genetic resources for human use.

(chapter two)

The panel note that this objective could only be operationalised through the application of specific examples such as the protection of geographically separate or genetically distinct populations, the use of local seed sources, and the management/mitigation of gene incursions by exotic species. Some of these procedures are already in place.

Threatened species

Recommendation 34: The Forest Practices Code specifically emphasises the importance of ensuring that species currently not threatened do not become threatened through forestry actions. (chapters one and two)

Recommendation 35: The FPA should seek to ensure that there are clear links between biodiversity conservation measures and processes and the requirements of threatened species Recovery Plans and Listing Statements. (chapters two and four)

Recommendation 36: The FPA should encourage the development of strategic level planning tools and processes relevant to threatened species. (chapter four)

Recommendation 37: Relevant authorities should progress programs to integrate threatened species into landscape level planning using multi-species approaches where appropriate. (chapter four)

Priority species

The panel endorses the recognition of RFA Priority Species and notes that a multi-agency rationalisation of relevant processes is underway.

Recommendation 38: A formal, regular and transparent process be adopted for review and update of forest and non-forest species which potentially could become threatened. (chapter four)

Clearfell Burn and Sow (CBS) harvesting regime, coupe dispersal and size

Recommendations 39: That the Forest Practices Code encourages the move away from reliance on large and extensive clearfell burn and sow (CBS) harvesting systems in native forests and that maximum CBS coupe size should generally not exceed 60 hectares. Where coupe sizes need to be larger (e.g. for safety and fire management considerations or to avoid adverse environmental outcomes) the reasons should be explicitly stated. (chapter four, chapter six, table 6.1)
Recommendation 40: That the Forest Practices Code incorporate provisions on the size and dispersal of coupes in relation to both plantations and native forest to ensure the maintenance of structural diversity at multiple spatial scales. (chapter four)

Other Recommendations

Auxiliary Recommendations

The panel has made other suggestions in the body of the text. These have been collated into an adjunct summary.

Specific biodiversity provisions in the existing Forest Practices Code

The panel considered the existing biodiversity provisions of the Forest Practices Code as part of the review process. Background reports were prepared and the views of the Forest Practices Expert Review Team, other specialists and Forest Practices Officers were canvassed and suggestions have been made on changes to the existing Forest Practices Code provisions as part of the broader code review (Appendix F).

Recommendation 41: That the current revision of the Forest Practices Code evaluate and, where relevant incorporate the auxiliary recommendations as well as the suggestions made by the panel on existing biodiversity provisions of the Forest Practices Code. (Appendix F)
Chapter 1
Introduction and methods

This review forms part of an ongoing program of review and improvement of the Tasmanian forest practices system. The Forest Practices Code provides a set of standards to protect environmental values during forest operations. The first edition of the Forest Practices Code was published in 1987 and there have been two updates since then, in 1993 and in 2000. The Forest Practices Code is currently again under review, indicating an edition currency of 6–8 years.

In addition to the overall reviews of the Forest Practices Code, the Forest Practices Authority (FPA) and its predecessors have commissioned formal reviews of particular aspects of the code as part of an adaptive management process. A review of steep country harvesting was undertaken in 1991 and a review of soil and water provisions of the Forest Practices Code was undertaken in 1997.

A panel was convened during 2007 to assess and report on aspects of the biodiversity provisions of the Forest Practices Code. This report contains the panel’s assessment based on a series of background briefing papers prepared by Mark Wapstra from Environmental Consulting Options Tasmania (see references; Wapstra 2007a; b; 2008 and Wapstra and Munks 2007; 2008) with assistance from Dr Sarah Munks of the FPA, as well as other documentation provided by staff from the FPA, advice from other experts and on-ground practitioners, and from the panel’s own knowledge.

The forest practices system forms one component of the overall framework for conservation management of biodiversity in Tasmania. Under the Terms of Reference, the panel was asked to review the role of the forest practices system in the context of Tasmania’s approach to biodiversity conservation. The panel’s brief has been to provide a transparent, practical biodiversity conservation perspective to inform decisions about broader sustainable forest management. The panel recognises the state’s commitment to sustainable forest management and understands there subsequently needs to be a balanced consideration of environmental, economic and social factors.

Terms of Reference

The Terms of Reference (ToR) for the Review were as follows:

1. Review the role of the forest practices system in the overall approach to the maintenance of biodiversity in the state.

2. Review the relevance and scope of the forest practices system in relation to biodiversity conservation and evaluate the ability of existing provisions to meet conservation objectives at the local, catchment and regional scales. In particular consider:

   a) Processes and planning tools to meet objectives and requirements of the RFA, Tasmanian Nature Conservation Strategy, Threatened Species
Strategy, Threatened Species Recovery Plans, Tasmanian Threatened Species Protection Act 1995 and other relevant national and state legislation and policies.

b) Processes and planning tools to address current forest practices at both the landscape and stand level.

c) Processes and planning tools for facilitating legislative responsibilities amongst agencies (e.g. interagency Agreed Procedures).

d) Processes and planning tools to facilitate implementation - practicability of current planning processes and provisions (strategic and operational).

e) Relationships between biodiversity provisions and other forest management provisions covered in the Forest Practices Code (e.g. provisions for other natural and cultural values, roading, burning etc.).


4. Review current research relating to the distribution, ecology and impacts of forest practices on forest fauna and flora and report on future funding priorities for new information.


Procedures

Biodiversity Review Panel Membership

- Dr P Bell, Section Head, Threatened Species Section, DPIW
- Mr P Bosworth, Conservation Consultant
- Dr M Brown (Chair of panel), Ecological Consultant
- Dr L Barmuta (in part), Senior Lecturer Freshwater Ecology, School of Zoology, UTas
- Dr P Davies (in part), Ecological Consultant, Freshwater Systems
- Mr T O’Malley, Forest Practices Officer and Consultant
- Ms A Woolley, Senior Advisor, Private Land Conservation Program, DPIW

The panel was assisted and advised by an Executive Support Group comprising:

- Dr Sarah Munks, Senior Research Biologist, FPA
• Mr Graham Wilkinson, Chief Forest Practices Officer, FPA
• Mr Mark Wapstra, Environmental Consulting Options Tasmania

The Terms of Reference were worked through using input from background reports prepared by M. Wapstra or M. Wapstra and S. Munks and the panel’s own knowledge and expertise together with commentary from other experts as well as practical input from a range of sources. The main source of this input came from the Forest Practices Executive Review Team (FPET) comprising:

Forest Practices Executive Review Team
• Mr Fred Duncan, Manager (Biodiversity Program), FPA
• Mr Greg Hickey, Forest Practices Officer, Gunns Ltd.
• Ms Vanessa Thompson, Forest Practices Officer, Forestry Tasmania
• Mr Chris Mitchell, Forest Practice Advisor, FPA
• Ms Sandra Hetherington, Forest Practices Officer, Norske-Skog
• Mr Bruce Hay, Forest Practices Officer, Gunns Ltd.
• Ms Karen Richards, Ecologist, FPA
• Mrs Nina Roberts, Scientific Officer, FPA

Three external scientific advisers also provided input – Adjunct Professor Peter Davies, University of Tasmania, Professor David Lindenmayer, ANU, Professor Bradley Potts, University of Tasmania.

Background documents and workshops

A list of information sources used in this review is provided in the bibliography section at the end of this report.

A background document prepared for each ToR was circulated for comment and then considered in a series of plenary sessions where issues and comments were worked through. The information contained in these reports is not generally repeated in the current document and the reader is referred to these source documents for detail.

Subgroups of the panel were convened to construct first drafts of the material for each ToR and this material was then discussed and refined in further plenary sessions. In all, a total of 18 formal panel meetings were held. Wherever appropriate the panel has incorporated the background information directly into its own report, rather than paraphrasing public material relating to Acts, Regulations, policies and procedures. However, interpretation of the material and recommendations flowing from any of these sources is the result of the panel’s deliberations, not the advisors.
In addition to the formal meetings, there were three panel workshops to discuss:

1. **Special issues of concern raised by FPAC and the public:**
   - clearfell, burn and sow
   - chemical use
   - 1080
   - climate change
   - fuel wood harvesting
   - native forest conversion
   - animal welfare.

The panel considered:
   - relevance of the issue in the public domain
   - relationship to biodiversity conservation
   - how the issue is dealt with in the existing forest practices system
   - whether and/or how the panel should deal with the issue.

2. **Biodiversity habitat surrogates:**
   - coarse woody debris, led by Dr Simon Grove, FT
   - tree hollows, led by Dr Amy Koch, FPA
   - freshwater ecosystems, led by Dr Peter Davies, UTas
   - remnant vegetation, led by Dr Neil Davidson, UTas
   - genetics, led by Professor Brad Potts, Utas.

A third panel workshop consisted of a number of ad hoc meetings by panel members to consider the drafting of biodiversity objectives for the *Forest Practices Code*.

The panel and two external scientific advisers visited the Wielangta area to examine the on-ground implementation of biodiversity provisions, including threatened species and genetics issues, as well as landscape and coupe level planning on private and public tenures. The panel was assisted by G. Wilkinson, S. Munks, F. Duncan, and V. Thompson on the field day.

The panel also received a presentation by Professor D. Bowman, UTas, on the biodiversity impacts of climate change.
The panel noted that the *ESFM* Report for the RFA (Tasmanian Public Land Use Commission and Commonwealth Forests Taskforce, 1997) covered a lot of relevant and similar ground and found this report particularly useful.

**Other Submissions**

The panel received a number of unsolicited written submissions for consideration during the course of the review:

1. Salvage sampling, from R Mesibov.
2. Pine wilding invasions, from A Povey.
3. Implementation of harvesting in plantation riparian areas on previously cleared land, from P Smethurst.
4. Wildlife habitat strip location, from S Baker and S Grove.
5. Salvage logging, from S Grove and S Baker.

**Interstate and international benchmarking**

The panel was also interested to benchmark the Tasmanian approach to biodiversity conservation in forest operations against what is being done in other states and overseas. A visit to relevant authorities in WA, Victoria and NSW was undertaken by the panel Chair and the Executive Officer, and literature searches were conducted on processes being undertaken in the Pacific North West of the United States and in British Columbia (see Appendix A).

**Biodiversity conservation in Tasmania**

Biological diversity is a concept encompassing the diversity of indigenous species and communities occurring in a given region. Also called 'biodiversity', it includes 'genetic diversity', which reflects the diversity within each species; species diversity', which is the variety of species; and 'ecosystem diversity', which is the diversity of different communities formed by living organisms and the relations between them. Biological diversity is the variety of all life forms—the plants, animals and micro-organisms—the genes they constitute, and the ecosystems they inhabit (Commonwealth of Australia 1995). There are many reasons why people want to conserve biodiversity. Rationales are to be found in the spiritual, ethical, scientific, philosophical, aesthetic and utilitarian arenas, and all of these have their champions. Balanced against this broad acceptance of the need for biodiversity conservation are the real needs of humankind to utilize resources for their own sustenance, protection and maintenance. Thus the arguments for and against biodiversity conservation are largely about degree. Nobody wants to be responsible for making a species go extinct and everybody accepts the need for food, clothing and shelter. However satisfying one person’s self-perceived modest lifestyle requirements may be viewed by others as wanton destruction of the environment and its dependent biodiversity.
Tasmania is grappling to come to terms with these contradictory human aspirations. Here, as elsewhere aspirations to achieve ecologically sustainable living have resulted in a labyrinthine legislative and policy framework for biodiversity conservation. This report involves a review of one part of that framework—in retaining native vegetation cover and assisting the conservation of biodiversity in the Tasmanian wood production forest environment. The approach adopted here considers the ecological/scientific concerns about biodiversity conservation. No one perspective will deliver all of the expectations of all stakeholders, but a scientific approach endeavours to achieve conservation goals by ensuring the perpetuation of the range of ecosystems and life forms for their own intrinsic value. Thus the approach adopted here tries to preserve future options by maintaining the potential for the expression of all forms of biodiversity in the landscape over time, even though particular individuals at one site may be extinguished by a particular action in a particular instance.

Society at large has not resolved its own views on the adequacy or otherwise of current legislative and policy systems to achieve biodiversity conservation. However, the need to deliver biodiversity conservation generally (at multiple spatial scales) and the need for specific conservation outcomes in the forestry sector are accepted as basic premises for this review.

**Review limitations**

Firstly, the forest practices system is only one aspect of conservation management that complements other approaches to the conservation of Tasmanian forest biodiversity. It is not a biodiversity conservation surrogate for all of the perceived deficiencies in land use or past ad hoc policy decisions. That is not to say that it should be a window dressing, but recognizes it cannot realistically deliver all aspects of forest biodiversity conservation in the state.

Secondly, it is not possible for this (or any other) panel to have the breadth of expertise to be able to advise on the exact prescriptions, adequacy of knowledge, R&D needs and achievement of suitable outcomes for every individual ecosystem or species and their habitats, let alone their genes. While the review may involve some judgements about the efficacy of prescriptions, it does not focus on the current prescriptions for every element of biodiversity, but on the processes by which ecosystem, species and gene conservation can be assisted by contributions from the forest practices system.

Thirdly there are a number of issues that are related in some way to biodiversity conservation and for which there are valid public concerns, but that do not fall within the Terms of Reference given to the Review Panel. They include concerns about animal welfare, climate change, energy and water use and land alienation.

**Tasmania’s approach to the maintenance of biodiversity**

Tasmania’s forests are the repository of a diverse range of species and communities, many of which are found only here. About 50% of Tasmania’s land area of 6.85 million ha is forested (FPA 2007). The forests contain many different plant communities, over 900 vascular plant species, 131 vertebrate fauna species and several orders of magnitude
more species of invertebrates, non vascular plants, fungi and algae. The recognition of the diversity and uniqueness of our flora and fauna is one of the major reasons for the listing of Tasmania’s Western Wilderness National Parks as a World Heritage Area and also for inclusion of 40% of the state’s native forest in conservation reserves (Commonwealth of Australia and State of Tasmania 2007). However, it is well recognised that reservation alone will not achieve the conservation of all biodiversity and maintain the natural values of Tasmania, but that it needs to be combined with conservation management outside of reserves.

**Scientific principles for biodiversity maintenance**

In the current context, scientific investigation can provide a basis for understanding biological diversity, how it functions and for ameliorating the impacts of human activities. Biodiversity conservation is aimed at delivering the perpetuation of ecosystems and the species and genetic diversity they contain. This means maintenance of ecosystem function and of species at the population level together with the opportunity for genetic interchange. The preservation in perpetuity of every individual organism at every place and for all time is not a realistic or achievable goal.

The basic biological and landscape ecological premises underlying measures to conserve biodiversity have evolved from many investigations worldwide and involve many different disciplines, but are really relatively simple. The complexity and difficulties arise when trying to apply these principles for all genes, species and ecosystems as part of land management in practice. The scientific principles underlying the conservation of biodiversity come from many different fields of study, but draw heavily on genetics, ecology, biogeography and particularly landscape ecology.

Some of the basic facts and scientific tenets for the conservation of biodiversity include:

- Understanding the ways in which genes, species and ecosystems function and interact provides a useful basis for land management decisions and operations which may affect biodiversity.

- Species need to be able to survive, breed and pass on their genes to future generations. Species and their genes evolve through natural selection and their evolutionary potential should not be unduly circumscribed. Any management system needs to cater for the life history attributes of species and their populations.

- Protected areas by themselves will not achieve all biodiversity conservation goals. It is necessary to have complementary management for biodiversity in the matrix of lands and waters outside of reserves.

- All species have requirements of their physical and biological environments through space and time and these needs should be allowed for in the conduct of human activities—i.e. like humans, other species have habitat needs for feeding, shelter and breeding and these should be retained in the landscape over time.

- The maintenance of the requirements of species and ecosystems involves consideration of the size, numbers, and location of patches of native vegetation in...
the landscape, the effects of edges and boundaries, the maintenance of connectivity between patches and the heterogeneity of the landscape at different scales.

- Biodiversity survives optimally in natural environments.
- Most ecosystems include minor or major disturbance as one component of their ecological processes.
- Biodiversity conservation involves understanding the processes and impacts of both benign and disruptive disturbances. Some operational processes are more threatening than others by having a severe and irreversible impact and/or by affecting a broad range of biodiversity elements adversely.
- The division of the natural landscape into mosaics of suitable and unsuitable habitat via human intervention results in habitat loss and fragmentation of the remaining available habitats. If population sizes are too small in the remaining patches then local extinctions can occur and these may then extend to dependent and interacting species.
- Rarity is an attribute of the system that warrants special consideration whether it has arisen naturally (i.e. without modern human intervention) or through depletion via human activity.
- The dynamics of populations and calculation of minimum viable population sizes may be needed for some species to enable adequate conservation measures to be put in place. This is especially true for rare species but may also be needed for more widespread and abundant species having a critically important life history attribute or ecological requirement that potentially limits survival.
- In the case of foundation species such as trees which are community drivers, larger population sizes than predicted from individual species analysis may be required to maintain the interacting community of interdependent organisms.
- The sheer numbers of genes, species and ecosystems mean that it is impractical and maybe even counter productive to achieve biodiversity conservation goals by considering each element of biodiversity one at a time. Therefore conservation surrogates are needed to optimize biodiversity outcomes in the face of human resource extraction needs.
- The knowledge base is (and will always be) imperfect so that precautionary, learning and adaptive management approaches should be adopted.

The above principles have been used to address the conservation of biodiversity in Tasmania and elsewhere through the adoption of many different legislative and policy instruments. These instruments have been reviewed (Wapstra and Munks 2007) and briefly summarised below for Tasmania. However around the world, all systems have two broad elements in common—the establishment of a comprehensive system of well managed reserves for nature conservation, and the achievement of effective complementary management of biodiversity outside of reserves. The degree to which these objectives have been met in the different jurisdictions is moot, but they do provide a
basis for consideration of the role of the forest practices system in the conservation of Tasmanian biodiversity.
Chapter 2
Terms of Reference 1: Policy and legislative framework for biodiversity maintenance in Tasmania

Introduction and Methods

This chapter considers Term of Reference 1 which requires the panel to ‘review the role of the forest practices system in the overall approach to the maintenance of biodiversity in the state’. Different legislative and policy instruments address the conservation of biodiversity in Tasmania. These instruments have been reviewed in background document 1 (Wapstra 2007a). The panel has considered the information in background document 1 and a number of other documents (see bibliography) and provides a summary and recommendations in this chapter.

International framework and objectives: Convention on Biological Diversity 1993

Australia is party to a number of international agreements that are relevant to the conservation of biological diversity, the main one of relevance here being the Convention on Biological Diversity which was ratified by Australia in June 1993.

The convention has three main goals:

1. conservation of biological diversity (or biodiversity)
2. sustainable use of its components
3. fair and equitable sharing of benefits arising from genetic resources.

Its objective is for parties to develop national strategies for the conservation and sustainable use of biological diversity. The convention covers all ecosystems, species, and genetic resources and is legally binding on parties.

National framework and objectives

The Commonwealth and state governments have adopted a cooperative approach to managing biodiversity. A range of intergovernmental agreements and strategies identify the responsibilities of Tasmania and the Commonwealth and the means of implementing the strategies.

Intergovernmental Agreement on the Environment (IGAE)

The 1992 Intergovernmental Agreement on the Environment between the Commonwealth and states and territories provides the overarching policy facilitating a cooperative national approach to the environment.

In this Agreement the parties inter alia:
• noted that the Commonwealth is responsible for the negotiation, ratification and ensuring implementation of the (then) proposed Biological Diversity Convention
• recognised that the concept of ecologically sustainable development provides potential for the integration of environmental and economic considerations in decision making and/or balancing the interests of current and future generations
• outlined the roles and responsibilities of the Commonwealth and the states
• identified that the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision making
• agreed that the concept of ecologically sustainable development should be used by all levels of government in the assessment of natural resources, land use decisions and approval processes
• agreed that each level of government has responsibilities for the protection of flora and fauna and should use their best endeavours to ensure the survival of species and ecological communities that make up Australia’s biota
• recognised that the states have primary responsibility in the general area of nature conservation
• recognised that the establishment and management of a reserve system is not in itself sufficient to ensure the protection of Australia’s flora and fauna. Off-reserve protection and management, particularly of remnant native vegetation, are also required.
• In Tasmania, the primary mechanisms relevant to forests for the implementation of the IGAE to date have been the preparation of a state Biodiversity Conservation Strategy, the enactment of threatened species and nature conservation legislation, establishment of the Resource Management and Planning System and the undertaking of a Regional Forest Agreement and subsequent Tasmanian Community Forest Agreement with the Commonwealth Government.

National Forest Policy Statement 1992 (NFPS)

The NFPS outlines agreed objectives and policies for the future of Australia's public and private forests including the goals paraphrased below:

• Conservation—maintain an extensive and permanent native forest estate in Australia and manage that estate in an ecologically sustainable manner so as to conserve biological diversity.
• Wood production and industry development—develop internationally competitive and ecologically sustainable wood production and wood products industries.
• Achieve integrated and coordinated decision making and management processes between the states and the Commonwealth and between forest management agencies in order to achieve agreed and durable land use decisions.

The NFPS formed the basis of the Tasmanian Regional Forest Agreement.
National Strategy for Ecologically Sustainable Development 1992

The National Strategy for Ecologically Sustainable Development identified three core objectives in relation to forest resource use and management:

- to manage and utilise Australia's forest estate for all forest values on an ecologically sustainable basis
- to maintain ecological processes within the forests, maintain biodiversity, and optimise benefits to the community from all uses, within ecological constraints
- to enhance the quality of life for successive generations of Australians by protecting and enhancing all of the values available from Australia's forests, and development of an ecologically sustainable and internationally competitive forest products industry.

It also identified the following core objective for nature conservation:

- to establish across the nation a comprehensive system of protected areas which include representative samples of all major ecosystems.

National Strategy for the Conservation of Australia's Biological Diversity 1993

The National Strategy for the Conservation of Australia's Biological Diversity provides the framework for protecting Australia's biodiversity. It identified nine core objectives for the conservation of biological diversity across Australia including:

- manage biological diversity on a regional basis, using natural boundaries to facilitate the integration of conservation and production-oriented management
- improve the standard of management and protection of Australia’s biological diversity by encouraging the implementation of integrated management techniques
- establish and manage a comprehensive, adequate and representative system of protected areas covering Australia’s biological diversity
- strengthen off-reserve conservation of biological diversity
- enable Australia’s species and ecological communities threatened with extinction to survive and thrive in their natural habitats and to retain their genetic diversity and potential for evolutionary development, and prevent additional species and ecological communities from becoming threatened.

The Strategy also set some objectives in relation to integrating biological diversity conservation and natural resource management including:

- develop and implement national integrated policies for the ecologically sustainable use of biological resources
- achieve the conservation of biological diversity through the adoption of ecologically sustainable forestry management practices.

This initiative builds on the earlier strategies and policies mentioned above to commit jurisdictions to reversing the long-term decline in the quality and extent of Australia’s native vegetation cover.

National Objectives and Targets for Biodiversity Conservation 2001–05

These objectives and targets were produced to augment the National Biodiversity Strategy and consider ten priority outcomes; ones relevant to this report are given below:

1. protect and restore native vegetation and terrestrial ecosystems
2. protect and restore freshwater ecosystems
3. control invasive species
4. mitigate dryland salinity
5. minimise impacts of climate change on biodiversity
6. improve scientific knowledge and access to information
7. introduce institutional reform.

Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)

The Commonwealth Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act) was established to cover matters of National Environmental Significance. Permits are required under the EPBC Act for activities that affect listed species or communities in Commonwealth areas. The EPBC Act promotes the conservation of biodiversity by providing strong protection for threatened species and ecological communities, migratory, marine and other protected species. The Act provides for:

- identification of key threatening processes
- protection of critical habitat
- preparation of management plans.

Division 4 of the EPBC Act exempts forestry activities in regions, including Tasmania, which are covered by RFAs undertaken in accordance with those RFAs unless the activities are:

a) in a property included in the World Heritage List
b) in a wetland included in the List of Wetlands of International Importance kept under the Ramsar Convention
c) incidental to another action whose primary purpose does not relate to forestry.
The Tasmanian Regional Forest Agreement 1997

The Tasmanian Regional Forest Agreement between the Commonwealth of Australia and State of Tasmania, was signed in November 1997. The agreement provides for the long term sustainable management of Tasmania’s forests, both public and privately owned, and applies for 20 years, with five-yearly reviews.

In this agreement, the Commonwealth and Tasmania agreed, amongst other matters, to:

- provide certainty for conservation of environment and heritage values through the establishment of a CAR reserve system
- provide for the ecologically sustainable management and use of forests in Tasmania.

The RFA includes clauses in relation to additions to the CAR reserve system, maintaining a permanent forest estate and the protection of priority species.

Tasmanian Community Forest Agreement 2005

This agreement sets out additions to the reserve system and makes commitments to the phasing out of broad scale clearing and conversion of native forest in Tasmania. Tasmania agreed to revise the Permanent Native Forest Estate Policy so that:

- an overall cap on clearing or conversion of native forest on both public and private land is established to retain 95 per cent of the 1996 area of native forest
- broad scale clearing and conversion of native forest on public land to be phased out by 2010
- broad scale clearing and conversion of native forest on private land to be phased out over a period of ten years from the date of the agreement
- assessment criteria are developed for regulating forest clearing and conversion to ensure the protection of regional biodiversity and water quality values and to meet salinity objectives.

The parties also agreed that:

The controls on private forest clearing and plantation conversion will not otherwise constrain private forest owners from undertaking sustainable commercial harvesting and regeneration of native forest and other land uses on their land that maintain the native forest cover. The agreement also made commitments to the management of other biodiversity values such as 1080 use and work on the Tasmanian devil facial tumour disease.

State framework and objectives

In Tasmania there are numerous other acts and policies which bear on the management of biodiversity. Some relevant ones are outlined below.
Tasmanian Resource Management and Planning System (RMPS)

Tasmania’s RMPS is an over-arching planning system with a suite of associated legislation. The objectives of the RMPS are to:

a) promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity

b) provide for the fair, orderly and sustainable use and development of air, land and water

c) encourage public involvement in resource management and planning

d) facilitate economic development in accordance with the objectives set out in paragraphs (a), (b) and (c)

e) promote the sharing of responsibility for resource management and planning between the different spheres of government, the community and industry in the state.

Tasmanian Land Use Planning and Approvals Act 1993 (LUPAA)

LUPAA is the central legislation underpinning the RMPS. It provides for:

- the making and amendment of planning schemes
- the assessment of planning directives
- development control and enforcement and agreements between planning authorities and landowners
- an appeals tribunal, the Resource Management and Planning Appeals Tribunal (RMPAT) to hear appeals into specific development control matters.

Tasmanian Forest Practices Act 1985

This is the principal piece of legislation relevant to the operation of the forest practices system in Tasmania. It is discussed further below.

Tasmanian Nature Conservation Act 2002 (NCA)

The primary purposes of the Nature Conservation Act 2002 are to make provision, with respect to the conservation and protection of the fauna, flora and geological diversity of the state, to provide for the declaration of national parks and other reserved land and for related purposes. Schedule 2 of the NCA re-states the objectives of the Resource Management and Planning System of Tasmania and the Act is therefore part of the state’s Resource Management and Planning System. Biological diversity is defined in the Act and it forms part of the definition of conservation purpose under the Act. The Secretary administering the Act is required to promote conservation purposes in relation to the use or development of land generally. The NCA provides a direct link to the operation of the forest practices system through the provisions of compensation for ‘affected owners’.
Tasmanian Threatened Species Protection Act 1995 (TSPA)

Schedule 1 (Part 1) of the Threatened Species Protection Act 1995 states the objectives of that Act, specifically the objectives of the Resource Management and Planning System of Tasmania, as stated in the NCA.

Schedule 1 (Part 2) of the TSPA states the further objectives of the Act, specifically the objectives of the Threatened Species Protection System, as follows:

The objectives of the threatened species protection system established by this Act are, in support of the objectives specified in Part 1 of this Schedule:

a) to ensure that all native flora and fauna in Tasmania can survive, flourish and retain their potential for evolutionary development in the wild
b) to ensure that the genetic diversity of native flora and fauna is maintained
c) to educate the community in the conservation of native flora and fauna
d) to encourage co-operative management of native flora and fauna including the making of co-operative agreements for land management under this Act
e) to assist landholders to enable native flora and fauna to be conserved
f) to encourage the conserving of native flora and fauna through co-operative community endeavours.

The TSPA provides for the preparation of Listing Statements, Recovery Plans, Threat Abatement Plans, declaration of Critical Habitat, Public Authority Management and Land Management Agreements. Schedules 3, 4 and 5 of the TSPA list species of fauna and flora classified as Extinct, Endangered, Vulnerable and Rare. Section 51 of the TSPA provides a link to the forest practices system, through permit conditions -

3. A person acting in accordance with a certified forest practices plan or a public authority management agreement may take, without a permit, a specimen of a listed taxon of flora or fauna, unless the Secretary, by notice in writing, requires the person to obtain a permit.

Tasmanian Government Policy for Maintaining a Permanent Native Forest Estate November 2005 (PNFE)

The PNFE Policy aims to maintain an extensive and permanent native forest estate on both private and public land in Tasmania. The policy was approved in 1997 and was revised in 2005. The policy recognises that forest condition will change from place to place and from time to time. Specifically it does not seek to limit or restrict the harvest of native forest types where the silvicultural system ensures successful regeneration and maintenance of that forest community. The PNFE Policy has both statewide and bioregional thresholds.
1. Objectives

Tasmania will maintain a Permanent Forest Estate that comprises areas of native forest managed on a sustainable basis both within formal reserves and within multiple-use forests across public and private land in order to:

- 1.1 Maintain and sustainably manage Tasmania’s native forest resource base and associated economic, nature conservation, ecosystem services, scenic, cultural and amenity values.
- 1.2 Ensure that the conservation status of forest communities is maintained or enhanced.
- 1.3 Provide for the reasonable aspirations of the Tasmanian community for sustainable economic development.
- 1.4 Ensure that private landholders continue to be able to manage native forest on private land on a sustainable basis, including existing sustainable uses of those forests.

In meeting these objectives, the burden of transition will be borne in the first instance on public land and, for private land, flexibility will be developed into the implementation of this policy to the extent that these objectives are met.

2. Native Forests

2.1 Statewide retention levels

- 2.1.1. 95% of the 1996 Comprehensive Regional Assessment (CRA) native forest area is to be maintained on a statewide basis.
- 2.1.2 Broadscale clearing and conversion of native forest on public land will be phased-out by 2010.
- 2.1.3 Broadscale clearing and conversion on native forest on private land will be phased-out over a period of ten years from 13th May 2005.

2.2 Forest communities retention levels

- 2.2.1 Rare, Vulnerable and Endangered (threatened) forest communities - all viable threatened forest communities are to be maintained other than in those circumstances where conversion will not substantially detract from the conservation of that forest community or conservation values within the immediate area.
- 2.2.2 Non-threatened forest communities – the mapping and conservation status of any non-threatened forest community will be reviewed if the rate of conversion is likely to result in the area of a forest community falling below 75% of the 1996 CRA native forest area of that community in an IBRA bioregion or, a minimum of 2000 hectares in an IBRA bioregion (which ever is the higher) unless not of bioregional significance (as under 4.4.3 below). Action will be taken to ensure
that conversion does not result in any non-threatened forest community becoming threatened. Non-threatened forest communities must be maintained at a level no less than 50% of the 1996 CRA native forest area of each community in each IBRA bioregion.

2.3 Biodiversity, water quality and salinity

The policy is underpinned by guidelines for biodiversity, water quality and salinity outcomes that will be implemented through regulation mechanisms:

- 2.3.1 The protection of regional biodiversity will be addressed through provisions in the Forest Practices Code, reflecting the guidelines in Clauses 2.1, 2.2 and 3 of this policy.
- 2.3.2 The protection of water quality values including meeting salinity objectives will be addressed through provisions in the Forest Practices Code. Salinity objectives will be included in the next planned review of the Forest Practices Code and will be consistent with the objectives of the Tasmanian Salinity Strategy. Prior to the next Forest Practices Code review, applications for clearance and conversion will be assessed having regard to available salinity risk mapping.

3. Non-Forest Vegetation

Forestry operations regulated by the Forest Practices Authority (FPA) must not include incidental clearance and conversion of threatened non-forest vegetation communities, except in those conditions where the activity will not substantially detract from the conservation of that non-forest vegetation community or conservation values within the immediate area.

**Tasmanian Private Forests Act 1994**

The primary purposes of this Act are to establish an authority to provide assistance and advice on private forest management, to prescribe the functions and powers of that authority, to provide for related matters and to amend certain Acts.

One of the stated functions of the Authority (of Private Forests Tasmania) is:

(j) to examine matters relating to the conservation of flora, fauna, land forms, cultural heritage and care of the environment on private forest lands.

**Tasmanian Forestry Act 1920**

The primary purpose of this Act is to establish a forestry corporation and to provide for the better management and protection of forests. One of the listed functions of the corporation is:

(d) to use multiple use forest land for wood production and, in a manner that is consistent with sustainable forest management and forest produce production policy, for other purposes including:
(i) the conservation of flora and fauna
(ii) the conservation of landforms
(iii) the conservation of cultural heritage
(iv) the care of the environment including scenery
(v) recreation.

Tasmania’s Nature Conservation Strategy 2002–06

The strategy is the synthesis of issues that were identified as affecting Tasmanian biodiversity and geodiversity. It contained 64 recommendations, many of which have now been implemented. Its goal is to protect Tasmania’s natural diversity and maintain ecological processes into the future.

Its guiding principles include:

- native plants, animals and geological elements are best conserved where they occur in nature
- successful protection depends on having a system of ecologically viable reserves combined with wise management of other areas and resources
- processes and decisions about the use of Tasmania’s natural resources should be efficient, equitable and transparent.

Interstate approaches to biodiversity conservation in wood production forests

A summary account of the ways in which biodiversity conservation is delivered in wood production forests in WA, NSW and Victoria is provided in Appendix A. Some of the key points for comparison with Tasmania include:

Legislation and policy

- All states have established Government Business Enterprise equivalents with responsibility for wood production, and have independent oversight and regulation of forest practices/biodiversity conservation.
- All states have Acts/policies to cover sustainable forest management principles and agreements within NFPS, RFAs, and *Environment Protection and Biodiversity Conservation Act 1999* and to cover particular state needs such as threatened species, old growth forest and rainforest.
- Not all states have a legislated forest practices codes across tenures, but all have some equivalent framework.
- Threatened species legislation is tenure blind in all three states, but operating procedures and regulatory mechanisms differ between public and private land.
Principles and objectives

All of the states espouse:

- Promotion of ecologically sustainable forest management (ESFM) through:
  - setting up a CAR reserve system
  - threatened species protection through regulation across tenures
  - habitat protection rules (e.g. riparian, old growth, rainforest, ridge and headwater etc.)
  - species specific survey and protection for species not covered adequately by habitat protection rules
  - planning, monitoring, reporting and review.

- Industry security through:
  - wood supply agreements/sustained yields—set annual allocation limits over a 10-20 year period

- Transparency through:
  - reporting to parliament and the community.

Planning and implementation

Each of the states has a different approach to the planning and implementation of biodiversity prescriptions. This reflects the different histories of management and policy imperatives within the different jurisdictions.

Research, monitoring and review

All of the states are moving away from pre-operational species surveys to landscape scale assessment, management and monitoring of surrogates. Managers, planners and scientists in Victoria and NSW are uncomfortable with aspects of current processes for development, uptake and application of new information. This was not seen as a problem in WA.

Summary

- All states have separate biodiversity regulation and wood production functions.
- Tasmania has the most comprehensively tenure blind forest practices system.
- All states are working to use CAR reserves plus landscape surrogates to deal with the general biodiversity issues.
- All states recognise the value of strategic level approaches to dealing with threatened species and general biodiversity above the coupe level using surrogates where possible and only dealing with specific species management issues when necessary.
• All states use wording to make it clear that the system is to provide or cater for threatened species, but not protect every individual.

• All states are moving to defining clear objectives and outcomes-based monitoring, backed by a prescriptive/regulatory approach at the coupe level only where necessary.

• Effectiveness monitoring is part of the system in WA, moving that way in NSW, but not happening in Victoria.

• There is a heavy reliance on good desk top (GIS/database) approaches which in turn rely on accurate information, good curation, maintenance and updating methods.

Mechanisms for the delivery of biodiversity conservation in Tasmania

Biodiversity conservation in Tasmania is delivered in three main ways on the ground:

• Reservation—there is a well established and extensive system of formal and informal protected areas under a range of legislation and management tenures (40% of forests in conservation reserves). There are a number of programs currently underway to improve the comprehensiveness, adequacy and representativeness of this reserve system, including securing additional conservation reserves on private land.

• Planning and Management—In addition to the forest practices system (discussed below) there is a range of planning and management tools in use to achieve biodiversity outcomes. Some examples include the Management Decision Classification (MDC) System on State forest, local government planning schemes, natural resource management plans, threatened species Listing Statements and Recovery Plans and the Conservation of Freshwater Ecosystem Values (CFEV) database.

• Regulation—there are some regulatory structures that are specifically aimed at biodiversity conservation, e.g. the Threatened Species Protection Act 1995 and the Nature Conservation Act 2002. There are others where biodiversity conservation is one of the objectives, e.g. the Environmental Management and Pollution Control Act 1994, the Land Use Planning Appeals Act 1993.

The forest practices system in Tasmania contains some elements of each of the above.

The forest practices system in Tasmania

Policy and legislative framework

There is a wealth of policy and legislation from international agreements through Commonwealth legislation, inter government agreements to state legislation and policies to set the agenda for the conservation of biodiversity in Tasmania. The overarching aspirations and guiding principles in most of these instruments are clear and, for the most
part, complementary, however there is considerable ambiguity and uncertainty when it comes to roles and responsibilities and to achieving their practical application. This has ramifications for evaluating the precise role of the forest practices system.

Forest practices in Tasmania are regulated by the *Tasmanian Forest Practices Act 1985*. Schedule 7 of the Act states the objectives of the forest practices system of Tasmania, as follows:

The objective of the state's forest practices system is to achieve sustainable management of Crown and private forests with due care for the environment while delivering, in a way that is as far as possible self-funding

(a) an emphasis on self-regulation
(b) planning before forest operations
(c) delegated and decentralized approvals for Forest Practices Plans and other forest practices matters
(d) a forest practices code which provides practical standards for forest management, timber harvesting and other forest operations
(e) an emphasis on consultation and education
(ea) an emphasis on research, review and continuing improvement
(f) provision for the rehabilitation of land in cases where the forest practices code is contravened
(g) an independent appeal process
(h) through the declaration of private timber reserves—a means by which private land holders are able to ensure the security of their forest resources.

The Act establishes the *Forest Practices Code*, as follows:

31. Purpose, &c., of *Forest Practices Code*:

(1) The *Forest Practices Code* shall prescribe the manner in which forest practices shall be conducted so as to provide reasonable protection to the environment.

Organisational context

The forest practices system is a co-regulatory system for the regulation of forest practices, harvesting of timber, clearance of trees, clearance and conversion of threatened native vegetation (forest and non-forest) and harvesting of manferns. It is based on education of industry personnel and delegation of authority to certify Forest Practices Plans for operational activities. Training, research and monitoring are key elements of the forest practices system. The system operates across all tenures, and is designed to be complementary to other land use and environmental regulatory instruments in order to provide a consistent statewide approach to forestry regulation. The system operates at various scales but currently principally at the coupe level i.e. it deals more with operational areas than planning and implementation on a regional basis. The *Forest
The Forest Practices Act 1985 is the principal piece of legislation within the forest practices system in Tasmania. The Act provides for an independent statutory authority, the FPA. The roles and functions of the FPA are to administer the forest practices system. The FPA has an industry stakeholder committee, the Forest Practices Advisory Council (FPAC) to advise them on matters relevant to the role of the FPA. The role of FPAC is also to foster communication and cooperation among stakeholders (Forest Practices Board, 2000). An independent body called the Forest Practices Tribunal has also been set up to hear appeals lodged in relation to decisions of the FPA.

The forest practices system applies to virtually all situations on public and private lands where native or commercially grown woody vegetation and threatened non-forest vegetation communities will be harvested, cleared or converted. On private land, the Forest Practices Act 1985 provides that forestry activities on Private Timber Reserves (PTRs) are subject to a single, consistent, statewide system of planning and regulation, rather than variable systems under LUPAA. The forest practices system is required to also operate in accordance with other relevant legislation including the TSPA, LUPAA, EMPCA, and the NCA where relevant. Interaction with legislation such as LUPAA and EMPCA is less clear now than it was several years ago due to changes in the Forest Practices Act.

The forest practices system operates mainly at the individual cut or coupe level, but sits within a policy and legislative framework that requires strategic and operational planning to realise ecologically sustainable forest management. Mechanisms such as the Regional Forest Agreement, the Forest and Forest Industries Strategy, Forestry Tasmania’s Management Decision Classification System, Forest Management Plans, Private Timber Reserves and three year plans (for companies harvesting more than 100,000 tonnes per year) are currently used for strategic planning and landscape level approaches. Several large companies in the timber industry have environmental management systems (EMS) which have been accredited to ISO14001.

A Forest Practices Plan (FPP) is a key legislative requirement at the operational level of the forest practices system. A FPP contains maps and information regarding how an activity will be carried out.

Legislative changes to the Forest Practices Act 1985 have seen an increase in the type of activities requiring a FPP. Some activities perceived to be small scale operations that are not forestry operations, and that are unlikely to result in significant impacts on biodiversity, have been exempted from the forest practices system. Other activities that do not require a FPP are dealt with via other mechanisms. Examples of such exemptions include: dams, electricity easements, gas pipelines, and areas where regenerating non-threatened native vegetation or forest is less than 5 years old. Harvesting of timber or the clearing of trees, or the clearance and conversion of a threatened native vegetation community, carried out in accordance with an approved conservation covenant or vegetation management agreement is also exempt from requirements under the forest practices system as are works occurring under an approved fire management plan.

As a general principle, operational planning in the forest practices system should include consideration of the environmental effects of all forest operations for an area (Forest Practices Board 2000). The planning process involves gathering of basic site
information, identification of significant natural or cultural values and management prescriptions to ensure adequate protection of values.

A suite of tools are available to Forest Practices Officers (FPOs) to assist in the identification of significant biodiversity values. These tools include:

- *Threatened Fauna Adviser* which contains species management prescriptions
- *Threatened Fauna Manual for Wood Production Forests in Tasmania* (now superseded by the online version of the manual known as the Fauna Value Database)
- GIS layers (species range maps, species habitat maps)
- *Fauna Conservation in Production Forests in Tasmania* (manual)
- *Forest Botany Manual*
- Flora and Fauna Technical Note Series
- other databases (e.g. Conserve, Natural Values Atlas)

There are numerous other documents that also have some bearing on the management of biodiversity e.g. those related to use of chemicals, weed management, pest management, game control, fire management, silvicultural management.

Significant natural biodiversity values are defined by a number of legislative or other processes outside of the forest practices system (e.g. TSPA listing process, RFA priority species list and Schedules of the NCA).

The *Forest Practices Code* is developed by the FPA. It prescribes the manner in which forest practices shall be conducted, in order to provide ‘reasonable’ protection to the environment, and aims to provide a practical set of guidelines and standards to ensure environmental values are protected during forest operations. The *Forest Practices Code* contains both mandatory and non-mandatory prescriptions. It refers the planner to supporting documents and outlines the essential elements of the planning system but does not necessarily include all details of all policies. It defines the duty of care to the environment required in forest planning. The *Forest Practices Code* has evolved, as the forest industry has evolved, from the first version in 1987.

Forest Practices Officers are required to seek specialist advice from the FPA under a number of circumstances where significant values are confirmed or suspected to occur. The FPA specialist’s role is to provide advice to the Forest Practices Officer to assist in the development of a set of prescriptions that deliver protection for biodiversity values to ensure each operation is occurring in an ecologically sustainable manner. Planning must consider these values and the duty of care owed to their protection.

Prescriptions within the forest practices system may range from recommendations for protection via informal reservation (e.g. Wildlife Habitat Strips, informal reserves on public land) to informal protection on private land with or without associated protection through legislative mechanisms such as conservation covenants under the NCA. There are requirements to set aside Streamside Reserves and Wildlife Habitat Clumps in the *Forest Practices Code*, but in addition to these, standard prescriptions for threatened
species management may be applied (e.g. wedge-tailed eagle nest reserves). Standard prescriptions are developed by specialists to ensure sustainable management of species occurs within the forested landscape. Currently there is little or no effectiveness monitoring undertaken in relation to prescriptions applied to threatened species within the forest practices system.

Legislative changes to the *Threatened Species Protection Act 1995* and the *Forest Practices Act 1985* have been made which negate the need for a threatened species permit, when operating in accordance with a certified FPP. However a protocol for the management of threatened species in production forests has been developed (‘Agreed Procedures’, see Appendix B). This protocol requires consultation between the FPA and DPIW where threatened species occur or are likely to occur or to be impacted by an operation. The intent of this protocol is to ensure that prescriptions and decisions being made under the forest practices system are consistent with the approach that would otherwise be taken under the TSPA. Where agreement on the management of threatened species cannot be reached between the two agencies, the Secretary of DPIW may still require a permit under the TSPA in addition to a certified FPP. This situation has never arisen.

Any advice provided by specialists is done so in accordance with available information such as the Permanent Native Forest Estate Policy, Recovery Plans, Listing Statements and strategic planning that has been undertaken on a species by species basis (for which there may be only limited information). Generally the FPO accepts the advice of specialists. However, if another course of action is chosen, the FPO must demonstrate that the solution is at least as successful in the protection of values as that suggested by the specialist.

Forest Practices Plans can be prepared by any person; however, they can only be certified by a Forest Practices Officer (FPO). There are several types of FPOs who have been trained and accredited by the FPA to undertake different tasks within the forest practices system.

The Chief Forest Practices Officer is responsible for the day to day administration of the forest practices system. However, the FPO in effect, carries out the day to day regulation at the operational level. The various types of FPOs plan and supervise the implementation of Forest Practices Plans (FPP). They audit compliance at all stages of the operation associated with the FPP and produce certificates of compliance at the completion of the operation which are submitted to the Compliance Section of the FPA. The Compliance Section undertakes periodic audits of a sample of FPPs to gauge how well the system is working.
Discussion and recommendations

Principles for the conservation of biodiversity in the Tasmanian forest practices context

The above review of the policy, legislative and operational frameworks highlight a number of key principles about the conservation and management of biodiversity which are summarised below. These fall into two broad areas:

- the conservation of biological diversity
- the ecologically sustainable use of its components.

The review highlights a number of planning and management principles which need to be assessed in the Tasmanian forest practices context.

Conservation of biological diversity principles:

- biological diversity covers all ecosystem, species and genetic components
- biodiversity should be conserved through a two pronged approach—a CAR reserve system and ecologically sustainable management across the landscape
- the establishment and management of the CAR reserve system is not in itself sufficient to ensure the protection of biodiversity
- threatened taxa and ecological communities should be given priority
- other species and communities should not become threatened nor genetic diversity reduced.

Ecologically sustainable use of biological diversity principles:

- ecologically sustainable use of the components of biodiversity is appropriate
- ecologically sustainable development is a mechanism to deliver this use
- resources should be maintained (including biological diversity) so as to conserve the full suite of values including both conservation and resource use that can provide for current and future generations
- ecologically sustainable development provides the potential for the integration of environmental and economic considerations in decision making and/or balancing the interests of current and future generations.

Planning and management principles:

- there should be integrated and coordinated decision making and management
- landscape scale or regional approach to biodiversity conservation planning is required
• the concept of ecologically sustainable development should be used by all levels of government in the assessment of resources, land use decisions and approval processes
• each level of government has responsibilities for the conservation of biodiversity
• there should be clear guidelines for how to achieve a CAR reserve system and how to achieve off-reserve conservation
• maintain a permanent native forest estate
• reverse the long-term decline in the quality and extent of native vegetation cover.

**Application of these principles in Tasmania**

The framework for the delivery of biodiversity conservation in Tasmania satisfies many of the principles above. For example,

• Tasmania has an overarching piece of legislation that defines and promotes natural resource management in the state.

• Tasmania has developed and implemented the concept of a ‘resource management and planning system (RMPS)’ designed to promote the sustainable development of natural and physical resources. However the forest practices system sits separately from the RMPS.

• A key part of the resource management and planning system is the concept of ‘sustainable development’.

While Tasmania is using the two pronged approach to deliver its biodiversity outcomes with some success, there is no clear and integrated approach to biodiversity conservation across Tasmania at the landscape level. This is particularly true for biodiversity which occurs predominantly outside forests, but applies also to some extent within the forest landscape, especially across public/private land tenures. Furthermore, whilst there are clear guidelines for establishing a CAR reserve system, there are no similarly clear guidelines for achieving the off-reserve component of ecologically sustainable management.

The forest practices system does in large part deliver an integrated system that recognises the above principles within the Tasmanian framework. For example:

• The forest practices system is a practical planning system with an emphasis on consultation, education and ongoing review and improvement.

• The forest practices system is based on the concept of sustainable use of forest for wood production in the context of reasonable protection to the environment.

• The forest practices system forms part of a broader legislative and policy framework in Tasmania.

• The forest practices system applies to both public and private land.
• Threatened native vegetation communities have recently been defined under the NCA and the clearance and conversion of threatened forest and non-forest vegetation is now regulated by legislation and will be administered under the forest practices system.

• Tasmania has a ‘threatened species protection system’ which is part of the state’s RMPS, and the forest practices planning system is recognised by this system as being adequate for the planning and management of threatened species.

• The state has a policy which commits it to maintaining a permanent native forest estate, administered through the forest practices system. The policy has statewide and bioregional thresholds.

• The *Forest Practices Act 1985* specifically recognises ecologically sustainable forest management.

However, from the viewpoint of biodiversity conservation, the forest practices system could be improved by the following actions:

• Incorporating a definition of sustainable forest management as provided in the National Forest Policy (see Appendix C). Currently the primary objective of the *Forest Practices Act 1985* cannot be met because the forest practices system is a regulatory rather than a forest management system.

• Incorporating biodiversity conservation as a specific objective into the *Forest Practices Act 1985*.

• Including a definition of the term ‘reasonable’ into the *Forest Practices Code* because forest practices are to be conducted to provide ‘reasonable’ protection to the environment. Similarly, ‘reasonable’ duty of care should also be defined.

• Providing for biodiversity conservation in the longer term, at least by recognition of the role of other policies and procedures. Currently the *Forest Practices Code*:
  
  o only protects values for the duration of the Forest Practices Plan
  
  o does not provide for integrated planning in the non-commercial context where the Forest Practices Plan is often only one part of the planning process
  
  o does not require maintenance of any centralised recording of the location of vulnerable land.

• Establishment of additional safeguards to ensure that native vegetation is retained at levels that are likely to be sustainable for biodiversity conservation. In particular:
  
  o A native forest bioregional threshold should be introduced to ensure that permanent forest loss from 1750 area does not exceed 50% in a bioregion. In those bioregions where these thresholds have been exceeded then no further loss of the bioregional area of native forest areas should be permitted. The panel notes (see Attachment 2 to table 6.1 that in two
IBRA 4 bioregions the extent of forest loss has exceeded 50% and is approaching 70%.

- Native forest community bioregional thresholds should be set to maintain 75% of the 1996 area or 2000 ha, whichever is the greater unless a review of mapping and conservation status determines those communities are not of bioregional significance. The threshold should also explicitly take into account pre-1996 clearance, which has significant ramifications for bioregional conservation of biodiversity. The panel notes (see Attachment 1 to table 6.1) that there has been significant conversion of several forest communities in several bioregions.

- Establishment of a set of overarching guidelines or principles for off-reserve management to match the clear criteria set for the establishment of the CAR reserve system. The establishment of such guidelines for Tasmanian forests as a whole would require a new policy directive across agencies, including the Forest Practices Authority, in collaboration with a range of affected stakeholders.

- Increasing the capacity of the Forest Practices Authority to address these issues, especially with respect to GIS and database establishment and maintenance.

Inconsistencies between systems

The ad hoc development of biodiversity conservation systems in Tasmania (as elsewhere) has led to some inconsistencies arising from the different approaches among relevant agencies and structures:

- The role of the forest practices system has expanded recently, without reference to other planning systems.

- There can be ad hoc exemptions to the need to abide by the Forest Practices Code.

- There are no clear guidelines on just how much harvesting/clearance can occur within a Vegetation Management Agreement and there are no mechanisms for recording the harvesting/clearing that occurs.

- All exempted activities are considered to be outside the PNFE Policy—however, some of these activities can impact on threatened forest communities.

- The forest practices system allows for consideration of threatened species habitat, whereas the TSPA only allows for known sites.

- The various Acts and policies need to clearly define what is meant by protection of a species and the circumstances under which any individual is protected or not.

- The degree to which current prescriptions delivered via the forest practices system take into account species populations and their requirements as a whole across their range is unknown. The prescriptions were developed to cater only for the forestry context and largely at the coupe level. Species populations and their requirements as a whole across their range are considered to some extent on State
forests through Forestry Tasmania’s conservation planning. The Fauna Strategic Planning Group has attempted to develop Strategic Management Plans to be delivered via the forest practices system taking into account such requirements across all land tenures.

Operational considerations

There are some issues which arise also at an operational level:

- The *Forest Practices Code* has evolved over time into a series of documents that are a mix of prescriptions and higher level guidance. This applies to many aspects of the *Forest Practices Code*, not just biodiversity, but application of the *Forest Practices Code* to achieve biodiversity conservation aims and outcomes would be assisted greatly by restructuring of the *Forest Practices Code*.

- The current *Forest Practices Code* does not represent the broad range of issues and operational situations that the expanded forest practices system now has a legislative responsibility to cover, particularly in the areas of non-forest vegetation and non-commercial activities.

- There are a number of systems in place to monitor the performance of the *Forest Practices Code*, but these mostly determine levels of compliance with process rather than the effectiveness of biodiversity conservation measures put in place.

- There is no transparent resolution mechanism to deal with situations where specialist advice is in conflict with other objectives.

- The process for uptake of research outcomes needs clarification.

- There is no clear review and update process for tools for the identification of values.

- The five yearly review of TCFA and the RFA priority species list currently does not include an independent scientific approval process for altering the list.
Chapter 3
Terms of Reference 2a and 2c: Implementation of biodiversity conservation via the Tasmanian forest practices system—meeting policy and legislative responsibilities

Introduction and Methods

Terms of Reference 2 requires that the panel, ‘Review the relevance and scope of the forest practices system in relation to biodiversity conservation and evaluate the ability of existing provisions to meet conservation objectives at the local, catchment and regional scales.’

A number of sub-clauses are detailed within this ToR. This chapter considers the following sub-clauses:

(a) The processes and planning tools to meet objectives and requirements of the RFA, Tasmanian Nature Conservation Strategy, Threatened Species Strategy, threatened species Recovery Plans, Tasmanian Threatened Species Protection Act 1995 and other relevant National and state legislation and policies.

(c) The processes and planning tools for facilitating legislative responsibilities amongst agencies (e.g. interagency Agreed Procedures). The panel notes that there are some other inter-agency groups such as the RFA Implementation Group and the Vegetation Mapping Program Advisory Group which have briefs of relevance to these ToR. The Forest Practices Authority is represented on both groups by the Chief Forest Practices Officer.

The panel has approached this task by interviewing staff from the Forest Practices Authority (FPA), DPIW and FT and by considering a number of documents. In particular the panel has incorporated relevant sections of background document 2 (Wapstra 2007b) and comments provided by the Forest Practices Executive Team.

Sub-clauses (a) and (c) of ToR 2 list a number of specific legislative and policy instruments which are to be considered by the panel. Each of these instruments has relevant sections dealing with issues of biodiversity conservation but these issues can be broken down into a number of discrete subject areas which will be considered in turn:

- principles and objectives
- general biodiversity conservation issues.
- threatened species
- priority species
- conservation of ecological communities (vegetation types).
Principles and objectives

The Forest Practices Code contains broad statements on the requirements to manage natural values and prescribes the manner in which forest practices are to be conducted so as to provide reasonable protection to the environment. It provides a set of guidelines and standards for the protection of environmental values during forest operations, including flora, fauna and genetic resources. The Forest Practices Code sets out a series of General Principles and Basic Approaches, which in turn use a series of planning manuals to meet these General Principles and the requirements of other relevant legislation and policy.

Panel considerations and recommendation

Although the current Forest Practices Code has General Principles, some of which mention aspects of biodiversity conservation, they are not helpful for planning and operational implementation. The Forest Practices Code lacks any explicit statement about specific biodiversity objectives and outcomes. The panel has reviewed the need for such objectives and proposes a draft set for consideration in chapter six.

General biodiversity issues

General Principles and Basic Approach for general planning

Section D of the Forest Practices Code is the main section detailing relevant biodiversity provisions:

General Principles

- Conservation of biodiversity, including flora, fauna, threatened species, and genetic resources will be principally catered for in a systematic reserve system on public land, by a voluntary private land reserve system, and by management prescriptions in production forests.
- Natural values in adjacent reserves should be considered during the planning and conducting of forest operations.
- Management of natural and cultural values should be integrated where possible.
- Resource manuals will be consulted where appropriate.
- Measures taken to conserve natural values will be consistent with effective fire management, silvicultural practices and safety requirements.

Basic Approach

- Natural and cultural values should be assessed at the strategic or property level, and will be evaluated during the preparation of Forest Practices Plans.
Panel considerations and recommendations

The panel considers that:

- The current approach could be simplified in some cases e.g. plantation thinning and harvesting where these operations have been assessed previously and are unlikely to have a major impact on biodiversity values.
- Threatened non-forest communities and associated biodiversity values should also be catered for in the Forest Practices Code and associated Forest Practices Plans.
- The need for ongoing training in biodiversity conservation management for Forest Practices Officer (FPOs) accreditation is a high priority in order to maintain on-ground biodiversity conservation planning skills.
- The requirements for the conservation of natural and cultural values, including specific sites, should be recorded to aid in future decision making and ensure continuity of management. The scale at which this is undertaken will vary depending on the measure and this will be determined by the FPA.
- Areas of high conservation significance should be designated as Special Management Zones (SMZ) where operations comply with the agreed management recommendations with appropriate specialist advice.
- Strategic planning approaches should be adopted wherever feasible, to minimise ‘last-minute’ coupe level take up of issues.

Relationship between the forest practices system and other legislative and policy requirements

Section D of the Forest Practices Code also specifically details the relationship between the forest practices system and other legislative and policy requirements relating to biodiversity conservation:

The sustainable management of natural and cultural values within production forests under the forest practices system will be determined in accordance with:

- the Tasmanian Regional Forest Agreement 1997 (including the provisions for the Comprehensive Adequate and Representative reserve system);
- the Tasmanian Government Policy for Maintaining a Permanent Native Forest Estate;
- policy mechanisms that relate to State forest;
- the duty of care of landowners under the provisions of this Forest Practices Code, which is defined as the fundamental contribution of the landowner to the conservation of natural and cultural values that are deemed to be significant under the forest practices system. The landowners duty of care includes: ... the reservation of other significant natural and cultural values. This will be at a level
of up to 5% of the existing and proposed forest on the property for areas totally excluded from operations. In circumstances where partial harvesting of the reserve area is compatible with the protection of the values, the level will be up to 10%. The conservation of values beyond the duty of care is deemed to be for community benefit and should be achieved on a voluntary basis or through compensation mechanisms where available.

General principles and Basic Approach for flora and fauna

Section D3 of the Forest Practices Code deals specifically with the management of flora and fauna.

General Principles

Conservation of flora and fauna is assisted by the maintenance and restoration of habitat, the enhancement of opportunities for recolonisation of disturbed areas, and the linking of forest areas to allow genetic interchange.

Maintenance of the genetic resources of native forest is assisted by the retention of native flora and fauna in formal and informal reserves including Wildlife Habitat Strips and Streamside Reserves dispersed throughout the forest, and the use of seed sources native to the site when regenerating forests. Generally, retention of forest with old growth characteristics is preferable to retention of regrowth of the same forest type.

Panel considerations and recommendations

These Principles assume that:

- while forest operations may have local adverse impacts, overall biodiversity conservation objectives can be met by due consideration of habitat needs
- all elements of biodiversity and their habitat requirements are known
- appropriate habitat needs can be met in set-asides.

The first of these points is unproven and the other two are not true. To cater for these issues, the panel recommends the inclusion of the following elements into the overarching Principles:

1. Adoption of a broader approach to incorporate systems, such as surrogate habitat approaches combined with individual prescriptions where these are known and necessary additions. In some cases the tools for such an approach are already in place e.g. the CFEV database for freshwater ecosystems values.

2. Change the wording of flora and fauna to biodiversity to include all levels of biodiversity—from genes to species and ecosystems.

3. Spatial and temporal scales should to be considered in a bioregional context, to include a land and water systems approach to planning.

4. There should be active consideration and management of threatening processes—including weeds, pests, diseases and genetic pollution.
Basic Approach

Planning for flora and fauna conservation should initially be carried out at above the coupe level (e.g. bioregional, and then whole property, forest block or district forest management plan). At this level:

- strategies should be developed to maintain species, particularly in extensive plantation areas and other intensively managed areas
- dispersed coupes should be considered
- management agreements should be considered between the landholder and DPIWE for threatened species, particularly those with a restricted range.

As far as practicable, areas of retained vegetation (including Wildlife Habitat Strips—see page 62) should include localised features associated with:

- threatened species
- species with disjunct or unusual distributions
- sites with high species diversity
- inadequately reserved communities
- forests that have old growth characteristics
- other significant biological values (e.g. important research and monitoring sites, important components of genetic diversity of specific species).

In parts of the state where native forests occur mainly as remnants, consideration should be given to:

- retention of native forest remnants to aid in the maintenance of local flora and fauna diversity and landscape values
- restoration of habitat including widening and linking Wildlife Habitat Strips, particularly where species and communities of high conservation significance are known to occur.

Panel considerations and recommendations

This approach establishes a multi-scale consideration of biodiversity conservation, from the regional to the coupe level. The panel recommends that the forest practices system should also specifically set out:

- how biodiversity outcomes are to be achieved
- how the responsibility for its achievement at the different scales is to be allocated
- how success/effectiveness of this planning is to be measured.

Flora and fauna conservation

The Forest Practices Code relies on the Forest Botany Manual which outlines both the Principles and Basic Approaches to be taken to achieve conservation of flora values. The manual is used in conjunction with other information sources such as vegetation maps, the flora databases held by Forestry Tasmania and DPIW and advice from specialists.
The manual does not explicitly cover bioregional or cross tenure issues for flora planning, nor does it explicitly recognise aspects of gene conservation other than those arising from genetic incursions into the local flora from exotic genotypes.


The approach includes assessment of elements such as:

- the known occurrences and potential habitat for threatened species within the coupe
- the presence of or requirements for Wildlife Habitat Strips
- the requirements for Wildlife Habitat Clumps
- the presence of or requirements for special management zones for fauna.

The Forest Practices Code sets out criteria for Wildlife Habitat Strips in the landscape and for Wildlife Habitat Clumps at the coupe level.

**Panel considerations and recommendations**

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<td>Adoption of a web-based threatened flora adviser along similar lines to the TFA and incorporation into a single Threatened Species Adviser.</td>
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<td>Inclusion of regional and subregional biodiversity conservation issues at the planning stage.</td>
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<td>Inclusion of consideration of gene conservation issues.</td>
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<td>Resourcing to allow for maintenance of adequate databases, and a mapping and GIS facility.</td>
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<tr>
<td>Adequate resources for monitoring and review of the effectiveness of prescriptions.</td>
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</table>

**Threatened species issues**

Threatened species are those species listed as threatened on the Tasmanian Threatened Species Protection Act 1995 and/or the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. Virtually all species listed on the EPBC Act are also listed on the TSPA, but there are many species listed on the TSPA that are not listed on the EPBC. The state and Commonwealth governments have established a process to align the lists of the TSPA and EPBCA for Tasmanian endemic species. Many of the species are listed as rare (R) in Tasmania, but this category does not exist in the EPBC.
Mechanisms in the forest practices system for meeting the objectives of the TSPA and EPBC

Section D of the *Forest Practices Code* outlines mechanisms for the management of threatened species by providing General Principles and Basic Approaches which mainly rely on a series of planning manuals as outlined above in discussion of general biodiversity conservation issues.

Section D of the *Forest Practices Code* provides a direct link to the TSPA and EPBC:


Reference to the *National Parks and Wildlife Act 1970* is outdated.

*Threatened species and inadequately reserved plant communities will be managed in wood production areas in accordance with procedures agreed between the Forest Practices Board and DPIWE. The Agreed Procedures will include the development of endorsed management prescriptions through consultation among landowners, Forest Practices Officers and specialists within the Board and DPIWE. Under the Agreed Procedures Forest Practices Officers will: consult the Forest Botany Manual, the Threatened Fauna Manual for Production Forests in Tasmania, and the Threatened Fauna Adviser to determine if threatened species or inadequately reserved plant communities occur or are likely to occur in the operational area;*

This statement formalises Agreed Procedures in the legally binding *Forest Practices Code.*

**Agreed Procedures**

The set of Agreed Procedures (Appendix B) noted above has been adopted by DPIW and FPA to facilitate application of the *Forest Practices Code* with respect to threatened species (Wapstra 2007b).

Clauses 3.1.2 and 3.2.2

These clauses establish roles for the Scientific Advisory Committee (established under the TSPA) and the Forest Practices Advisory Council (established under the Forest Practices Act) and emphasise the need for regular review, including consultation with various parties:

- *notify the appropriate specialist within the Forest Practices Board if threatened species or inadequately reserved plant communities occur or are likely to occur in the operational area;*

- *obtain an endorsed management prescription for the operational area and incorporate this prescription into the Forest Practices Plan. This may involve*
Further consultation between the Forest Practices Officer, the landowner, and specialists within the Forest Practices Board and DPIWE.

These statements are the core mechanism for Forest Practices Officers to liaise with the specialists of the FPA, who further liaise with other agencies (most notably DPIW). Some of the procedures (clauses 3.1.6 and 3.2.6) place more specific constraints (most notably time) on the consultative protocols.

The conservation of threatened species and inadequately reserved plant communities may be achieved by reservation or prescription in accordance with the duty of care policy, voluntary arrangements such as the Private Land Reserve Program, or through legislative processes as mentioned above.

Clause 4

This states:

*Forest Practices Plans—once the Forest Practices Officer has obtained an endorsed management prescription, the officer will apply the prescription by incorporating appropriate provisions into the Forest Practices Plan for the area. The provisions of a certified Forest Practices Plan are legally binding on all parties who operate within the area covered by the plan for the duration of the plan. A permit for the purposes of s.51 of the Threatened Species Protection Act is not required where a Forest Practices Plan has been certified in accordance with these procedures.*

This clause provides the link to Section 51 of the TSPA, the permit provisions of the Act, and effectively means that a permit under the TSPA is not required where the FPP includes prescriptions for threatened species developed in accordance with the Agreed Procedures.

Section 51 of the TSPA does not mention the Agreed Procedures, but simply refers to FPPs.

Panel considerations and recommendations

The panel notes that the Agreed Procedures appear to relate specifically to ‘wood production forests’ and recommends that the situation for FPPs certified for other purposes (e.g. residential subdivisions outside of wood production forests) should be clarified. The Agreed Procedures should also consider vegetation communities as well as species.
Clause 5
This states:

*Monitoring of compliance—compliance with the provisions of the Forest Practices Plan, including provisions that relate to threatened species, will be assessed by a Forest Practices Officer and a report on compliance will be lodged with the FPB within 30 days of the expiry of the plan, as required under s.25A of the Forest Practices Act. The Board will publish information on compliance in its Annual Report.*

This clause provides the link to Section 25A of the *Forest Practices Act 1985* (certificate of compliance) and requires transparent reporting to Parliament on the operation of the Agreed Procedures.

Clause 6
This states:

*Independent audit and enforcement—The Board will audit the standard of planning and the degree of compliance with the implementation of the provisions of the Forest Practices Code and Forest Practices Plan, including those that relate to threatened species as part of its annual audit. Results will be published in the Board’s Annual Report, as required under s.4 of the Forest Practices Act. Appropriate action will be taken with respect to instances of poor planning, or failure to comply with the provisions of a plan, in accordance with the provisions of the Forest Practices Act. Potential breaches of the Threatened Species Protection Act will be reported to DPIWE as soon as practicable.*

This clause provides the link to the compliance activities of the FPA.

Clause 7
This states:

*Monitoring of efficacy of prescriptions—The Board in association with the DPIWE will monitor the efficacy of management prescriptions through a coordinated approach to research.*

Panel considerations and recommendations

The panel notes that it is unclear whether and how this process actually happens. What monitoring of efficacy of prescriptions for the protection of threatened species has been done? How adequate/defensible are the data to address the question of adequacy of prescriptions?

Thus the panel would like to see established a clear set of steps that spell out the resourcing, design, information generation, feedback to management, and ultimately incorporation into management of appropriate actions and prescriptions.

The panel also recommend the establishment of a clear process for the monitoring of the efficacy of prescriptions.

Clause 8
This states:

*Research—The FPB and the DPIWE will consult with landowners and other stakeholders to determine the priorities for research into the ecology and management requirements of threatened species. Both bodies will coordinate an approach to secure appropriate levels of funding from all available sources. The forest industry recognises its role in contributing to research into the effects of forest management practices on threatened species. The forest industry will consider the research needs for threatened species as part of its overall contribution to forest practices research under the terms of the forest practices research fund.*

**Panel considerations and recommendations**

The panel considers that a transparent process is needed to ensure funding/resourcing for this research is made available, at appropriate levels and that there is a clear basis and process for setting and review of priorities for biodiversity conservation in general and threatened species in particular. The Agreed Procedures should also cover threatened vegetation communities.

The panel also consider that the Agreed Procedures process requires review. Whilst the Agreed Procedures are particular to the two agencies with legislative responsibility for threatened species conservation, a revised process to include other major stakeholders could facilitate the review and implementation of the procedures.

**Priority Species**

Priority species were defined under the Regional Forest Agreement. Most priority species listed in the original Tasmanian Regional Forest Agreement (Commonwealth of Australia and State of Tasmania 1997) (on Attachment 2) were those listed on either the EPBCA and/or TSPA (A.1 species on Attachment 2 of the RFA). However, the RFA also includes a suite of species not included on any legislation.

The RFA revisions following the Wielangta court case recognise that the existing forest practices system ‘protects’ priority species through the CAR reserve system and prescriptions.

There are internal state government policies for review of the RFA, including the lists of priority species. This has been undertaken and DPIW use a revised (but formally unpublished) list of priority species that is substantially different to the original RFA list. However, this has little impact on the processes described above because the forest practices system considers all listed species and priority species in its scope.

For example, the *Forest Botany Manual* includes all listed flora species, priority flora species and others such as regionally significant species and significant local populations. The *Threatened Fauna Manual* included several of the priority species originally included in the RFA (e.g. white-bellied sea-eagle) prior to their listing as threatened and these listings in the TFM are maintained.

**Panel considerations and recommendations**
The panel endorses the recognition of RFA priority species and notes that there appears to be some confusion about the process for listing and updating of priority species and therefore recommends that a formal, regular and transparent process be adopted for the review and updating of the list as recommended in the 10 year RFA review.

**Conservation of ecological communities**

The Regional Forest Agreement committed the state to various levels of reservation and management of different forest types (e.g. 15% of each forest community; 60% of mapped old growth; 100% of certain vegetation types). It also recognised and listed some ecological communities that are at risk. The *Forest Practices Code* deals with these communities through the botany manuals as well as other priority communities not explicitly dealt with in the RFA.

**Tasmanian Permanent Native Forest Estate policy**

The RFA committed the state to developing a Permanent Native Forest Estate policy (PNFEP) (Attachment 9 of the RFA). The FPA monitors threatened communities and other elements of the PNFEP and reports annually on their status.

The FPA has implemented a number of administrative arrangements to facilitate delivery of the objectives of the PNFEP.

**Tasmanian Nature Conservation Strategy**

This strategy is currently being revised; however there are several points where the forest practices system has relevance.

*Maintenance of a Permanent Native Forest Estate (PFNEP)*

The panel notes that in undertaking the monitoring and reporting role for the PFNEP, the FPA is also effectively assisting the state to meet its targets for other policy instruments such as the Tasmanian Nature Conservation Strategy.

*Public involvement in biodiversity conservation*

There is some level of community involvement being met by the forest practices system because FPOs consult with landholders; there is widespread consultation during revisions of the *Forest Practices Code* and there is also public involvement through the FPAC.

*Significantly increase measures to prevent the entry of weeds, pests and diseases into Tasmania and control those already present*

The current forest practices system includes measures for the control of some pests, weeds and diseases as part of a FPP.

**Panel considerations and recommendations**

The panel recommends that a process be developed for the systematic consideration and inclusion of measures for new weeds, pests and diseases (e.g. foxes, devil facial tumour disease).
Improve protection for freshwater environments. As a priority, identify and establish freshwater CAR reserves and complete integrated catchment planning for natural resource management.

The forest practices system includes some measures to address biodiversity components of freshwater ecosystems and staff from FPA have been involved in the Conservation of Freshwater Ecosystem Values (CFEV) project. In addition, geoheritage, soil and water components of the forest practices system provide complementary safeguards for the resources that support freshwater biodiversity.

Panel considerations and recommendations

The panel recommends that:

- The CFEV database be adopted as a planning tool to assist conservation of freshwater values as part of the forest practices system.
- The FPA maintain active liaison and facilitation role in the development and subsequent adoption of research and modelling techniques for catchment planning.
- Of the tools that were under development at the time of this review, the panel noted the potential utility of WAFL (Water Availability and Forest Landuse Planning Tool) and PIRI-Tas (Pesticide Impact Rating Index). WAFL can support regional decisions about water use under different scenarios of changed land-use in a catchment (e.g. increasing the area under plantation). PIRI-Tas is a risk-based software tool to assist in decisions about where and when to apply pesticides.

Improve the long-term protection and management of natural diversity on private land.
The panel notes that the forest practices system applies on private as well as public land.

Improve sustainable land practices in agriculture by developing codes of practice for individual agricultural sectors.
The panel supports the idea of integrating the forest practices system into a whole farm planning approach.

Increase financial support for the Threatened Species Strategy to provide greater protection for state-listed species, develop a range of mechanisms for broad-scale protection, increase effort in a range of other areas and encourage greater co-operation in recovery actions.

The panel notes that there has been increasing effort in this area across institutions, but the increase has not kept pace with the numbers of species requiring management action.

Whilst there will always be some species with individual requirements that require strategic planning, the panel considers that strategic approaches which deal with multiple species requirements probably offer the only viable way of achieving broad scale protection.
Improve the capacity of planning processes to protect natural diversity.

Panel considerations and recommendations

The panel understands that the FPA currently already has the capacity within the forest practices system to institute improvements of planning for biodiversity conservation within its jurisdiction.

A review of the other statutes dealing with the protection of natural elements should also be undertaken with the aim of improving their protection.

Panel considerations and recommendations

The current forest practices system approach should have the flexibility of approach and the resourcing capacity to respond to changes.

Include mandatory high environmental standards in the accreditation systems for key industries in Tasmania. These standards should include a code of practice with a duty of care component, a certification of product quality and of minimal environmental impact during production, and a third-party audit.

The Forest Practices Code is subject to approval and review processes under the Forest Practices Act. The focus of the Forest Practices Code is on wood production activities but increasingly the forest practices system is extending to non wood production activities such as agricultural clearing, quarries, residential subdivisions, and mines. The Forest Practices Code includes a specific ‘duty of care’ component.

Improve the standard of environmental impact assessments and environmental management plans through the provision of revised generic guidelines which include check lists of key nature conservation issues to be assessed and requirements for on-site assessments where appropriate.

The FPA requires all proposed FPPs to be assessed according to a set of guidelines. This evaluation requires use of key planing tools that have been endorsed by FPAC and TSSAC (e.g. the Threatened Fauna Manual and Forest Botany Manual).

Panel considerations and recommendations

The panel notes that DPIW has also produced a Consultant’s Brief in 2004, which relates to assessment of development proposals. There are several differences between the DPIW and FPA ‘briefs’ which may reflect differences of approach between FPOs and biodiversity consultants more generally. The panel recommends that FPA liaise with DPIW to maximise consistency of standards and approaches.

Target well recognised gaps in scientific research

The FPA has implemented an administrative structure that allows for coordination of research prioritisation.
The panel’s views about research and monitoring for biodiversity are dealt with in chapter four.

Explicit nature conservation objectives should be provided in all plans and regulations involving marine and freshwater resources. Plans should be implemented, audited and enforced.

The forest practices system has explicit nature conservation objectives and provides protection measures for freshwater systems.

Panel considerations and recommendations

The Streamside Reserve (SSR) system for larger streams (Classes 1–3 inclusive) provides riparian resources for in-stream biota and associated semi-aquatic taxa and is probably effective in mitigating the effects of forestry activities under most conditions. The forest practices system also has provisions for road crossings, managing snig-tracks and log-landings and minimising soil erosion, all of which help protect water quality and stream bed habitats. When overland flows are generated (e.g. after heavy rain shortly after operations that have exposed a lot of soil), SSRs are likely to be breached by drainage lines, including drains associated with roads. Guidelines to protect drainage lines need to be added to the forest practices system. Road crossings (especially culverts) can limit longitudinal connectivity within streams, and the forest practices system needs to be adjusted to take advantage of recent, local research that can improve fish passage in culverts.

The protection currently afforded to Class 4 streams consists of a machinery exclusion zone (MEZ), which can be upgraded to a full SSR in places where soil is prone to erosion and/or where aquatic species are listed in the FPA’s Fauna Value Database. MEZs probably do not prevent all inputs of sediment, especially shortly after harvesting in clearfell, and some additional provisions to protect species that depend on small, headwater streams may be warranted.

The FPA maintains a Fauna Value Database (formerly Threatened Fauna Manual), and associated software support, to provide current information on variations to the forest practices system to protect the habitat and resources of a variety of species of conservation interest including in-stream species (e.g. threatened fish species, species groups of hydrobiid snails) and species that depend on freshwater resources (e.g. burrowing crayfish that depend on saturated zones and groundwater).

Aquatic species dependent on karst and other communities closely associated with freshwaters (e.g. blanket bogs) are also likely to be protected by the geoheritage provisions of the forest practices system. The panel, notes, however, that groundwater and groundwater-dependent ecosystems remain poorly mapped across Tasmania, and that future developments in this area (probably via CFEV) may result in a more coherent strategy for dealing with these communities.

Key actions in relation to the forest industry

The Tasmanian Nature Conservation Strategy includes the following key actions in relation to the forest industry:
Amend the Forest Practices Act 1985 to increase protection for special values. This includes:

- identifying and protecting remnants as a ‘special value’ and classifying them in forestry planning as ‘vulnerable land’.

The Forest Botany Manual includes reference to ‘remnants’ and this also appears on the flora evaluation sheet. There are several ‘loose’ definitions of remnant within the nature conservation arena and the one currently used in the forest practices system is different from the one used during RFA mapping of remnants.

Panel considerations and recommendation

The panel have provided a definition of remnant vegetation and recommend its adoption for the forest practices system (Appendix C).

- permanently protecting ‘reserves’ (e.g. streamside reserves, etc.) after the Forest Practices Plan has expired.

The Forest Practices Act 1985 and associated regulations clearly include streamside reserves and areas excluded under expired FPPs as ‘vulnerable land’, which means that such areas cannot be further ‘cleared’ (within the broad meaning of the term under the Act) without further assessment by the FPA.

- providing stronger obligations and a duty of care to protect threatened elements.

Duty of care provisions are included in the Forest Practices Code.

Increase the research effort into the efficacy of prescriptions in the Forest Practices Code and review those prescriptions in the light of research results. Two research priorities are the protection of catchments and stream integrity, and the effects of plantations on fragmentation in the landscape.

These priorities are being addressed through existing research and through the current review. They are addressed further in chapter four.
Tasmanian *Natural Resource Management Act 2002*

Schedule 1 of the Act states the objectives of that Act, as follows:

1. *The objectives of the resource management and planning system of Tasmania are:—*

   (a) to promote the sustainable development of natural and physical resources and the maintenance of ecological processes and genetic diversity

The *Forest Practices Code* is based on the concept of ‘reasonable protection to the environment’ i.e. wood production in the context of managing environmental values, including biodiversity. The *Forest Practices Code* is the key policy instrument addressing this broad objective of the *Natural Resource Management Act* (and other acts that include the same set of objectives as the resource management and planning systems).

   (b) to provide for the fair, orderly and sustainable use and development of air, land and water

The forest practices system is established to deal with this issue with respect to wood production.

*Panel considerations and recommendations*

<table>
<thead>
<tr>
<th>The panel notes that the issues of air pollution, climate change and fire all potentially impact on biodiversity in ways that are not addressed by the current <em>Forest Practices Code</em>.</th>
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<tr>
<td>The panel recommends that the <em>Forest Practices Code</em> overtly and formally consider these issues for inclusion in future reviews of provisions where needed.</td>
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   (c) to encourage public involvement in resource management and planning

*Panel considerations and recommendations*

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<tr>
<th>The <em>Forest Practices Act 1985</em> requires review of the <em>Forest Practices Code</em> and this includes public consultation. However the panel notes that there is no formal process for dealing with public involvement about potential adverse biodiversity issues, although stakeholders are involved through the Forest Practices Advisory Council.</th>
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<td>(d) to facilitate economic development in accordance with the objectives set out in paragraphs (a), (b) and (c)</td>
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<td>This is a key focus of the forest practices system.</td>
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   (e) to promote the sharing of responsibility for resource management and planning between the different spheres of government, the community and industry in the state.

The forest practices system has a number of procedures and protocols which involve inter-agency liaison.

The panel has made recommendations about these arrangements elsewhere in this report.
Tasmanian *Nature Conservation Act 2002* (NCA)

The primary purposes of the NCA are to make provision with respect to the conservation and protection of the fauna, flora and geological diversity of the state, to provide for the declaration of national parks and other reserved land and for related purposes. Recent amendments to the NCA have been affected through the Tasmanian Nature Conservation Amendment (Threatened Native Vegetation Communities) Bill 2006.

The listing of threatened native vegetation on the Act is linked directly to concomitant changes to the *Forest Practices Act*, which has resulted in administrative adjustments to enable the FPA to meet the intent of the legislation (e.g. education program, web-based vegetation descriptions, administrative instructions, etc.).

**The ‘duty of care’ policy**

The *Forest Practices Code* includes a duty of care policy which has specific relevance to the management of biodiversity. It is noted that recent amendments to the *Nature Conservation Act 2002* now mean that an ‘affected owner’ includes those affected by both threatened species and threatened vegetation types but that compensation is not considered for any areas of land up to the threshold limits.

The duty of care policy is implemented on a case-by-case basis by Forest Practices Officers in consultation with specialists of the FPA and other agencies. The policy does not necessarily get applied automatically to all properties, and if applied, does not necessarily include land to the maximum threshold limit. In many cases retained areas are in excess of the threshold limits.

Duty of care relates to the area within the current FPP, but identified areas subsequently become vulnerable land.

*Panel considerations and recommendations*

The panel notes that duty of care covers areas defined as forest and thus does not cater for non-forest areas covered by the *Forest Practices Code*.

**Other biodiversity provisions of the *Forest Practices Code***

The *Forest Practices Code* includes numerous other references to the management of biodiversity values that have not been discussed above. Examples are given below:

**Management of freshwater systems**

**Streamside reserves**

Streamside Reserves meet some of the objectives of reservation levels of vegetation types under the RFA and associated policies such as the PNFE, and specifically address one of the key actions of the Nature Conservation Strategy. Streamside Reserves may also provide habitat for some threatened species.
Road construction across streams

The provisions may meet some of the objectives of the Inland Fisheries Act 1995 (in relation to fish passage).

Management of mature forest elements

Wildlife Habitat Clumps (WHC) and Wildlife Habitat Strips (WHS)

The Regional Forest Agreement included ‘hollow dependent species’ as a specific subset of priority fauna, noting that existing mechanisms including the Forest Practices Code will cater for these species. WHC and WHS have an emphasis on retention of mature elements and may also provide habitat for threatened species.

Management of remnant vegetation

This policy meets some of the objectives of reservation levels of vegetation types under the RFA and associated policies such as the PNFE, and specifically addresses one of the key actions of the Nature Conservation Strategy.

Management of relict rainforest and other sensitive environments

This policy also meets some of the objectives of reservation levels of vegetation types under the RFA and associated policies such as the PNFE.

Management of pests and diseases

The policy on the pathogen Phytophthora cinnamomi meets particular objectives of instruments such as the EPBC, TSPA (through management of susceptible listed species) and other internal policies.
Chapter 4  
Terms of Reference 2b, 2d and 2e: Implementation of biodiversity conservation via the current *Forest Practices Code*—processes and planning tools

**Introduction and Methods**

Terms of Reference 2 require the panel to ‘Review the relevance and scope of the forest practices system in relation to biodiversity conservation and evaluate the ability of existing provisions to meet conservation objectives at the local, catchment and regional scales.’

A number of sub-clauses are detailed within this ToR. This chapter considers the following sub-clauses:

2b Processes and planning tools to address current forest practices at both the landscape and stand level.

2d Processes and planning tools to facilitate implementation-practicability of current planning processes and provisions (strategic and operational).

2e Relationships between biodiversity provisions and other forest management provisions covered in the *Forest Practices Code*.

There are a large number of individual *Forest Practices Code* provisions, prescriptions and issues arising which relate to these ToR. These issues have been raised in the background documents (Koch 2007; Wapstra and Munks 2007; Barmuta 2008; Wapstra 2008) and some suggested approaches to deal with them have been made by the authors of the background documents and by the Forest Practices Executive Review Team. The panel have considered these suggestions and have provided their views and recommendations on the most suitable approach in this chapter, table 1 and Appendix E. The panel also notes that the current general review of the *Forest Practices Code* will examine structural issues but the individual items discussed in Appendix E should be transferable to whichever form the *Forest Practices Code* and associated prescriptions eventually takes.

**The Forest Practices Code**

**Spatial scale**

The *Forest Practices Code* operates over a number of scales, which are not defined.
Panel considerations and recommendations

The panel endorses the need for the Forest Practices Code to operate at various scales for the purposes of biodiversity conservation, and recommends the following planning and operational scales be adopted with the following working definitions:

1. **statewide**
2. **bioregional** (IBRA)
3. **Planning Context Unit** (PCU) - a notional contextual area around the planning node which depends on the scale of operation—the panel suggest using the CFEV major drainage basins
4. **Coupe context Unit** (CCU) which on State forest may be a notional 400 ha unit around the coupe, or may be a private property boundary and surrounding land-use context.

Currently the forest practices system has legislated or policy responsibilities to deal at the statewide, bioregional and coupe levels, and uses the landscape context scale to inform reviews of applications about biodiversity planning around the immediate area of concern.

Panel considerations and recommendations

The panel endorses this approach and recommends that it be formally adopted in consideration of FPPs. However the panel notes that whilst there is a very good planning system at the broader scale on public land, no such system exists for private land or for the consideration of biodiversity issues across tenures. In the absence of any statewide policy for consideration of these landscape context values for biodiversity, the panel recommends that such considerations be adopted formally within the Forest Practices Code to set the FPP context for biodiversity conservation. Thus planners should consider the spatial context of the individual coupe, whether on public or private land, taking into account such factors as reserve proximity, retained native forest, likely disturbance impacts, off-site effects and so on.

**Temporal scale**

The life expectancy of the current standing trees in a forest can vary depending on the species composition, the management intention and the time since natural or anthropogenic disturbance. Thus long undisturbed rainforest may contain trees greater than 500 years old; old growth eucalypt forest has dominant trees that are 200–500 years old; regrowth forest may have harvest rotation times of 85–100 years whilst more intensively managed stands may be thinned once or twice before harvesting at 60–70 years, and plantations may be harvested at 25 - 30+ years for sawlog and 12 - 14+ years for pulpwood. From a forest practices system perspective, the time period over which the period of an FPP applies to a patch of forest is also variable.

Panel considerations and recommendations

Data from studies at the Warra LTER site and elsewhere demonstrate conclusively that there are significant components of biodiversity that are dependent on old growth forest...
for their survival. These elements are disadvantaged by 100 year or less clearfell regimes followed by burning and resowing to maintain regrowth forests, especially as the biological legacies of previous old growth forests are depleted over successive cutting regimes. Thus it is important that the Forest Practices Code recognise the significance of maintaining old growth attributes (including giant trees) in the forest if the principle of maintaining the potential for the expression of all aspects of biodiversity is to be realised throughout the forest estate. This does not mean that all elements must be present on every hectare at every time period, but that suitable prescriptions are put in place to ensure that every area is ultimately capable of supporting late successional elements of biodiversity.

Biodiversity values and land-use activities covered by the Forest Practices Code

The Forest Practices Code currently emphasises native forest biodiversity values but the recent expansion of the plantation estate and recent amendments to the legislative framework of the forest practices system have resulted in a requirement to consider other factors such as non-forest values (e.g. native grasslands and wetlands) and non-wood values in plantations as well as in such developments as residential subdivisions and mining sites.

In its current form, the Forest Practices Code does not currently reflect all biodiversity requirements of both forest and non-forest communities nor does it adequately cover issues such as plantation expansion into both native forest and previously cleared areas. The Forest Practices Code does not consider offsets.

Panel considerations and recommendations

The panel notes that some of the tools within the forest practices system also do not adequately address some of the consequent biodiversity conservation issues that now occur. Therefore the panel recommends that the Forest Practices Code itself should be revised to include these new responsibilities.

The issue of offsets should be explicitly recognised in the Forest Practices Code, given the legislative and policy environment and the discretion afforded to the CFPO with respect to approving clearance and conversion of threatened native vegetation communities. A clear set of guidelines should be developed and published, for example no offsets should be available for destruction of significant habitat for threatened species or threatened communities.

Climate change

The Forest Practices Code currently does not mention climate change.

In recent years, climate change has emerged as a key issue in biodiversity management and planning, though uncertainty still remains about the exact nature and magnitude of future climate change. A landscape approach to biodiversity management provides a precautionary and optimal approach allowing species and ecological processes to respond to any changing conditions. This particularly applies to linkages that maintain large
contiguous habitats or that enable maintenance of ecological processes, especially across a range of environmental gradients.

Future biodiversity planning and management should be informed by scientific understanding of likely implications of future climate change, as identified in the National Biodiversity and Climate Change Action Plan 2004–2007 (NRMMC 2004).

Structure of the Forest Practices Code

The panel is aware that a broader review of the Forest Practices Code is to be undertaken. The panel endorses the proposal by the Forest Practices Authority to re-structure the Forest Practices Code into strategic and operational components.

Given:

- the current structure of the FPA
- the resources available to it
- the lack of integration between interacting legislative and planning processes.

Panel considerations and recommendations

The panel questions whether the system can continue to provide the level of information/tools and guidance required to adequately cater for biodiversity with current resourcing levels. There is a need to review these new responsibilities to determine strategies to address resourcing needs.

The panel recognises that there are a range of provisions related to management of biodiversity values. The individual provisions and comments on their implementation are included at Appendix F. Many of these relate to particular species or situations and are not commented on further here. However, there is a key set of major provisions operating at a range of scales for which the panel has proposed measurable objectives and operational procedures for their application. These are detailed in chapter six.

Panel considerations and recommendations

The scope of the Forest Practices Code (as it relates to the Forest Practices Act 1985 and other legislation) should be clearly stated.

The panel endorses the FPA proposal to expand the Forest Practices Code to cover activities other than native forest silviculture such as land clearing for agriculture, plantation establishment and management (both existing and new) and non-wood production activities such as residential subdivisions. These expanded responsibilities should be resourced adequately.

The panel recommends that their proposed measurable objectives for biodiversity and operational procedures for their application (see chapter six) be included in the revised structure.
Definitions of terms used in the *Forest Practices Code*

There are many terms used in the forest practices system, including the *Forest Practices Act*, the *Forest Practices Code* itself and associated tools which are inadequately defined.

**Panel considerations and recommendations**

Appendix C provides some suggested definitions for consideration for use by the forest practices system. The sources for definitions are also listed. As far as possible the panel have attempted to use definitions which are already accepted in the Tasmanian legislative and policy framework. Some terms such as ‘critical habitat’ have particular legal meaning in Tasmania and their use in the *Forest Practices Code* may incur obligations which are not relevant to the *Forest Practices Code* intentions and thus have not been included.

The definitions proposed are suggested to assist in clarifying biodiversity provisions and may have implications or interpretations that need to be considered from alternative viewpoints by others with relevant expertise such as legal, policy and stakeholder groups. The FPA could convene a forum of suitably qualified people to assess definitions required, including those recommended by the panel, to recommend on their adoption.

**FPA biodiversity planning tools**

The *Forest Practices Code* and its associated tools and manuals have grown over the years to become a plethora of documents which in the words of one FPO is ‘a bit of a jungle’. A full listing of all of the operational planning tools is given in background document 3 (Wapstra and Munks 2007). The intent of the planning tools is to meet the obligations of the forest practices system in managing biodiversity, including threatened species. The current structure of the *Forest Practices Code* does not reflect or allow for changes in the system or for ready access to information or tools.

**Panel considerations and recommendations**

The panel recommends that these forest practices system tools and information be captured in a web-based Biodiversity Decision Support System so that they can be made accessible to planners and can be easily and promptly updated.

**Fauna Conservation in Production Forests**

The *Fauna Conservation in Production Forests* is now known as the *Fauna Manual*. It is a very useful review providing background information for many of the *Forest Practices Code* fauna provisions. It is a particularly useful training resource for FPOs, but it needs updating.

**Panel considerations and recommendations**

The panel recommends that the *Fauna Manual* is updated as an information resource for Forest Practices Officers.
Threatened Fauna Manual (TFM) Fauna Values Database

The TFM is referred to directly in the Forest Practices Code and the Agreed Procedures, and indirectly in the Regional Forest Agreement (revised clause 97). The current version of the fauna evaluation sheet used by FPOs to assess proposed FPP areas requires direct use of the TFM.

The TFM was first developed by the Forest Practices Board in 1995 and has since become an online (web-based) database known as the Fauna Values Database. The web-based system allows virtually instant updating of data and since about 1999, the FPA has dedicated some staff time to maintaining the database.

The FPA has established an automated system of updating other key databases (eg the Conserve database managed by FT). The database section of the current version of the online TFM is being gradually superseded by development of the DPIW Natural Values Atlas (NVA).

Panel considerations and recommendations

The panel considers that:

- This tool is very effective and the panel supports the use of the web-based format.
- When changes are made they should be indicated immediately to FPOs.
- The FPA should be the agency responsible for the TFM.
- The TFM should eventually be superseded by a statewide planning tool for threatened species. However, there should be a 6 month transition period of concurrent use, after which the TFM should be archived.

Threatened Fauna Adviser (TFA)

The TFA was developed by the FPA, in consultation with specialists and industry, to provide a streamlined decision-support system, to deliver management recommendations for forest-dependant threatened fauna in wood production forests. The TFA is referred to directly in the Forest Practices Code and in the Agreed Procedures, and indirectly in the Regional Forest Agreement (revised clause 97). The TFA has been endorsed by the Scientific Advisory Committee of the Tasmanian Threatened Species Protection Act 1995 and by the Forest Practices Advisory Council.

Panel considerations and recommendations

The panel considers that the TFA is a major initiative to assist Forest Practices Officers in planning for biodiversity conservation and supports the use of the web-based system. However the current version of the TFA is being updated because of new species being listed and because new information about current species has not been incorporated. Accordingly the panel recommends:

- that the current revision of the TFA be completed as a matter of priority
- explicit and efficient mechanisms are developed to incorporate interim prescriptions and new prescriptions (e.g. for newly listed threatened species)
that the TFA progressively moves to address strategic and landscape issues
training and accreditation of users
consulting TFA/specialists remains an essential part of this process
sufficient resources are devoted to maintain the adviser system
that FPA examine feasibility of establishing the TFA on a more readily usable software platform to facilitate updating
that FPA examine the feasibility of expanding the TFA to include threatened flora and vegetation
that FPA examine the feasibility of linking the TFA with the Natural Values Atlas and to provide links to information sheets which can be printed
that TFA prescriptions be made capable of interpretation so they are operationally feasible and that contractors can follow prescriptions.

Fauna Technical Note series

The Fauna Technical Note series produced by the FPA are a set of advisory guidelines which

‘provides supplementary information and technical explanation for Forest Practices Officers on commonly encountered fauna management issues in production forests. These technical notes are advisory guidelines and do not constitute additions/alterations to the Forest Practices Code’.

The Technical Notes are written by specialists of the FPA and are required to be endorsed by the Forest Practices Advisory Council (FPAC), so that the Board of FPA retains overall document control.

The panel considers that the Technical Note series offers a practical way of dealing with on-ground management issues for biodiversity management. Their functions include:

- clarification of Forest Practices Code requirements/intentions
- providing ancillary information to ‘update’ the Forest Practices Code between revision periods
- support for other technical manuals and systems such as the TFA and FBM
- a public communication vehicle.

Panel considerations and recommendations

The panel recommends that the FPA should examine the feasibility of incorporating information already available from other sources, such as from DPIW/PWS information sheets. Comments on individual Technical notes by FPET and others are in Appendix F.
Forest Botany Manual (FBM)

The FBM is referred to directly in the Forest Practices Code and the Agreed Procedures, and indirectly in the Regional Forest Agreement (revised clause 97). The current version of the flora evaluation sheet used by FPOs to assess proposed FPP areas requires direct use of the FBM.

The current version of the FBM was endorsed by FPAC and SAC in mid 2005 and has been formally released through a series of training courses for FPOs.

The FBM is modular in structure with an introductory module which explicitly states that the purpose of the manual is to satisfy the flora management requirements of the Forest Practices Code and other legislation and policies, and 7 regional modules (based on the IBRA 4 bioregions used for the RFA).

Sections 3 and 4 of the FBM are the key sections dealing with threatened flora values. Section 3 provides lists of species categorised by forest quality (essentially an ‘early warning’ system) to alert planners to the potential importance of a site for threatened flora. Section 4 allows a site to be assessed with respect to the chance of supporting threatened flora (a ‘safety net’). The current flora evaluation sheet requires planners to use the FBM, specifically addressing the requirements of sections 3 and 4. The evaluation process also requires the use of a recognised database (databases are discussed in further detail below).

Panel considerations and recommendations

| The panel considers the FBM is the key flora tool assisting forest practices planning. |
| The panel commends the use of bioregional modules, but notes that the use of IBRA 4 bioregions, whilst in accordance with the RFA, is inconsistent with the more recent bioregionalisation which has been accepted for use in other parts of government. |
| The feasibility of updating the FBM to accord with current practice should be investigated and incorporated as part of the ongoing review and monitoring of the FBM as happens with vegetation mapping. |
| The panel considers that the Vegetation Community section (2) of the FBM is very thorough—but: |
| • Recommends training FPOs to ensure they are experienced and have knowledge of common species—including eucalypt identification, and especially for identification of threatened communities. |
| • Notes from comments by FPOs that it is difficult to audit communities listed in FPPs after some operations (e.g. conversion), and that some small areas of communities can be missed in coupes. This emphasises the importance of accurate vegetation mapping and highlights the need for good coverage in FPP assessment through the consideration of a range of other tools such as PI type maps, geology and topography. |
| • It may be useful to have pictures of indicator species to assist FPOs. |
There is potential to link to sheets/sites with more detailed community information (e.g. TASVEG; information sheets prepared by FPA for threatened native vegetation communities).

Notes that the Priority species section (3) is difficult to keep current and take into account:
1. changes in TSPA and EPBC, and use of information from other lists (e.g. the RFA reviews).
2. changes in basic information such as taxonomy and species distributions.

These points highlight the importance of using a web-based system, which may be linked to other lists or databases including Flora Technical notes, and updating it regularly as required as new information or requirements occur.

**Panel considerations and recommendations**

The panel recommends that:

- the FBM be updated to incorporate threatened non-forest vegetation communities
- the FPA advocate a whole of government approach to the reconciliation of RFA forest communities and TASVEG communities with an orderly transition to use of the latter in future reporting
- the FBM move to the latest IBRA for Tasmania
- the electronic version of the FBM be developed so that it can be more dynamic and responsive to future changes requiring update of botanical knowledge provision of newly developed supporting tools (e.g. the Natural Values Atlas), changes to IBRA, TASVEG and other whole of government approaches to flora conservation evaluation.

**Flora Technical Note series**

The Flora Technical Note series provide advisory guidelines and are used by FPOs as part of the planning process.

The panel recognises that the series:

- is a useful way to provide information about specific applications, which would otherwise make the FBM too big (e.g. management of relict rainforest)
- deals with wider issues than specific FPP issues (e.g. *Phytophthora cinnamomi* management)
- covers subjects not directly connected with preparation of FPPs (e.g. plant identification)
- links the Flora Technical Notes to appropriate sections of the FBM regional modules.

The panel also considered that the Threatened Native Vegetation Community (TNVC) sheets provided a good format and process for users.
Flora and fauna evaluation sheets

The current flora and fauna evaluation sheets used by FPOs to assess proposed FPP areas specifically require the use of the threatened species databases and planning tools discussed above. The evaluation sheets are supported by a Forest Practices Officer Planning Manual that includes instruction on use and also explains the ‘notification system’ in which FPOs seek specialist advice from the FPA for particular values identified from proposed FPP areas.

The panel noted that the flora and fauna evaluation sheets appear to work well.

Panel considerations and recommendations

The panel recommends:

- That the separate flora and fauna evaluation sheets be combined into a single biodiversity evaluation sheet in order to encourage an ecosystem approach, to avoid duplication and to provide useful botanical information (e.g. about vegetation communities when fauna issues are being considered). A single sheet may also simplify the development and implementation of prescriptions.

- The nomenclature relating to the trigger process (e.g. staff titles etc) be updated.

Non-FPA planning tools related to threatened species

Agencies other than the FPA have produced a number of planning tools relevant to the management of threatened species under the provisions of the forest practices system.

Recovery Plans and Listing Statements

There are a number of Recovery Plans that have been endorsed by the state (under the TSPA) and/or Commonwealth (under the EPBC). Recovery Plans are specifically referred to in the Regional Forest Agreement (revised clause 70). Listing Statements, produced under the TSPA, have been prepared for a number of threatened species. However, it is apparent that relatively few forest-related threatened species have Listing Statements or Recovery Plans in place. This means that information about those species used in forest practices planning tools has to be based on expert opinion often without any actual research basis or other knowledge about the species requirements.

The Threatened Fauna Adviser currently includes the following statement in all recommendations:

*Under the current legislation, agreements, codes of practice, recovery plan actions and listing statements, the following is recommended to minimise the impact of the proposed operation on habitat for this species. Implementation of these recommended actions in this 'off-reserve' area will help to maintain a network of habitat important for such species throughout their range. The prescribed actions are based on current knowledge and expert opinion and they may change as new information becomes available.*
Panel considerations and recommendations

The panel recommend that the FPA should liaise regularly with DPIW and maintain records of the number of relevant listed species, the number of Listing Statements and the number of finalised Recovery Plans.

Natural Values Atlas (NVA)

DPIW have recently developed a database (NVA) that stores and retrieves information on many natural values in Tasmania. The NVA is not yet formally recognised by FPA.

Panel considerations and recommendations

The panel considers that there are benefits to shifting to a central system managed by DPIW. However this is true only if the NVA has adequate support for its establishment and maintenance, and ready accessibility for FPA staff and FPOs. Some of the benefits include:

- NVA can identify and accommodate recent information on a range of natural and cultural values and can incorporate shapefiles which are better for industry.
- NVA can set up templates for different users – for the forest practices system, there needs to be an appropriate layout and ready accessibility.

However the Forest Practices Advisory Council should be kept informed about how and when changes are to happen. There will also need to be FPO training on accessing and interrogating NVA and there should be at least four to six months of transition with concurrent use before TFM is switched off and archived.

The panel notes also that DPIW has developed its vegetation mapping program (TASVEG) to a stage where it is now superseding the RFA forest vegetation mapping units.

Panel considerations and recommendations

The panel recommends that FPA adopt a more flexible FBM which can readily incorporate any agreed changes to vegetation mapping standards.

‘Conserve’ database

Forestry Tasmania and some other industry stakeholders maintain a database/GIS system that includes threatened flora and fauna information. These databases are recognised by FPA through the flora and fauna evaluation sheets and related planning tools.

Panel considerations and recommendations

The panel considers that active liaison of FPA staff with other agencies and industry stakeholders to maintain accurate and up to date databases is a high priority.
Education and training

The training of planners and operators has always been included as a major part of the forest practices system. The practicability of current planning tools to achieve their intended outcomes in the forest practices system is directly related to training and education on their use. The current education program run by the FPA is primarily aimed at FPOs but also caters for a range of other operators who are associated in some way with the system (e.g. consultants). However there appears to be little if any training in implementation of biodiversity values for contractors/those implementing measures at the coupe scale.

Panel considerations and recommendations

The panel considers that effective implementation of the biodiversity provisions of the Forest Practices Code is heavily reliant on a training program for operators as well as planners. Therefore, there should be a program to upgrade training by industry in the implementation of biodiversity aspects of the Forest Practices Code for operators and contractors.

Landscape level considerations

CAR reserve system

The Forest Practices Code does not specifically prescribe provisions for management of biodiversity within the CAR reserve system, but developments within reserves may be subject to the FPP process. Also, activities prescribed by the Forest Practices Code have the potential to impact on the biodiversity values within adjacent reserves, both formal and informal. While the potential for such impacts is recognised in the Forest Practices Code, the code could provide more specific guidance at both the planning and operational levels to assist in ensuring nil or minimal impacts on adjacent reserves.

Tools such as the Natural Values Atlas from DPIW now provide a mechanism for relevant values to be identified to assist in this process.

Panel considerations and recommendations

The potential for activities prescribed by the Forest Practices Code to impact on the biodiversity values within adjacent reserves, both formal and informal, and other areas of conservation value could be further recognised in the Forest Practices Code, and further guidance provided so that this can be considered at both the planning and operational levels with a view to integrating reserve and off reserve planning and management.

Strategic planning

It was noted in earlier chapters that whilst the state has some legislation and policy documents providing aspirational guidelines for statewide biodiversity conservation outside the CAR reserve system, there are no integrating policy instruments which provide guidance on strategic level planning for biodiversity.
The ‘Basic Approach’ of the *Forest Practices Code* to the conservation of natural and cultural values says values should be assessed at the strategic or property level but does not provide specific guidance on how strategic level planning is to be achieved.

The panel appreciates that the *Forest Practices Code* currently has provisions such as Wildlife Habitat Strips which cater for biodiversity maintenance at the coupe level, but notes that there are other strategic level measures, which are currently used in other contexts and which could usefully be incorporated into planning in the context of the forest practices system. These include:

- protection of relic rainforest patches
- the use of ‘biodiversity spines’ of native forest to maintain connectivity and biodiversity in agricultural landscapes and plantation nodes
- whole catchment planning
- water management plans
- vegetation management agreements
- recovery plans, public authority management agreements and land management agreements for threatened species
- weed management policy
- *Phytophthora cinnamomi* management policy.

The specific desired biodiversity outcomes of strategic planning should be documented in the *Forest Practices Code* to highlight their relevance. For example strategic planning could potentially aim for maintenance of age classes with a variety of biodiversity values across the landscape (see chapter six).

*Panel considerations and recommendations*

The panel recommends that other strategic level measures, which are currently used in other contexts and which could usefully be incorporated into planning in the context of the forest practices system be reviewed. Depending on the statutory responsibility, these measures should either be specifically recognised or be formally incorporated into *Forest Practices Code* prescriptions for landscape level planning along with specific mention of the benefits such measures bring, for example minimising habitat fragmentation, improving or maintaining downstream water quality.

The incorporation or recognition of these strategic level planning tools will require an enhanced capability within the FPA to provide for upgraded database and GIS skills and technology. A Basic Approach section should also be added the Strategic Planning Section of the *Forest Practices Code*, recognising the importance of such planning to the appropriate management of many natural and cultural values.

The panel recommends that the FPA prepare a discussion paper on its role in the provision of strategic level planning, with a view to informing government on the need to clarify roles and responsibilities across government for the strategic level conservation of...
biodiversity outside of reserves. This paper should include discussion on strategies and processes to deal with emerging issues such as the effects of climate change.

There are a number of fundamental strategic level issues for biodiversity conservation that are not explicitly recognised in the current Forest Practices Code and which could usefully be incorporated to assist understanding of the reasons for particular provisions. These include concepts such as habitat fragmentation and retention of old growth elements. Some of these key issues have been included in the proposed definitions in Appendix C for incorporation.

Land clearing

The Commonwealth and state governments agreed via the Tasmanian Community Forest Agreement (Commonwealth of Australia and State of Tasmania 2005) to the phasing out of broad scale clearing and conversion of native forest on public land by 2010. On private land, this is to be phased out over a period of 10 years from May 2005. The Tasmanian Community Forest Agreement also required that assessment criteria for regulating forest clearing and conversion will ensure protection of regional biodiversity and water quality values and will meet salinity objectives.

The Tasmanian Permanent Native Forest Estate Policy is the key policy tool which determines statewide retention levels for forest communities. The Permanent Native Forest Estate Policy states that regional biodiversity will be protected through provisions in the Forest Practices Code. The Nature Conservation Act 2002 lists threatened communities. Clearance and conversion of these can only occur in exceptional circumstances at the discretion of the Chief Forest Practices Officer. This was agreed to in a bilateral agreement, and the Permanent Native Forest Estate Policy was amended to reflect this. The Permanent Native Forest Estate Policy does not cover non-forest vegetation retention levels but the forest practices system now regulates threatened non-forest.

Panel considerations and recommendations

The panel notes that there is no apparent ‘owner’ of data relating to, or responsibility for, monitoring of non-forest vegetation losses and recommends that this function be adopted by the FPA who are already maintaining the data for forest vegetation.

Forest structure

The panel notes that strategic planning could potentially aim for maintenance of forest age classes to assist conservation of a variety of biodiversity values across the landscape (see chapter six).

Panel considerations and recommendations

The panel recommends that a review of current forest structure by IBRA region is undertaken (see Attachment 4 to table 6) and that forest structure is monitored by the FPA.
Plantation design and management

The area devoted to plantation forestry is growing considerably and the plantation estate will continue to be an important part of the overall forest estate in future. The panel consider that plantations contribute towards biodiversity conservation across the landscape and plantation management planning should aim to avoid or ameliorate biodiversity conservation issues such as browsing control and wedge-tailed eagle nest protection.

Panel considerations and recommendations

In June 2000, a workshop on Fauna Issues and Plantation Design was convened by the FPA and the CRC for Sustainable Forest Production (Munks and McArthur 2000). The outcomes of the workshop provide a set of principles and recommendations which could be incorporated into the Forest Practices Code after a review to clarify conflicts between some recommendations for browsing control and those for biodiversity maintenance.

Water quantity and quality

The panel notes the importance of identifying issues of water quantity and quality as they affect biodiversity, and there is not always a simple correspondence with the human requirements for quantity and quality. Tools such as Water Availability and Forest Landuse Planning Tool (WAFL) (<www.dpiw.tas.gov.au/inter.nsf/WebPages/CGRM-7KL4RA?open>), together with Conservation of Freshwater Ecosystem Values (CFEV) (<www.dpiw.tas.gov.au/inter.nsf/ThemeNodes/CGRM-7JH6CM?open>), provide a framework to assess the impact of forestry (especially plantation conversions) on the yield of water and temporal shifts in peak and low flow events in catchments. At PCU and bioregional scales, such tools will be especially important to ensure that changes in forest practices maintain environmental flow patterns that cue life history events (e.g. spawning) and facilitate dispersal of in-stream biota.

Water quality for human uses usually focuses on materials in the water column, whereas most of the aquatic biota live on or in the beds of water bodies in the forest estate. Consequently, the issues that are more germane to freshwater biodiversity relate to sediment inputs, and the movement and fate of sediments once they have arrived in a water body. The forest practices system has a variety of measures at the coupe-level to manage sediment via soil, roading and SSR procedures, and co-ordination of some of these elements (e.g. SSRs with WHS and formal reserves) could extend this capability to PCU spatial scales. Risk-based decision support tools such as PIRI-Tas (<www.dpiw.tas.gov.au/inter.nsf/WebPages/SSKA-7JA3N4?open>) should help minimise the input of pesticides to streams, and perhaps foreshadow similar tools that might be developed for other water quality measures of more direct interest to biodiversity conservation (e.g. nutrients, fine sediment).

Overall, however, the panel sees little value in implementing a rigid, uniform water quality monitoring scheme across the forest estate. Water quality monitoring for biodiversity should be driven by regionally appropriate biodiversity questions, and should be regarded as one potential tool for strategic planning for biodiversity issues.
Panel considerations and recommendations

The panel recommends that the FPA review the suitability to forest practices of tools and databases developed by other agencies for managing water quantity and risks to water quality. Of the tools currently being developed, the panel notes CFEV, WAFL and PIRI-Tas appear to have potential at one or more spatial scales, but a more systematic statewide and national review needs to be undertaken as well as the recommended review of terrestrial tools and databases.

Clearfell Burn and Sow (CBS) harvesting regime, coupe dispersal and size

The panel generally endorses the development of guidelines on the size and dispersal of coupes. The panel also notes that the current prescription for maximum coupe size in clearfell operations is 100 ha. In their international benchmarking of forest practices codes, McDermott et al. (2008) noted that Tasmania has by far the largest coupe size of any jurisdiction and this was considered by them to be one of the few areas where Tasmania performed less well than the other jurisdictions. The worldwide literature on the importance of retained structural elements of the vegetation after wildfire, and the data collected here in Tasmania on regeneration of understorey species (especially rainforest species) in native forest CBS coupes at Warra and elsewhere, suggest that the CBS regime itself, and in particular large coupe sizes, are suboptimal for biodiversity conservation.

Panel considerations and recommendations

The panel recommends:

1. That the Forest Practices Code explicitly encourages the move away from native forest CBS harvesting systems.
2. That in the first instance the Forest Practices Code prescription for maximum coupe size in native forest CBS operations be reduced to improve biodiversity outcomes and to be more in accord with best practice elsewhere. Given that operationally the average coupe size is about 40 ha (FPA FPP database), the panel recommends a maximum coupe size of 60 ha, subject to safety fire management and environmental considerations. Where larger coupes are sought for these reasons there should be a transparent approval process documenting the biodiversity implications as well as the need and approval for variations.
3. The Forest Practices Code should flag when operational constraints may be applied to ensure the maintenance of structural diversity at multiple spatial scales through timing and dispersal of coupes.

Rehabilitation and restoration

The panel considers that the primary Forest Practices Code emphasis should be on the retention and maintenance of existing higher quality habitat. The concept of restoration is raised in the Forest Practices Code under Section D3 Basic Approach where it is stated: ‘In parts of the state where native forests occur mainly as remnants, consideration will be given to ... restoration of habitat including widening and linking of Wildlife Habitat’
Strips, particularly where species and communities of high conservation significance are known to occur'. However the term ‘restoration’ is undefined.

Panel considerations and recommendations

| Rehabilitation to become a ‘should be considered’ requirement in general and a ‘will’ requirement where required to meet specified ecological objectives. For example, rehabilitation of stream side vegetation may be required where clear and positive biodiversity outcomes can be achieved in a practical way. |

Remnant vegetation and paddock trees

The Forest Practices Code refers to the concept of ‘remnant’ but does not provide a definition and only uses the term in the context of forest vegetation and does not address the full range of situations that the forest practices system now deals with because of legislative changes (for example: many non-commercial FPPs occur within ‘remnant’ vegetation). In addition, the forest practices system does not adequately define ‘paddock trees’.

Panel considerations and recommendations

| In the absence of an integrated statewide approach to the conservation of remnant vegetation and paddock trees, the forest practices system should specifically address the retention and management of these components in different situations. Guidance on the principles for the retention and management of remnants and paddock trees can be drawn from the following references: (Lindenmayer and Franklin 2002; Salt et al., 2004; Davidson et al. 2007). Proposed definitions for ‘remnant vegetation’ and ‘paddock trees’ are provided in Appendix C. |

Cross tenure integration

The forest practices system has an important role to play in contributing to the integration of biodiversity management planning across tenures, but it does not have primary responsibility for this. The forest practices system and FPA in particular are not resourced or positioned to take the lead role in cross tenure strategic planning for species and communities which are at risk from a range of land uses (i.e. not just forest operations).

However, there are a number of relevant issues which could be addressed by the forest practices system. For example, some newly produced tools such as the Conservation of Freshwater Ecosystem Values database could be accessed as part of the forest practices system and associated planning tools to assist strategic planning. A search could also be made for other such tools. The FPA could also put in place systems within its area of responsibility to monitor whether cross tenure biodiversity outcomes are being achieved.
Panel considerations and recommendations

The **Forest Practices Code** should contain provisions requiring strategic planning to consider issues such as the maintenance of habitat across tenures and the application of matrix management principles for biodiversity.

FPPs should explicitly demonstrate that relevant strategic level biodiversity issues have been taken into account either by reference to appropriate tools or where necessary by consultation with FPA specialists.

Some values (e.g. threatened aquatic fauna) require minimising disturbance to a catchment. The Threatened Fauna Adviser makes some specific recommendations on how much of a catchment can be harvested in a particular time period (e.g. see recommendations for swan galaxias) but does not cater for general biodiversity values in this way. The panel recommends that practical, technological options be explored for monitoring catchment effects, irrespective of tenure.

Management of genetic resources

The **Forest Practices Code** has some generic provisions related to the importance of maintaining genetic resources. Use of local seed provenances is encouraged and specific mention is made of the issue of eucalypt hybrid events: ‘consideration should be given to the protection (e.g. by buffering) of native forests, particularly reserves, from incursion by adjoining plantation species’. However the protection of localised examples of threatened species and communities should also be considered, as must the management of genetic diversity within species at the landscape level. For example, some of the associated forest practices planning tools currently deal with glacial refugia, which have high degrees of genetic endemism. However, these alone will be unlikely to adequately cover the strategic needs for maintenance of genetic diversity for issues such as climate change.

Panel considerations and recommendations

The panel recommend the following objective for the management of genetic resources in areas covered by the forest practices system—‘**Maintain natural levels of genetic diversity and patterns of differentiation in forest species and species complexes to ensure their long-term evolutionary potential, retain natural values and retain genetic resources for human use**’. A number of measurable objectives to meet this overall objective are provided in chapter six.

Threatened species

The **Forest Practices Code** prescribe a number of processes to deal with threatened species, but these currently operate mainly at the coupe level. Given the available resources it is not possible nor even practical (or worthwhile in the case of cryptic or mobile species) to undertake formal surveys of every proposed coupe. However, many species can be dealt with at a more strategic level, as has happened with the Simsons stag beetle (**Hoplogonus simsonii**) and **Eucalyptus radiata**.
Panel considerations and recommendations

The FPA should seek to ensure that there are clear links between its cross tenure biodiversity conservation measures and processes and the requirements of threatened species Recovery Plans and Listing Statements.

The panel also recommends:

- that FPA encourage the development of strategic level planning tools
- that processes relevant to threatened species and the Forest Practices Code specifically emphasise that the biodiversity provisions of the code emphasise the importance of ensuring that species currently not threatened do not become threatened through forestry actions.

The panel endorses the development of a planning framework to avoid the conversion of habitat for some threatened species.

Landscape level planning tools

As noted earlier, Tasmania has an excellent formal and informal reserve system which caters for very many biodiversity conservation outcomes at the state level. However bioregional biases in the levels of reservation and the disposition of biodiversity elements outside of reserves mean that the reserve system alone cannot satisfy all of Tasmania’s biodiversity conservation needs.

Panel considerations and recommendations

The current forest practices system and the planning tools and procedures across agencies provide a sound basis for an integrated approach to biodiversity conservation at the landscape scale, which could ameliorate some of the time and resource intensive procedures currently in use at the coupe scale. However there are a number of issues which would need to be addressed to bring this to fruition:

1. Clear landscape level strategic objectives at appropriate temporal and spatial scale need to be defined as do clear objectives for biodiversity conservation outside of reserves within the ambit of the forest practices system.
2. The processes would need to acknowledge and cater for individual agency statutory responsibilities. However efficiency and effectiveness gains would only be possible with cross – agency participation and cooperation.
3. A major issue is that of dealing with landscape level biodiversity conservation across land tenures. Forestry Tasmania has a landscape level approach to dealing with biodiversity conservation on State forest which is backed by research, review and an adaptive change paradigm. However similar systems are largely absent from private land, except for some of the very large private industrial lands where some landscape planning for biodiversity inclusions such as WHS and remnant vegetation retention are in place.
4. On State forest, the landscape level systems such as the Management Decision Classification, three-year plans, Biodiversity Spines and Wildlife Habitat Strips are useful and important tools for biodiversity conservation, but their relative lack of
security means that they cannot guarantee the achievement of longer term
conservation goals outside of reserves.

5. On both private and public land there is a need to integrate forest planning with other
planning processes such as those in place through NRM, whole farm planning,
Biodiversity hotspot planning, fire management, weed management, and other local
government initiatives.

6. A process is required for the development of prescriptions and updating of planning
tools as well as for updating and implementing Agreed Procedures across agencies.

7. Scientific and stakeholder endorsement and review would be needed.

The FPA needs adequate GIS resources to audit and monitor the implementation of
landscape level Forest Practices Code provisions (WHS, Biodiversity Spines, WHCs,
SSR).

The panel recommends that forest within Biodiversity Spines should not be clearfelled
until it has reached 80 years of age, ensuring coupe dispersal guidelines are met.

Wherever possible, measures such as WHS, Biodiversity Spines and SSR should be used
to meet multiple biodiversity objectives.

Landscape level processes such as catchment planning and the use of surrogates such as
coarse woody debris and tree hollows can assist in dealing with issues such as habitat
fragmentation as well as ameliorating dependence on coupe level prescriptions for
individual species including threatened species.

Whilst the Forest Practices Code has a strong emphasis on operational level management
provisions, it mainly targets native forest silviculture operations and is not strongly
developed for other activities such as plantation establishment and is silent on some areas
now covered by the forest practices system such as clearing of native vegetation remnants
for agriculture and subdivisions.

Panel considerations and recommendations

In producing an all-encompassing Forest Practices Code across multiple disciplines there
are inevitably some actions (e.g. for fire management or OH&S concerns) where
biodiversity considerations may need to be discounted or may be affected adversely.
Such situations should be clearly documented and accounted for, especially where they
may be in breach of other policy or legislative responsibilities.

The wording of the Forest Practices Code needs to clearly define that there are
associated tools and which of those are mandatory and which are not. It also needs to
reflect principles (which rarely change) and leave the detail of specific prescriptions
(which may change on a more regular basis) to the specific planning tools. There may be
a need also to develop new tools and protocols and a list of these should be drawn up,
prioritised and developed by the FPA.

The approvals process, and especially the process of referrals by FPOs to FPA specialists,
needs to be reviewed to determine whether efficiencies can be made. The number of
referrals has increased dramatically over the past ten years without any concomitant
increase in numbers of FPPs (see Figure 4.1).
The panel supports the development of web-based decision support tools to facilitate this information transfer. The referral process also needs to be clearly set out so that FPOs know what’s needed and can have ready access to the appropriate tools. The panel supports the recommendation of FPET, for the establishment of a web based system that clearly sets out all manuals and information that can assist in planning.

Figure 4.1: Numbers of requests for advice (notifications) from FPOs to forest practices specialists and numbers of Forest Practices Plans 1995–2006

**Coupe level planning**

The primary reporting document is the Forest Practices Plan, and this document should provide all the relevant information necessary to guarantee on-site biodiversity objectives are being met.

The current *Forest Practices Code* covers the following issues to some extent at the coupe level:

- aquatic systems
- retention of mature forest elements
- special habitats
- threatened and priority species.
Panel considerations and recommendations

The panel notes that there are some internal inconsistencies at the coupe level between biodiversity provisions and other considerations, including for example fire management, occupational health and safety and coupe dispersal.

Such conflicts should be resolved through a co-ordinated documented advice process involving all FPA specialists which explicitly states the outcomes for each of the conflicting issues.

Aquatic habitats

The *Forest Practices Code* has sections dedicated to water quality and management, principally catered for through the application of various forms of streamside reserves (SSR). The primary focus of SSR is on managing water quantity and quality, but the benefit of managing aquatic and riparian habitats for biodiversity values is well recognised. The Threatened Fauna Adviser recognises the practicality of SSR as a management tool and the WHS guidelines are closely linked to SSR management.

However, there have been some significant changes in aquatic habitat management since the last version of the *Forest Practices Code* which should be reviewed and appropriate parts incorporated:

- establishment of the Conservation of Freshwater Ecosystem Values (CFEV) database
- draft Class 4 Stream Guidelines (which arose from the last review of the *Forest Practices Code*, a broader review of steam management guidelines of the code)
- the Integrated Class 4 Catchment Study (Ben Nevis) and associated workshop
- catchment studies for threatened fauna (e.g. swan galaxias in Parramores Creek catchment) examining water yields in relation to harvesting and silviculture modelling
- recent innovations in design of crossings (e.g. Skullbone Plains creek crossings, fauna-friendly culverts) and recent studies into fish passage in forested areas.

Panel considerations and recommendations

The following recommendations are made by the panel to continue the incremental improvement of the forest practices system at a strategic level for biodiversity conservation of aquatic components.

- Maintain aquatic habitats, including retaining habitat diversity, water quality and ecological flows, so that their ecosystem values (including their biotic communities and biophysical characteristics) are maintained within the range of natural variation over time within CFEV catchments. Aquatic ecosystems are dynamic, and resilient to wide range of natural disturbances, so it is futile to aim for a ‘static’ configuration of species. Instead, the landscape mosaic should include a range of forest types and ages so that aquatic species are able to persist somewhere within the landscape.
- Manage riparian zones so that ecosystem processes for aquatic systems are maintained or enhanced. Riparian protection of larger perennial streams has been important in reducing the inputs of sediment, nutrients and pesticides. Riparian zones also provide the bulk of the energy base and important in-stream habitat elements for aquatic biota. It will be particularly important in some areas to re-establish native riparian zones in farmland being converted to plantation or in older plantations where native riparian vegetation was removed during establishment.

- Conserve a proportion of Class 4 stream catchments within a CFEV catchment during a rotation cycle. Because of the steep terrain of much of the headwaters of Tasmania’s forested streams, extension of a formal Streamside Reserve network into the headwaters is unlikely to be practical. However, it is unlikely that MEZs by themselves will adequately conserve in-stream and riparian species that depend on the headwater portions of catchments. Accordingly, it will be necessary to conserve a portion of the headwater network within the rotation cycle of each catchment to ensure the persistence of any aquatic or semi-aquatic species that specialize in headwater streams or need to disperse across catchment boundaries. The panel recognises the potential for harmonizing this recommendation with existing provisions for formal and informal reservations (e.g. Wildlife Habitat Strips, Biodiversity Spines).

- Maintain lateral connectivity between riparian zones with other habitats. There is a range of terrestrial and semi-aquatic species that require resources from terrestrial and riparian/aquatic components of the landscape in order to persist.

- Maintain or restore longitudinal connectivity within river networks. Many aquatic species either migrate or disperse up- or down-stream in order to complete their life cycles (e.g. some migratory fish species). Some amphibious, semi-aquatic or terrestrial species may also require longitudinally connected riparian corridors to persist in the landscape. The panel recognises the potential for some specialized circumstances where threatened species may be persisting because of anthropogenic barriers in streams, and the provisions for threatened species or species of special conservation interest should have precedence over this recommendation.

- Ensure that refuges and habitats for threatened species and narrow-range endemics are retained. No generalised scheme of managing a ‘mosaic’ will capture all the biogeographic and evolutionary peculiarities of a region, specific amendments to standard prescriptions will be necessary to protect listed, threatened species and other species or groups of species deemed to be of conservation significance.

### Retention of mature forest elements

**Wildlife Habitat Strips**

Wildlife Habitat Strips (WHS) are a strategic level management tool to assist the retention of mature forest elements which is applied and managed at an operational level. The local effectiveness in terms of condition and change in usage over time by biota is being investigated in some parts of the state. The concept of WHS is tenure neutral, but their application has been limited to public land and some large private land holdings.
The RFA established that WHS are part of the informal reserve network component of the CAR Reserve System and auditing of changes to them is required by the RFA. The *Forest Practices Code* specifies a frequency of positioning within the landscape for WHS, but no auditing of this requirement has been undertaken.

Applying requirements on private land for WHS is difficult given:

- the lack of a strategic landscape context for biodiversity
- the existing requirements for duty of care provisions
- the suitability of them as a tool in the non-commercial forestry sector
- the small size of some private property.

WHS predominantly occur in stream areas which:

- are not compatible with some forms of harvesting—for example cable hanging through WHS to allow harvesting creates a range of issues such as disease amplification, and loss of habitat values such as old trees
- do not cater proportionally for the range of landscape habitats which occur—midslopes and ridgelines are not as well sampled, with a consequent under sampling of biodiversity in these habitats.

**Panel considerations and recommendations**

The *Forest Practices Code* and associated tools do not address issues related to ongoing management of WHS. The panel recommends that because the WHS are a recognised component of the CAR reserve system, their ongoing management requirements should be clarified.

The panel considers that to provide for biodiversity at the management unit level, at least 30% of mature forest elements needs to be maintained (see chapter six, table 6.1). WHS are a useful tool to help to achieve this.

There is some evidence that the location and width of WHS may not be sufficient to provide for some species (Baker *et al.* 2006). The location and size of WHS and other habitat retention mechanisms should be reviewed to provide a range of alternative tools for planners and managers to use in catering for biodiversity outcomes. Thus, rather than adopting a prescriptive approach, which relies on for example 200 m wide WHS placed every 2 km in a particular landscape, biodiversity values in an area may be better served by wider strips placed more infrequently. The panel recommends that the FPA encourage the exploration and adoption of such flexible approaches to biodiversity planning.

The panel recommends that the FPA undertake (facilitate) a review of the location and condition of WHS to determine whether guidelines are being met, and also to take into account new planning principles outlined above, and with due consideration to the requirement to maintain CAR values of bioregional representation of forest types and the retention of mature forest elements.

There are some operational issues associated with the management of WHS which are outlined in Fauna Technical Note 8 because the *Forest Practices Code* itself does not
provide specific guidance on how to manage WHS. Operational issues include accidental damage to retained vegetation (e.g. felled trees, machinery incursions), marking responsibility and protocols, steep country (cable) operations, regeneration burning management and roading through WHS. The panel recommends that the Forest Practices Code should include a General Principles and Basic Approach format for WHS.

Wildlife Habitat Clumps

Wildlife Habitat Clumps (WHC) and retained habitat trees are established within coupes to provide local scale habitat retention. They are considered at the individual coupe level except where CBS coupes are adjacent and then individual clumps may be recommended for retention to create larger consolidated clumps between rotations.

Recent legislative and other changes such as non-commercial operations and plantation establishment have meant that the current provisions of the Forest Practices Code do not cater for all situations where FPPs now apply.

Panel considerations and recommendations

The panel recommends that the use of WHC in situations such as non-commercial operations and plantation establishment be investigated by the FPA and applied where relevant.

The FPA should also investigate the ways to include provisions for individual paddock trees where their retention is appropriate.

The current provisions contain some ambiguities and inconsistencies which need clarification and clear guidelines for FPOs to allow ease of application.

The Forest Practices Code should also incorporate clear objectives and guidelines arising from recent research on for example, hollow resources. There are a number of ways of achieving structural habitat retention at the coupe level and the panel recommends that flexibility of prescription application be introduced to meet this objective, albeit with a reporting requirement to ensure that appropriate provisions have been made.

Wildlife Habitat Clumps are classified as vulnerable land and their future clearance is subject to an FPP. Therefore the panel recommends that a tracking system be put in place to record the location of WHC.

Retention of specialised habitats

The Forest Practices Code refers to specialised habitats such as karst, sphagnum peatland, rocky outcrops, relict rainforest, swamps and riparian areas, but there are other specialised habitats of significance to biodiversity conservation which are not mentioned. These include wetlands and high conservation value wetland forests formally identified in CFEV, paddock trees, and coarse woody debris.

The Forest Practices Code also provides detailed prescriptions for some of these habitats, but does not have any mechanism apparent for amending these in the light of new
knowledge or for adding prescriptions as new information becomes available short of an overall code review such as the present biodiversity provisions review. Currently these situations are dealt with through the preparation and dissemination of Technical Notes which are circulated but have no formal status.

Panel considerations and recommendations

The panel recommends that when such changes are required they be formally subject to an independent scientific review and adopted by FPAC.

Threatened species

The Forest Practices Code’s primary provision for the management of threatened species is Section D3.3 Threatened Species and Inadequately Reserved Plant Communities. There are also numerous other references to threatened species throughout the Forest Practices Code, mainly related to aquatic species.

The Agreed Procedures are the primary provision for dealing with threatened flora and fauna.

Panel considerations and recommendations

The panel notes that the Agreed Procedures deal with ‘wood production areas’ and not non-forest and non-commercial forestry situations and recommends that the Agreed Procedures be reviewed to ensure they also adequately cater for the following issues:

- threatened native vegetation communities or inadequately reserved plant communities which the Forest Practices Code refers to in relation to these procedures
- non-commercial operations or those involving threatened communities
- the inconsistencies in approach between agencies with respect to prescriptions for dealing operationally with threatened species and communities.

In particular the panel notes that the Forest Botany Manual is not current with respect to recent legislative changes under the Nature Conservation Act 2002 and suggest that these be updated as a matter of priority.

The Agreed Procedures should be transparent and readily accessible to all involved, including being available on the web.

The panel recommends that the Agreed Procedures be updated to recognise recent legislative and institutional changes and that a process is put in place for ongoing review and amendment of the Agreed Procedures as necessary. The review should incorporate clear statements of roles and responsibilities for actions as well as for monitoring and evaluation.

The panel further recommends that in collaboration with DPIW, priority be given to the development of management prescriptions for threatened species where these are not already available in Listing Statements or Recovery Plans.
The panel urges the relevant authorities to progress programs to integrate threatened species into landscape level planning using multi-species approaches such as the multi-species modelling project by Forestry Tasmania and Melbourne University as well as landscape level planning for particular species such as swift parrot and wedge-tailed eagle (Fox et al. 2004).

The Forest Practices Code should also incorporate definitions of ‘habitat’ and ‘potential habitat’ to clarify the difference between these terms for planners and the public (see Appendix C).

Issues raised in unsolicited submissions

A number of unsolicited issues were submitted by people external to the review process. All but two of these were already being considered as part of the review process and have been dealt with in the appropriate part of the report. However there were two issues which had not been canvassed and these are considered here.

Salvage sampling

A scheme for the salvage sampling of biodiversity in habitats/areas which are to undergo forest conversion to plantation or agriculture after harvest has been proposed by R Mesibov and a way to operationalise this has been suggested by FPA (Appendix D).

Panel considerations and recommendations

The panel supports the concept of salvage sampling where the habitat loss is irrevocable, but notes that for comparative purposes, such sampling ought to be accompanied by appropriate sampling of equivalent habitats in areas not subject to conversion and follow up monitoring.

Harvesting in streamside reserves in plantation areas

The panel noted the issue of harvesting of riparian areas in plantation areas, but understands that this aspect of forest practices is to be evaluated in the more general Forest Practices Code review which is being undertaken concurrently.

Panel considerations and recommendations

The panel’s view is that the establishment of suitable stream buffers is beneficial to biodiversity conservation, and accordingly feels that these areas should have minimal avoidable disturbance.
### Table 4.1. A summary of key biodiversity values, relevant *Forest Practices Code* (code) provisions, associated planning tools, level of implementation and possible additional mechanisms to consider

<table>
<thead>
<tr>
<th>Biodiversity value</th>
<th>Main <em>Forest Practices Code</em> provisions</th>
<th>Planning tool</th>
<th>Application/implementation</th>
<th>Additional mechanisms to consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>stream biota</td>
<td>provisions for soil and water, but also provisions such as:</td>
<td>code, Threatened Fauna Adviser</td>
<td>yes, but new research suggests code class 4 guidelines need review</td>
<td>CFEV, catchment management planning, streamflow management tools, threatened species strategic plans</td>
</tr>
<tr>
<td></td>
<td>• Streamside Reserves</td>
<td>some catchment level provisions in code and TFA</td>
<td></td>
<td>adapting draft class 4 stream guidelines for soil and water to take into account stream biota, revision of TFA</td>
</tr>
<tr>
<td></td>
<td>• coupe size</td>
<td>yes, but new research indicates a need for revision</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• coupe dispersal</td>
<td>mainland guidelines and results of recent research on recruitment of hollow-bearing trees</td>
<td></td>
<td></td>
</tr>
<tr>
<td>hollow dependent</td>
<td>Wildlife Habitat Strips</td>
<td>code, Fauna Technical Note 8 (WHS), Fauna Technical Note 7 (WHC)</td>
<td>yes, for threatened species</td>
<td>Paddock Tree Policy, safety aspects (‘hazardous trees’), longevity of retained trees, Revised code provisions and new Tech Note, Revision of TFA</td>
</tr>
<tr>
<td>fauna (RFA priority group)</td>
<td>Wildlife Habitat Clumps</td>
<td>some with Wildlife Habitat Strips</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• coupe size</td>
<td>yes, for threatened species</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• coupe dispersal</td>
<td>revision of TFA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>karst species</td>
<td>geomorphology provisions for karst management</td>
<td>code, Sinkhole Manual, Karst Atlas, Threatened Fauna Adviser</td>
<td>no (in relation to biodiversity itself, but there is some in relation to geom-management)</td>
<td></td>
</tr>
<tr>
<td>(RFA priority group)</td>
<td>Streamside Reserves</td>
<td></td>
<td>yes, for threatened species</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• coupe size</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>threatened species—</td>
<td>databases: Natural Values Atlas, Conserve, SPARQS, Internal databases of specialists,</td>
<td>code, Agreed Procedures, Online Threatened Fauna Manual, Forest Botany Manual</td>
<td>coordination between systems poor</td>
<td>strategic inter-agency data exchange agreements, one-stop access point for all threatened flora and fauna sites</td>
</tr>
<tr>
<td>all</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Biodiversity value</td>
<td>Main Forest Practices Code provisions</td>
<td>Planning tool</td>
<td>Application/implementation</td>
<td>Additional mechanisms to consider</td>
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</tr>
<tr>
<td>threatened species—fauna</td>
<td>threatened species provisions (section D3.3) Other Forest Practices Code provisions</td>
<td>code, Agreed Procedures, Threatened Fauna Adviser, Fauna Technical Notes (e.g. on stag beetle survey methods, keeled snail survey method, eagle management, goshawk habitat descriptions, etc.)</td>
<td>need for strategic planning recognised but no specific guidance; some recommendations advise on need for strategic management of some species (e.g. spotted-tailed quoll) but do not provide additional guidance; some recommendations are based on strategic planning (e.g. those for Simsons stag beetle)</td>
<td>numerous provisions throughout code refer to threatened species; essentially implemented at the FPP level through the Agreed Procedures; mainly aimed at the coupe level and used by planners to develop prescriptions for a particular coupe</td>
</tr>
<tr>
<td>threatened species—flora</td>
<td>threatened species provisions (section D3.3) other code provisions</td>
<td>code, Agreed Procedures, Forest Botany Manual</td>
<td>need for strategic planning recognised but no specific guidance; some species (e.g. Eucalyptus radiata) covered by a PAMA</td>
<td>numerous provisions throughout code refer to threatened species; essentially implemented at the FPP level through the Agreed Procedures; mainly aimed at the coupe level and used by</td>
</tr>
</tbody>
</table>

- companies, etc

- TPM now the Fauna and Flora Values database.

- Revision of TFA Technical Notes
<table>
<thead>
<tr>
<th>Biodiversity value</th>
<th>Main Forest Practices Code provisions</th>
<th>Planning tool</th>
<th>Application/implementation</th>
<th>Additional mechanisms to consider</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>remnant vegetation</td>
<td>remnant provision</td>
<td>code</td>
<td>no</td>
<td>some</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CRC remnant workshop outcomes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>CRC remnant workshop outcomes</td>
</tr>
<tr>
<td>relict rainforest</td>
<td>code provision</td>
<td>code</td>
<td>On State forest, all known sites are on the MDC because of historical work on the issue by the commission</td>
<td>some</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>special habitat features—swamps, rocky knolls, tree ferns</td>
<td>code provisions</td>
<td>code, Forest Botany Manual, Technical Note specific to relict rainforest management, Draft Flora Technical Note on management of rocky outcrops prepared in 2005</td>
<td>some</td>
<td>?</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>general biodiversity—connectivity, fragmentation</td>
<td>coupe dispersal provisions, provisions for retention of forest structure across the landscape</td>
<td>code</td>
<td>some</td>
<td>some</td>
</tr>
<tr>
<td>weeds</td>
<td>code provisions</td>
<td>code, Forest Botany</td>
<td>strategic planning by councils and some</td>
<td>FPA involvement on weed</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Biodiversity value</th>
<th>Main <em>Forest Practices Code</em> provisions</th>
<th>Planning tool</th>
<th>Application/implementation</th>
<th>Additional mechanisms to consider</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phytophthora cinnamomi</td>
<td>code provisions</td>
<td>Manual</td>
<td>land managers including Forestry Tasmania</td>
<td>management working groups?</td>
</tr>
<tr>
<td>• code</td>
<td>• <em>Forest Botany Manual</em></td>
<td>• <em>Flora Technical Note 8</em></td>
<td>• strategic planning by Forestry Tasmania (e.g. PC Management Areas)</td>
<td>becoming routine to have machinery hygiene protocols in FPPs</td>
</tr>
</tbody>
</table>
CHAPTER 5
Terms of Reference 3 and 4: Review of research and monitoring activities related to the biodiversity provisions of the forest practices system

Introduction and Methods

This chapter addresses items 3 and 4 of the Terms of Reference:


4. Review current research relating to the distribution, ecology and impacts of forest practices on forest fauna and flora and report on future funding priorities for new information.

The panel has approached this task by interviewing staff from the Forest Practices Authority (FPA), DPIW and FT and by considering a number of documents. In particular the panel has incorporated relevant sections of background document 4 (Wapstra and Munks, 2008) and comments provided by the Forest Practices Executive Review Team.

Legislation and Policy


The policy imprimatur for research and monitoring as part of the forest practices system is inscribed in Schedule 7 of the Forest Practices Act 1985 and in the Forest Practices Code:

Schedule 7 of the Act sets out the Objective of the forest practices system of Tasmania: The objective of the State's forest practices system is to achieve sustainable management of Crown and private forests with due care for the environment while delivering, in a way that is as far as possible self-funding.

Schedule 7 also states inter alia that there is to be:

(d) a forest practices code which provides practical standards for forest management, timber harvesting and other forest operations

(ea) an emphasis on research, review and continuing improvement…

And, the introduction section of the Forest Practices Code (2000) states that:
‘Specialists are employed by the Board to conduct research and provide practical management advice to Forest Practices Officers on the conservation of natural and cultural values’ (p. 1)

and

‘The Act also contains compliance requirements in relation to monitoring and reporting upon Plans, the Forest Practices Code and other provisions of the Act. The Forest Practices Board conducts independent audits of compliance, and the results are publicly reported in the Board’s Annual report to Parliament’ (p. 2)

and

‘The Forest Practices Code contains policies and practices which have been developed as a result of ongoing research and practical experience. Research and innovation by landowners, contractors and the forest industry is encouraged. The Forest Practices Code is kept under regular review and the results of research, field experience and public input are used to make progressive improvements so that environmentally sound, socially responsible and economically acceptable production forestry can be maintained’ (p. 2).

Panel considerations and recommendations

The panel notes that there are no stated objectives in the Forest Practices Code in relation to management of biodiversity values to provide suitable context for monitoring.

The Tasmanian Forest Practices Act 1985 also states that:

‘the Board must…assess the implementation and effectiveness of a representative sample of Forest Practices Plans’.

Panel considerations and recommendations

The panel recognises that the Forest Practices Code prescribes ‘the manner in which forest practices are to be conducted so as to provide reasonable protection to the environment’ but the terms ‘reasonable’ or ‘protection’ should be defined.

Their definition should be set within the broader objectives for biodiversity management in Tasmania so that strategies for research and monitoring activities are practical and meaningful (see table 6.1).

Inter-agency Agreed Procedures

The inter-agency Agreed Procedures for threatened species management under the forest practices system have some specific requirements in relation to research and monitoring:

- Monitoring of efficacy of prescriptions—the Board in association with DPIWE will monitor the efficacy of management prescriptions through a coordinated approach to research.
• **Research**—the FPB and the DPIWE will consult with landowners and other stakeholders to determine the priorities for research into the ecology and management requirements of threatened species. Both bodies will coordinate an approach to secure appropriate levels of funding from all available sources. The forest industry recognises its role in contributing to research into the effects of forest management practices on threatened species. The forest industry will consider the research needs for threatened species as part of its overall contribution to forest practices research under the terms of the forest practices research fund.

### Panel considerations and recommendations

The panel notes that the Agreed Procedures do not state the specific mechanisms on how these clauses of the procedures are to be met by the relevant parties and that whilst there is relevant forest research done by Tasmanian research providers (e.g. the CRC Forestry, University of Tasmania), and this has been part-funded by the forest industry, there has been no forest practices research fund since August 2005 when the FPA became an independent, government-funded authority.

The panel notes that there is some relevant operational research undertaken and the opportunities for uptake of this should be investigated.

The relatively small size of the FPA biodiversity specialist group and the lack of resources cause the panel some concern that research needs are not being met, and there appears to be no cohesive strategy to facilitate/coordinate the research agendas of parties to achieve forest practices goals.

The panel recommends that FPA review the alternatives of increasing resourcing within the agency, whether by funding from industry or other source, or by consciously acting to out-source such research.

### Forest Practices Advisory Council

Section 37C of the *Forest Practices Act* relates to the Forest Practices Advisory Council and states in part:

37C. Functions of Council

The Council has the following functions:

(a) to advise the Forest Practices Authority on the review of this Act and the Forest Practices Code;

(b) to advise the Forest Practices Authority on the quality, relevance and cost effectiveness of forest practices administration, operations and research.

### Regional Forest Agreement 1997

The RFA includes several statements relevant to biodiversity research and monitoring activities in the context of the forest practices system. The relevant provisions from the RFA document are:
A. The state and Commonwealth governments have agreed to establish a framework for the management and use of Tasmanian forests which seeks to implement effective conservation, forest management, forest industry practices and in particular:

Encourage the development of forest based research.

Research

88. The Parties agree that continuing research in a range of areas is vital to ensure that all aspects of forest management remain up to date with the latest information and technological developments and have outlined research priorities in Attachment 13.

89. The Parties agree to make publicly available, wherever practical, research reports relevant to the substance of this Agreement.

Attachment 10 of the RFA is titled ‘Improvements to Tasmania’s Forest Management System’ and lists several points relevant to biodiversity research and monitoring activities:

The state intends to further improve its Forest Management Systems across forest management agencies and land tenures, by:

1. Implementing the state Policy Setting New Standards for Water Quality.
2. Developing a state Policy on integrated catchment management.
3. Developing and implementing a Threatened Species Protection Strategy and recognising the role of sub-regional plans where appropriate (by 31 December 1998) and a Tasmanian Biodiversity Strategy (by 31 December 1999).
10. Continuing to adequately resource the system surrounding the Forest Practices Code (including compliance, implementation, education, training, review, research) and maintaining appropriate contributions by industry to ongoing management costs associated with the Forest Practices Code.

Attachment 13 of the RFA is titled ‘Priority Areas of Research’ and lists several points relevant to biodiversity research and monitoring activities:

The following research areas will be used as a guide by the Parties when they are examining research proposals and establishing research programs. The Parties agree that the following areas represent priorities for research:

1. Biodiversity conservation and management
   - Development of biodiversity indicators for assessing ESFM.
   - Reserve management and predictive models of species, communities and successional processes for major Forest types.
   - Strategic information for private landowners to protect and maintain biodiversity.
• The effects of plantation establishment and management on biodiversity conservation, both within the plantations and in adjacent natural ecosystems.
• The effects of Forest management on changes in biodiversity and other Forest values.
• Research to underpin requirements for Recovery Plans and Threat Abatement Plans and the development of the means to assess the effectiveness of such conservation plans.
• Taxonomy, ecology and conservation management of poorly known species.

2. Carbon budgets/flows
• Research priorities identified in the National Greenhouse Response Strategy.
• Long-term analyses of carbon flows from vegetation clearance according to broad vegetation classification.
• Estimating the impact of the following activities on the carbon cycle: fire, harvesting and plantation establishment.

3. Fire
• Environmental impacts of fire regimes and ecological management of fire.

5. Non-wood values of Forests
• Valuing non-wood uses (e.g. biodiversity, soil and water, recreation, and natural and cultural heritage).
• Possible ecological impacts of beekeeping in natural areas.

6. Pests
• Cost effective detection, evaluation of impacts, identification and control of pests and diseases in Native Forests and plantations.
• Development of integrated management systems for weeds, browsing mammals, and insect pests to reduce or eliminate chemical use.

9. Soil and water conservation
• Catchment planning to protect soil and water values on all land tenures.
• Environmental water requirements: establish baseline monitoring systems for stream flow and water quality across a range of forest types, evaluate the impact of forest operations and refine stream protection measures accordingly.

Supplement to the Regional Forest Agreement (Tasmanian Community Forest Agreement)

This policy identifies some key areas for research in relation to three main areas:
• Tasmanian devil facial tumour disease
• Alternatives to 1080 use
• Alternatives to clearfelling silviculture in old growth forests.

Whilst all of these research areas are relevant to forest practices, none of them relate directly to current biodiversity provisions of the Forest Practices Code, except perhaps for clearfelling alternatives which may result in retained habitat for biodiversity.

**Sustainability Indicators for Tasmanian Forests 2001–06**

This report states that:

* A scientific understanding of the characteristics and functions of Australian forest ecosystems is needed to underpin their management. In 2005–06 there were 147 personnel engaged in forest-related research at a cost of $12.4 million. This research expenditure is spread across government agencies, the forest industry and academia. Much of the current research is conducted through the CRC for Forestry based in Hobart. There were 537 research publications produced during the last five years. The majority of the research reports (508 in all, or 95 per cent) are in four of the nine Priority Areas of Research (Biodiversity Conservation and Management, Pests, Silviculture Techniques, and Soil and Water Conservation).

**Implementation of the Tasmanian Regional Forest Agreement 2002–07**

This formed part of the 10-year review of the Regional Forest Agreement and states in part:

* Research

Priority areas for research have been reviewed. A total of 55 priority areas were identified. A list of 537 forest research publications prepared and published since 2002 has been compiled. TCFA funds have supported additional research on alternatives to clearfelling of public old growth forests, alternatives to the use of 1080 on private land, Tasmanian Devil Facial Tumour Disease and the impact of chemical usage on water catchments.

The report also considered the implementation of recommendations from the 2002 five year review of the Regional Forest Agreement:

* PART 2 REPORT ON IMPLEMENTATION OF RECOMMENDATIONS FROM THE 2002 FIVE YEAR REVIEW

In 2002 the Tasmanian Resource Planning and Development Commission (RPDC) conducted the first five - year review of progress with implementation of the Tasmanian RFA. The RPDC provided the Governments with a Final Recommendations Report—see http://www.rpdc.tas.gov.au/public_land_use/plu_docs/plu_reg_forest_agree.htm. This Report contained a series of recommendations to the Governments.
In May 2005 the Premier of the State of Tasmania and the Prime Minister of the Commonwealth of Australia signed a Supplementary Agreement to the Tasmanian RFA, referred to as the Tasmanian Community Forest Agreement (TCFA). As part of the TCFA (clause 3) the Governments agreed to implement the RPDC recommendations, except recommendation 4.5. They also agreed (clause 4) that the TCFA represents a full and final response to the RPDC Report.

The following details the actions that have been taken by both governments to implement the RPDC recommendations.

Ecologically Sustainable Forest Management

Recommendation 4.1: That the state improves the accountability of the forest practices system. Issues to consider include:

- improving transparency and communications, in particular, public access to information on Forest Practices Plans, through a central access point designed to improve industry consultation with neighbours and local communities;
- improving on ground implementation of Forest Practices Plans by introducing minimum standards of training, education and accreditation of forest operatives, and introducing systems to convey the detail of the Forest Practices Code and Forest Practices Plans in a form readily available and understandable to forest operatives;
- improving public understanding of the forest practices system including the Forest Practices Code, the role of the Forest Practices Board and, in particular, the public and legal policy framework in which the Forest Practices Board operates;
- providing for a specific position on the Forest Practices Board for a person with ecological and/or conservation expertise;
- reviewing the efficacy of the self regulatory aspects of the forest practices system in the next five year review of the forest practices system; and
- ensuring provision of additional funding, including from industry, to support the communication and research functions of the forest practices system.

Implementation of this recommendation is ongoing, with substantial measures to address the recommendation implemented by the Tasmanian Government since 2002. The Tasmanian Government undertook a major review of the forest practices system in 2004.

In September 2004, the then Minister for Infrastructure, Energy and Resources, the Hon. Bryan Green, announced a comprehensive package of major changes to the forest practices system, which included:

- The provision of additional resources for training, education, monitoring and enforcement of the Forest Practices Code.
The Tasmanian Parliament passed legislation in 2004 and the new Act and Regulations took effect on 1 July 2005 and 1 August 2005 respectively. Details of the changes are provided below.

(f) Continuing improvement

The Forest Practices Act 1985 now formally provides that the FPA will, at least once every five years, review the operation of the forest practices system, including the provisions and operation of the Forest Practices Code, and provide a report to the Minister on the outcome of that review. This does not mean that the Forest Practices Code will be reissued every five years. Rather, it highlights that the forest practices system must undertake research and review and maintain a program of continuing improvement.

(g) Amendment of the Forest Practices Regulations 1997

The Government has provided the FPA with resources to employ additional staff to inspect and audit operations for compliance with the requirements of the Forest Practices Code.

Additional funding has been provided to the FPA to develop and implement in cooperation with industry, minimum levels of training on the environmental care and the Forest Practices Code to all forest operatives. Upgrading of training requirements for all Forest Practices Officers has commenced.

Recommendation 4.10: That the Parties prepare a list of relevant research reports at future five yearly reviews

This recommendation has been implemented.

Attachment 13 to the RFA contained a list of Priority Areas of Research designed to be used to guide state and Commonwealth governments when examining research proposals and establishing research programs. Recommendation 4.10 of the RFA requires preparation a list of research reports relevant to these Priority Areas that have been published over review periods. A list of relevant research reports published during the period 2002–06 is provided in Appendix 1 of this report, to inform the 2007 Review of the Tasmanian RFA.

Recommendation 4.11: That the list of priority research areas in Attachment 13 should be reviewed by the Parties, in consultation with relevant stakeholders, at future five yearly reviews to determine if priorities have changed.

This recommendation has been implemented.

In accord with Attachment 13 of the RFA, the list of research priorities relevant to the RFA and the period 2007–2011 was produced in 2006. The priorities were collated with input from CSIRO Forest and Forest Products/ensis, the Department of Primary Industries and Water, Forestry Tasmania, the Cooperative Research Centre for Forestry, and others, including the Research Priorities Coordinating Committee that reports to the Primary Industries Ministerial Council’s Forestry and Forest Products Committee.
A total of 55 research priorities were identified. These have been organised in the list below under the same nine broad research areas identified in the RFA. These priority research areas provide a guide for the Parties when examining research proposals and establishing research programs.

Only the research priorities directly related to biodiversity management are cited below i.e. the report’s category of ‘biodiversity conservation and management’.

1. Biodiversity conservation and management

- Landscape-level requirements for persistence of forest-dependent species, including predictive biological models for species and communities in different landscape mosaics, and population viability analyses of individual species.
- Long-term ecological research on natural processes, the effects of forest management and climate change, and long-term monitoring at established sites.
- Contribution of regrowth forests to landscape-level measures of biodiversity, including comparison of forests regrowing after logging and wildfire disturbance, the effect of thinning or fuel reduction, and the development of late-successional structures.
- Contribution of plantation blocks to landscape-level measures of biodiversity, and the role of remnant native vegetation in plantation estates.
- Impact of alternative silvicultural techniques on biodiversity, with special reference to mature forest habitat features.
- Impact of forest management on flora and fauna of high conservation significance and their habitats, including value and management of retained habitat.
- Development of a coordinated approach, tools and protocols for vegetation mapping, vegetation extent and vegetation condition assessment.
- Improved systems for natural values and resource condition reporting.
- Taxonomy, ecology, population monitoring and conservation management of poorly known species, whether common or rare.
- Research to underpin Recovery Plans and Threat Abatement Plans, and development of means to assess the effectiveness of such conservation plans.
- Research to underpin management prescriptions for Threatened Species under the Forest Practices Code, and development of means to assess the effectiveness of such prescriptions.

The review contains other research priorities not immediately relevant to the biodiversity provisions of the forest practices system.
Other policy and legislative instruments:

The needs for research, development and monitoring are also recognised in the following legislative and policy documents:

- National Forest Policy Statement
- Tasmania’s Nature Conservation Strategy
- Tasmanian Government Policy for Maintaining a Permanent Native Forest Estate November 2005 (PNFE)
- Tasmanian Threatened Species Protection Act 1995 (TSPA)
- Forestry Act 1920.

Forest certification systems

The Australian Forestry Standard also contains clauses to deal with R&D and monitoring.

Panel considerations and recommendations

The policy documents all explicitly recognise the importance of good scientific process for the determination of biodiversity conservation needs in a wood production forest environment. Accordingly, the panel suggests the following scientific knowledge objective and sub-objectives:

**Objective: improve scientific knowledge and access to information**

- improve scientific knowledge of forest biodiversity and assess the response to disturbance and recovery by native flora and fauna
- identify species or ecological communities at risk from climate change
- monitor the effectiveness of management actions
- verify and make accessible existing knowledge
- communicate the knowledge to those involved in forest management.

In summary, the panel endorses the need recognised in the above instruments and documents for strong R&D and monitoring programs in the forest practices context for biodiversity conservation. The primary research and monitoring needs for the FPA to fulfil its charter for biodiversity conservation are to increase understanding for management in the following areas:

- threatened species and their habitats
- threatened communities and their habitats
- ecological processes
• planning across landscapes and time for habitat maintenance and retention for forest dependent biodiversity, including forest structure
• maintenance of habitat and/or surrogates for biodiversity generally
• monitoring of the efficacy of prescriptions for biodiversity maintenance
• climate change.

The limited capacity of the FPA to undertake such a broad research program underlines the need for creative development of processes across agencies, funding bodies and research providers to deliver the research agenda.

Review of forest practices research

Forest practices research over the past 20 years has been reviewed recently by Brown (2008) and also in the report by Wapstra and Munks (2008). A brief summary is presented here to provide context for the panel’s recommendations.

Agencies involved

The following bodies are actively involved in research and monitoring relevant to the biodiversity provisions of the Forest Practices Code:

- FPA
- Forestry Tasmania (mainly the Division of Forest Research and Development and the Conservation Planning Branch)
- University of Tasmania (Schools of Geography and Environmental Studies, Plant Science, Zoology, Faculty of Agricultural Science, Centre for Environment.
- DPIW (mainly Threatened Species Section but also other parts of Nature Conservation Branch and Water Management Branch)
- CRC for Forestry, and other CRCs (e.g. Bushfire CRC)
- independent consultants such as Freshwater Systems and ECOtas (with or without links to university or other agencies)
- Tasmanian Museums
- Australian Mainland Research Centres—Universities, Museums, CSIRO etc.
- private individuals and NGOs.

The coordination of forest-based research and monitoring is complex. The FPA has dedicated staff time to a position of Research Coordinator, whose role is to facilitate the development of research priorities by the FPA Research Working Group, but also to link to external agencies (e.g. the nationally based Research Working Group, the CRC for Forestry and Forestry Tasmania) through various mechanisms.
Relevant research and monitoring—current activities

Two main issues arise:

- the current research relating to the distribution, ecology and impacts of forest practices on forest fauna and flora
- future funding priorities for new information.

Research priorities for the FPA are driven by the Regional Forest Agreement and the Forest Practices Code, which are both reviewed every five years. Annual updates are made to the Forest Practices Code based on specialist reviews. Priorities are influenced—though not determined—by a national research advisory group that sets national priorities for forestry research (Appendix E).

Research is ongoing, with a number of small and larger projects underway at any one time. Staff specialists usually work in collaboration with research staff and students from the Schools of Zoology, Plant Science and Geography & Environmental Studies at the University of Tasmania, and with scientists from Forestry Tasmania and the Nature Conservation Branch in the Department of Primary Industries and Water. Other partners are sourced for relevant projects as they arise.

Brown (2008) made the following observations and conclusions about Forest Practices Research:

- The Tasmanian Forest Practices Code provides for environmental protection during forest operations and is underpinned by research. This research can assist strategic level planning, the development of tools and techniques at a range of scales, the development and application of new operational prescriptions and the monitoring and effectiveness testing of existing prescriptions.

- ... the need for research has remained high over the period from 1987 to 2007, the subject areas for research needed to service the forest practices system have remained fairly constant, but there have been changes in the particulars of research topics within the broad scientific disciplines pursued to protect environmental values.

- The total amount of research over the period has increased as measured by a number of different indicators, but there is insufficient research being undertaken to service immediate demands for operational advice and to test the effectiveness of existing prescriptions.

- The research funding has come from a variety of sources and its delivery has come from a range of providers.

- There is a key role to be played by the FPA in promoting and facilitating research which is relevant to its particular charter. While this charter does not always coincide with the perceptions and needs of other organisations in the same research marketplace, the FPA has the imprimatur to take a lead role in
Panel considerations and recommendations

The panel considers that there is not a well-coordinated approach to FPA’s involvement in UTas research projects and much of the support provided has been opportunistic. It is noted that FPA’s web page now supplies some details of potential student projects and support in the form of a Student Research Grant. However, uptake has been slow and more effort is needed to make UTas Schools aware of FPA’s research and monitoring priorities.

Effectiveness monitoring

Effectiveness monitoring is used to determine whether the specified management has achieved its objective and whether the outcome observed is a consequence of management.

In relation to the biodiversity provisions of the Forest Practices Code, the panel notes that effectiveness monitoring is only a formal requirement in relation to threatened species management. The Agreed Procedures state:

Monitoring of efficacy of prescriptions—The Board in association with the DPIWE will monitor the efficacy of management prescriptions through a coordinated approach to research.

Panel considerations and recommendations

The panel recommends that the FPA review the need to monitor other species, surrogate habitat approaches and processes as part of the overall effectiveness monitoring program.

Some examples of current effectiveness monitoring include the long-term effectiveness of reserves established to protect wedge-tailed eagle nests, the longevity of retained Wildlife Habitat Clumps and Wildlife Habitat Strips, response of Simsons stag beetle to different silvicultural regimes, and the response of rare burrowing crayfish to catchment disturbance. Information from monitoring has indicated that in some cases management prescriptions are unwarranted, as for example with the rare grass *Ehrharta juncea* where monitoring revealed that the species tolerates forestry disturbance and it has subsequently been recommended for delisting. Another example is the risk assessment of *Eucalyptus nitens* genetic incursion into the *E. perriniana* reserve at Strickland where CRC researchers are monitoring impact of agreed buffer prescriptions (B. Potts pers. comm.).

Implementation monitoring

The FPA is required under the Forest Practices Act 1985 to report to parliament on an annual basis the activities of the forest practices system. The Act does not specify the exact number of plans that must be audited each year, but the FPA conducts an annual ‘audit’ of a random 15% sample of Forest Practices Plans examining a range of variables,
including the planning and implementation of the biodiversity provisions of the Forest Practices Code.

The areas examined in the annual audit are summarised below by reference to the actual questions asked by the auditor when a FPP is assessed:

**FLORA**

98. FPP evaluation been correctly completed for plant communities?
99. Has the evaluation been correctly completed for priority plant species?
100. Has the evaluation been completed for sites of potential significance for flora?
101. FPP evaluation completed for effects on reserves and SMZs?
102. Have flora values been referred to FPA botanist as required?
103. Have important flora values been taken into account in FPP?
104. Have the botanical requirements of the FPP been followed?

**FAUNA**

105. Was all the required information supplied in the evaluation?
106. Were known localities and habitat for threatened species identified?
107. Was FPB advice sought on threatened species, if required?
108. Were prescriptions for threatened species included in FPP?
109. If present, were WHS identified and WHS prescriptions implemented?
110. If present, were faunal SMZs identified and prescriptions included?
111. Was the requirements for WHCs correctly assessed?
112. Gave FPP threatened fauna prescriptions been implemented?
113. Have WHS prescriptions in the FPP been implemented?
114. Were the SMZ prescriptions in the FPP implemented?
115. Were the WHC prescriptions in the FPP implemented?

There is differential emphasis placed on issues. Thus the flora questions include a single question on implementation of all values, whereas the fauna questions include questions on each major provision.

In addition to the annual audit conducted by the FPA, thematic monitoring of the implementation of the biodiversity provisions of the Forest Practices Code has been undertaken by specialists within the FPA. These include the major monitoring project undertaken by the Zoology Program (now incorporated into the Biodiversity Program) examining a large set of FPPs for two widely separated years, an informal draft report on monitoring of the implementation of threatened flora management prescriptions and some
monitoring of the implementation and longevity of retained Wildlife Habitat Clumps (Duhig et al. 2000).

Implementation monitoring is a core legislative and administrative requirement and is funded by parliament and the forest industry. The detail of the monitoring is reviewed by independent and in-house parties, and includes consultation with specialists. Compliance monitoring has direct links to certain biodiversity provisions of the Forest Practices Code, most notably the Agreed Procedures for threatened species management, which state:

Monitoring of compliance—Compliance with the provisions of the Forest Practices Plan, including provisions that relate to threatened species, will be assessed by a Forest Practices Officer and a report on compliance will be lodged with the FPB within 30 days of the expiry of the plan, as required under s.25A of the Forest Practices Act. The Board will publish information on compliance in its Annual Report.

Independent audit and enforcement—The Board will audit the standard of planning and the degree of compliance with the implementation of the provisions of the Forest Practices Code and Forest Practices Plan, including those that relate to threatened species as part of its annual audit. Results will be published in the Board’s Annual Report, as required under s.4 of the Forest Practices Act. Appropriate action will be taken with respect to instances of poor planning, or failure to comply with the provisions of a plan, in accordance with the provisions of the Forest Practices Act. Potential breaches of the Threatened Species Protection Act will be reported to DPIWE as soon as practicable.

Research time and funding for FPA specialist staff

Traditionally, specialists within the FPA (originally the Forest Practices Unit and then the Forest Practices Board) allocated about 50% of their time to research and 50% to providing advice, education services and some monitoring activities. In the early days of the FPU, this level of research was regularly achieved, to differing degrees, by different specialists. By the late 1990s, research time had dropped to 10–20% of specialists’ workloads.
Panel considerations and recommendations

The panel agrees that research and monitoring are fundamental to the credibility of the forest practices system and strongly recommends that the FPA re-establish funding mechanisms for research and monitoring or find alternative ways of achieving the same ends via out-sourcing.

Adaptive management

The key questions are:

- What are the mechanisms for delivery of adaptive management under the forest practices system?
- Is the Forest Practices Code sufficiently adaptive in its approach?
- Are there appropriate feedback mechanisms outlined in the Forest Practices Code?

The first version of the Forest Practices Code was released in 1987, a second in 1993, a third version in 2000 and it is currently under review again, indicating a 6-8 year review cycle.

Section A2 of the Forest Practices Code states:

The Forest Practices Code is supported by other manuals and technical instructions that are endorsed from time to time by the Forest Practices Board after consultation with the Forest Practices Advisory Council. Forest Practices Officers will use these documents and follow instructions issued by the Board.

This statement, in conjunction with Schedule 7 of the Forest Practices Act, recognises the inherent need for the Forest Practices Code to be able to adapt to change.

Section 19 of the Act, states:

19. Authority to certify or refuse to certify forest practices plans

(1) Where an application for the certification of a forest practices plan is made in accordance with section 18, the Forest Practices Authority may:

(a) certify the plan; or
(b) refuse to certify the plan; or
(c) amend the plan in such manner as it considers necessary and certify the plan as so amended.

So while the Forest Practices Code itself does not change within the cycle period, some individual provisions of the Forest Practices Code may be changed during the currency of a Forest Practices Code Version. Some examples are:
The Forest Practices Code has a Basic Approach statement in regard to protecting susceptible vegetation from infection by root-rot fungus and refers to some generic hygiene measures. When the current version of the Forest Practices Code was released, root-rot fungus was not formally listed as a threatening process on the EPBC. Post-code release, this status was recognised and the state and Commonwealth governments worked actively to develop policy. It is through an FPAC endorsed technical note, formally issued by the FPA, that FPOs can address this Forest Practices Code provision in detail, thus also meeting Commonwealth/state policy requirements.

Another example comes from threatened fauna management. The Forest Practices Code clearly requires FPOs to use the Threatened Fauna Manual and Threatened Fauna Adviser under the Agreed Procedures. However, because of the gap between Forest Practices Code versions and Threatened Fauna Adviser versions, new species are added to the schedules of the Threatened Species Protection Act 1995. The Agreed Procedures are sufficiently flexible to allow the FPA to add such species to the manual and provide advice to FPOs through a consultative mechanism between government agencies.

Panel considerations and recommendations

The procedures specifically state that major changes to the Threatened Fauna Adviser require consultation between various parties and formal endorsement by FPAC and the Scientific Advisory Committee. The panel strongly endorses this approach.

There are several mechanisms for achieving an adaptive management outcome under the forest practices system including such planning tools as the flora and fauna technical note series, modifications to special values evaluation sheets, release of interim guidelines and issue of information to meet specific Forest Practices Code provisions (e.g. threatened vegetation community information sheets).

Thus it appears that the forest practices system does follow an adaptive management process with a strong emphasis on research, monitoring and continued improvement.

The forest practices adaptive management process, in relation to biodiversity values, can be summarised as follows:

- The most up-to-date information is gathered for the value and it’s likely response to various forms of forest management.
- Science and expert opinion is used to develop management actions for the value. This may be done through a technical working group set up for the particular value.
- Comment is sought from the stakeholders on the proposed management actions and any associated implementation tools (policies, DSS, technical notes etc.).
- Endorsement for the management actions is sought from the relevant committees such as TSSAC (for threatened species) and FPAC who advise the FPA Board.
- Once endorsed, training and education programs are conducted on a regular basis for forest practices officers and other planning and supervisory staff employed throughout the forest industry.
The management actions are implemented through planning tools and procedures.
Research is conducted to improve understanding of the value and its response to different impacts.
Monitoring is carried out to assess the efficacy of management prescriptions.
The management prescriptions are reviewed and revised on a regular basis to incorporate the findings of new research, results from monitoring and operational experience.

Panel considerations and recommendations

The panel considers that resources are not adequate to address the adaptive management process and should be increased.

The gathering of relevant information is a continual process undertaken by FPA specialists but also by external agencies (e.g. the FPA is advised by expert opinion on the management of eucalypt hybridisation by University specialists), management prescriptions are continually being developed by FPA staff and then implemented through planning tools (e.g. production of Technical Notes, information sheets, etc.). Training is undertaken regularly.

Panel considerations and recommendations

The panel considers that the issue of resource allocation is important at all levels of the adaptive management process, but that research, monitoring and translation of results into management prescriptions receive least attention.

For example the Threatened Fauna Adviser is now an integral part of the Forest Practices Code and satisfies many state and Commonwealth policies in relation to threatened fauna. However, there has been no formal review of the Adviser.

Many areas of research on particular species included in the Adviser have not been undertaken and thus a review of the Adviser would not recommend changes for some species where changes are needed. Only a few species included in the Adviser have received formal efficacy monitoring of prescriptions and it is only in these cases that a review may be detailed and in depth.

Inter-agency coordination

Interagency communication in biodiversity conservation planning and action is absolutely critical and there is a need to ensure a coordinated approach to research activities, with appropriate mechanisms for feedback of research into planning and operations.
Panel considerations and recommendations

The panel recommends that mechanisms are put in place to provide surety of funding for research and monitoring and subsequent review, adoption of results and development of planning tools.

These programs need to be set in the context of:

- how the forest practices system relates to other state level biodiversity policy positions
- a clearly delimited set of biodiversity objectives for the forest practices system.

Review and coordination groups

The overall research and monitoring priorities for the forest practices system are decided from interpreting the Forest Practices Act 1985 and from state and national frameworks set by legislation such as the Threatened Species Protection Act 1995 and the EPBC Act, and policies such as the NFPS and the Regional Forest Agreement. However projects also arise on an ad hoc basis, often in response to a particular operational issue, from the sudden availability of opportunistic funds or because of a particular interest of a student or research group.

As well as the overarching agendas set by the policy framework outlined above, there are four groups currently involved in suggesting research and monitoring priorities for the FPA relevant to biodiversity provisions of the forest practices system:

- FPA’s Research Working Group (this group comprises senior scientific staff of the FPA and provides FPAC with advice on research priorities—see Appendix E)
- FPAC
- the national Research Working Group 4
- the CRC for Forestry.

Panel considerations and recommendations

The panel considers that there could be more effective coordination of research and monitoring effort especially across government agencies—FT/DPIW(TSS)/FPA but also with the relevant university schools and the CRC. This would require more time formally being dedicated to the appropriate position within the FPA.

It is essential that the forest practices system be aware, and where possible have some influence, on relevant research and monitoring programs being undertaken by other agencies and be in a position to advise the FPA on the practicability and applicability of outcomes and recommended actions of non-FPA programs as well as joint and internal programs.

The recent review of forest practices system research in the period 1987–2007 has highlighted the relative lack of internal resources and capacity of the FPA to fulfil its needs for research and monitoring generally and for biodiversity in particular.
The panel recommends that FPA examine ways of increasing relevant research capacity to support the forest practices system including research by the FPA, industry and other sources.

**Management of databases**

Effective management of databases and GIS access is critical to effective management of biodiversity values in production forests. It requires a coordinated approach between agencies and independent researchers. As well as maintaining database information about species and other values, a database of ‘active’ research and monitoring sites across agencies should be established and maintained.

*Panel considerations and recommendations*

The panel recommends that the FPA undertake an evaluation of the relevance and capacity of existing intra- and inter-agency systems to deliver forest practices system requirements. In particular the FPA needs to be assured that reliance on external systems has the capacity to deliver services to the FPA on a continuing basis.

**Adaptive management and resource allocation**

*Panel considerations and recommendations*

The concept of adaptive management, and its key components, should formally be recognised in the *Forest Practices Act 1985* and *Forest Practices Code*.

The panel recommends that the FPA adopts the panel’s proposal for a clear and transparent, suitably resourced process to deal with the endorsement and adoption phase of the adaptive management system.
CHAPTER 6
Setting objectives for biodiversity conservation in the Tasmanian forest practices system

Introduction and methods

One of the major issues that the panel has found in undertaking the review has been the lack of a clearly defined and delimited role for the forest practices system in the context of the state’s approach to biodiversity conservation. The panel considered that once that role is defined, then the forest practices system also requires a clear set of objectives against which biodiversity outcomes can be assessed and measured. Accordingly, the panel has proposed a table of draft objectives for management at a series of scales from statewide to bioregional, landscape and coupe levels to provide a framework for assessment of whether goals are being met (table 6.1).

The current review of the biodiversity provisions of the Forest Practices Code has necessitated the establishment of an overarching objective for the conservation management of biodiversity in areas covered by the forest practices system, together with a set of primary objectives and sub-objectives to meet the requirements of the relevant international, national and state legislation, policies and agreements discussed in chapter two. Of equal importance is the need to take into account current conservation ecological theory and to develop sub-objectives that are clear, practical, and measurable and agreed to by all stakeholders.

Primary objectives—what the system is currently supposed to deliver in terms of environmental outcomes

Primary objectives of relevant legislation and policy

The primary objectives of the relevant legislation and policies have been outlined in chapter two, but the key elements are reiterated here to facilitate the discussion.

National Forest Policy Statement 1995

This national policy statement includes the following:

Vision:

_The Governments share a vision of ecologically sustainable management of Australia’s forests. This vision has a number of important characteristics:_

- the unique character of the Australian forested landscape and the integrity and biological diversity of its associated environment is retained
- the total area of forest is increased.

Goal:
The goals are to maintain an extensive and permanent native forest estate in Australia and to manage that estate in an ecologically sustainable manner so as to conserve the full suite of values that forests can provide for current and future generations. These values include biological diversity, and heritage, Aboriginal and other cultural values.

Specific objective:

Two of the principal objectives of this statement are the maintenance of an extensive and permanent native forest estate in Australia and the protection of nature conservation values in forests. Maintaining this native forest estate in Australia will necessitate sustainable forest management on both public and private forested lands.

Tasmanian Regional Forest Agreement

Under the RFA, a key element is the Tasmanian Government Policy for Maintaining a Permanent Native Forest Estate (November 2005). This policy is designed to:

Ensure that Tasmania maintains a permanent native forest estate and effectively manages it sustainability. The policy is not about maintaining the native forest estate exactly as it is because forest conditions will change from place to place and from time to time through regeneration after fire or harvesting or through natural succession as forests age.

The policy includes the following objectives:

1. Tasmania will maintain a Permanent Forest Estate that comprises areas of native forest managed on a sustainable basis both within formal reserves and within multiple-use forests across public and private land in order to:

1.1 Maintain and sustainably manage Tasmania’s native forest resource base and associated economic, nature conservation, ecosystem services, scenic, cultural and amenity values
1.2 Ensure that the conservation status of forest communities is maintained or enhanced...

National Forest Policy Implementation Sub-Committee (JANIS)

Under JANIS, the stated objectives for biodiversity conservation are:

- to maintain ecological processes and the dynamics of forest ecosystems in their landscape context
- to maintain viable examples of forest ecosystems throughout their natural ranges
- to maintain viable populations of native forest species throughout their natural ranges
- to maintain the genetic diversity of native forest species.
Scales

Most relevant policy instruments consider biodiversity at three levels—ecosystem, species and genetic. They seek to ensure that all elements of biodiversity have opportunity for expression and they also advocate planning for biodiversity locally and across the landscape using a bioregional approach.

Primary objective of the forest practices system

Schedule 7 of the Forest Practices Act 1985 states that the objective of the state's forest practices system is:

*To achieve sustainable management of Crown and private forests with due care for the environment...*

A review of the relevant policy instruments indicates that this objective can be interpreted as:

...to maintain Tasmania’s native forest and its associated natural and cultural values through sustainable forest use...

Where *sustainable forest use* includes maintaining the ecological processes within forests (the formation of soil, energy flows, and the carbon, nutrient and water cycles); maintaining the biological diversity of forests and optimising the benefits to the community from all uses of forests within ecological constraints (National Forest Policy Statement, 1995) and,

where *natural and cultural values* includes biodiversity, soil and water, geoheritage, cultural heritage and landscape values.

Proposed primary objective for biodiversity conservation in areas covered by the forest practices system.

As outlined in chapter two, the management of biodiversity in Tasmania is covered by legislation and processes that include the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*, the Tasmanian *Threatened Species Protection Act 1995*, the Tasmanian *Nature Conservation Act 2002*, and the Tasmanian *Regional Forest Agreement 1997*. These recognise that a variety of mechanisms are needed to achieve ecologically sustainable forest management with respect to biodiversity.

There are three main elements to the current approach in Tasmania:

- the development of a Comprehensive, Adequate and Representative (CAR) reserve system that protects (through reservation) habitat for biodiversity
- the maintenance of a permanent native forest estate to ensure that a forest resource base is maintained for all its various values, including biodiversity values
- ecologically sustainable forest management practice under the *Forest Practices Code* that takes into account the requirements of current legislation, agreements, and recovery plan actions.
Panel considerations and recommendations

The panel, after considering the primary objective of the forest practices system and current theory/principles, recommends that the proposed primary objective for biodiversity conservation in areas covered by the forest practices system is:

**to maintain biological diversity (biodiversity) across multiple spatial scales—from individual stands to entire regions—through sustainable forest use.**

Where biological diversity is a concept encompassing the diversity of indigenous species and communities occurring in a given region. Also called 'biodiversity', it includes 'genetic diversity', which reflects the diversity within each species; 'species diversity', which is the variety of species; and 'ecosystem diversity', which is the diversity of different communities formed by living organisms and the relations between them. Biological diversity is the variety of all life forms—the plants, animals and microorganisms—the genes they constitute, and the ecosystems they inhabit (Commonwealth of Australia 1995).

Where maintain means to provide the potential for the elements of biodiversity to survive and continue to evolve in areas covered by the forest practices system.

Where sustainable forest use includes maintaining habitat and the ecological processes within forests (the formation of soil, energy flows, and the carbon, nutrient and water cycles), maintaining the biological diversity of forests and optimising the benefits to the community from all uses of forests within ecological constraints. (after The National Forest Policy Statement 1995)

### Secondary and measurable objectives (desired outcomes to meet the primary objective)

#### Background

The Forest Practices Code is currently the primary planning tool designed to assist forest managers in meeting the primary objectives of the state’s forest practices system. Clear and measurable objectives or desired outcomes are needed, as well as guidelines and best management approaches. While it is clear that at the higher level the objective is to maintain native forest habitats and their associated biodiversity through sustainable management, this objective needs to be reframed to provide a more detailed secondary and sub-objectives to assist with planning and measuring progress towards achieving the primary objective. The biodiversity conservation principles outlined in chapter one have been used by the panel to provide a context for the development of some draft measurable objectives as outlined in table 6.1. The principles may be summarised as:

#### Forest Estate

The native forest estate should be maintained:
Statewide

- At close to the current area as a surrogate for biodiversity and to maintain the systems (soil, water etc) on which biodiversity depends. This is covered already by the Permanent Native Forest Estate Policy (PNFEP).
- So that threatened communities are maintained or enhanced and as surrogates for biodiversity and to maintain the systems on which biodiversity depends. This is also covered already by the PNFEP.

Bioregional

- So that regional areas of all communities are maintained as surrogates for biodiversity and to maintain the systems on which biodiversity depends. This is currently only partly covered by the PNFEP.
- So that the current pattern of composition, structure, age and health of forest is maintained over time for biodiversity conservation. The composition, age class, structure and health of forest is currently monitored but there is no commitment to maintaining a certain pattern. This should be included in the PFEP.
- So that the extent of native vegetation loss since European settlement does not approach 70% across a bioregion in order to ensure that landscape scale systems do not collapse thereby increasing threatened biodiversity.

Species

- So that the number of threatened species decreases. The maintenance and recovery of healthy populations of forest-associated species is an important component of sustainable forest management. Monitoring change in the risk status designated for forest-associated species may also provide information on the quality and quantity of the habitat for these species.
- So that the status of forest-associated species is maintained. Some forest-associated species rely on particular characteristics of their habitat (e.g. stand age, forest structure, ecological processes, stand composition) for their survival and reproduction. Population levels of such species are often monitored to indicate the status of other species that are associated with similar habitat conditions. The selection of forest-associated indicator species should include species that are 1) from a variety of forest habitat types; 2) from different taxonomic groups (e.g., mammals, birds, amphibians, and reptiles) because each of these groups responds differently to stress; and 3) part of a long-term monitoring program.
- So that the distribution of a species can expand, decrease, or spatially shift due to climatic fluctuations or other factors. Tracking the distributions of selected forest associated species provides additional information to assess the state of forest biodiversity.
- To minimize effects of invasive alien species which are a significant threat to biodiversity. Alien species typically have no natural enemies to suppress them in
their newly invaded areas. They may displace native species by out competing them for resources or through browsing, parasitism, or disease, leading to the reduction or eventual elimination of native species or populations of species. Monitoring the number and extent of alien species provides a measure of their threat to biodiversity conservation. As alien invasion can also occur at a genetic level, through pollen dispersal, hybridisation and introgression, the off-site impacts of founding exotic populations (i.e. self-established or agricultural species) should also be considered.

**Genetic diversity**

- To retain genetic diversity at a local and landscape scale. It is important to buffer species and communities against abiotic and biotic environmental threats and change and maintain evolutionary processes. Geographically or ecologically outlying populations are of particular significance due to their divergence through drift or adaptation to atypical environments. Genetic diversity at all spatial scales is important for the adaptive response to climate change.
- To maintain individuals or populations which are remnants following human land clearing. This is because they represent relics of broader pre-European distributions and may be living in different environments to the rest of the species. These populations can represent valuable gene-banks for restoration projects and strongholds from which native communities may re-establish. Due to their fragmented nature, increasing levels of inbreeding may mean seed quality is often low and needs to be considered in their regenerative capacity and population viability.
- To maintain natural levels of genetic diversity and patterns of differentiation in forest tree species and species complexes to maintain genetic resources and their long-term evolutionary potential.

**Water**

- To retain aquatic habitats, including retaining habitat diversity, water quality and environmental flows so that their ecosystem values (including their biotic communities and biophysical characteristics) are maintained within the range of natural variation over time.

**Fragmentation**

- To retain forest stand structural complexity, spatial complexity of habitats (diversity, size and spatial arrangement of habitat patches) and connectivity of habitats across bioregions.

**Remnants**

- To retain remnant vegetation within the landscape where important for maintaining regional biodiversity.
Panel considerations and recommendations

The panel recommends a secondary objective and a series of sub-objectives (desired outcomes, in table 6.1) that can be used to refine existing tools, or develop new ones, to improve the definition and measurement of progress towards meeting the primary objective for biodiversity in areas covered by the forest practices system.

The proposed secondary objective is:

To complement the existing CAR reserve system by applying measures (taking a risk spreading approach and ensuring consistency with effective fire management, silvicultural practice and safety requirements) to:

- maintain an extensive and permanent native forest estate and avoid or minimise any forest loss
- maintain forest stand structural complexity, spatial complexity of habitats (diversity, size and spatial arrangement of habitat patches) and connectivity of habitats
- maintain or improve the conservation status of forest species
- maintain or improve the health of native habitats
- maintain the resilience of freshwater ecosystems within the range of natural variation over time
- maintain natural levels of genetic diversity and patterns of differentiation in species
- maintain capacity for adaptability of the elements of biodiversity in the face of climate change.

Table 6.1 provides the measurable sub-objectives, a summary of why they are useful, the scale at which they apply and the status of any current delivery mechanisms (e.g. policies, Forest Practices Code provisions) to assist with achieving the secondary objective. The proposed performance indicators and the timing of reporting to assist with monitoring of these objectives are also summarised in table 6.1.
Table 6.1 Secondary and measurable objectives (outcomes required to meet the primary objective for biodiversity conservation via the forest practices system), status of actions and proposed performance indicators (a measure that indicates the degree to which the sub-objective has been met)

This table includes recommendations for secondary and measurable objectives. The panel further recommends that quantification of them be linked to Forest Practices Authority (FPA) performance indicators for biodiversity in their annual report or State of Forest reports as appropriate.

The panel did not have the resources and time to finalise several of the secondary objectives and measurable objectives and these require further development and consultation by the FPA. These are identified accordingly.

*1 not currently covered by the forest practices system

*2 scales—statewide, bioregions (IBRA), Planning Context Unit (PCU) or CFEV drainage basins, and Coupe Context Unit

*3 requires further development and consultation

<table>
<thead>
<tr>
<th>Secondary objective</th>
<th>Sub-objective (measurable objective)</th>
<th>Justification and key bio values captured by sub-objective</th>
<th>Scale of application</th>
<th>Status of actions (policy, Forest Practices Code provisions) and recommendations</th>
<th>Performance indicators</th>
<th>Frequency of monitoring required and reporting method</th>
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<tbody>
<tr>
<td>Maintain an extensive and permanent native forest estate and avoid or minimise any forest loss</td>
<td>Native forest: retention of a minimum of at least 95% of 1996 CRA area</td>
<td>As surrogate for biodiversity and to maintain essential land and water systems</td>
<td>Statewide (CAR and off-reserve)</td>
<td>Part of PNFE (see attachment 1)</td>
<td>Statewide area of native forest/1996 statewide area of native forest</td>
<td>Annual FPA annual report</td>
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<td></td>
<td>*1Maintain forest areas so that a 50% loss since 1750 on a bioregional basis is not approached. In those areas where this is being approached or has already been</td>
<td>To ensure that biodiversity is not threatened and to maintain landscape system functions. Currently two</td>
<td>Bioregion</td>
<td>No current action other than a cessation of forest clearance on King Island implemented through the forest practices system.</td>
<td>Native forest area by bioregion/pre 1750 area</td>
<td>Annual FPA annual report</td>
</tr>
<tr>
<td>Secondary objective</td>
<td>Sub-objective (measurable objective)</td>
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<td>exceeded maintain all existing viable forest areas.</td>
<td>bioregions (Northern Midlands and Woolnorth) are near 70% loss of pre-European forest cover. (See Attachment 2)</td>
<td>statewide</td>
<td>Part of PNFEP Duty of Care policy in <em>Forest Practices Code</em> (page 52) Code provisions <em>Forest Botany Manual</em></td>
<td>Statewide and bioregion area of each threatened forest community/1996 statewide area</td>
<td>Annual FPA annual report</td>
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<tr>
<td>Threatened forest communities: maintain 100% or enhance condition of all viable forest.</td>
<td>Threatened elements of biodiversity should have the highest priority as surrogate for biodiversity and to maintain essential land and water systems</td>
<td>bioregion PCU CCU</td>
<td></td>
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<td>*Non-threatened forest communities: maintain whichever is the higher of 75% of the 1996 CRA area or a minimum of 2000 hectares in each IBRA bioregion (unless not of bioregional significance.</td>
<td>Non-threatened forest communities Some forest communities approaching 60 - 80% loss of pre 1750 area and 30% since 1996 (see Attachment 1).</td>
<td>bioregion</td>
<td>Partly covered in PNFEP but this only flags review of mapping.</td>
<td>Forest community area by bioregion/1996 area by bioregion Forest community area by bioregion</td>
<td>Annual FPA annual report</td>
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<td>Maintain priority vegetation communities that are locally important for conservation.</td>
<td>Maintain priority vegetation communities that are locally important for conservation.</td>
<td>Rainforest, rocky knolls, sphagnum, riparian communities etc.</td>
<td>All</td>
<td>Botany manuals Code provisions Duty of Care policy</td>
<td>100% retention at Planning Context Unit</td>
<td>Annual FPA annual report</td>
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<tr>
<td>Maintain forest stand structural complexity, spatial complexity of habitats (diversity, size and spatial arrangement of habitat patches) and connectivity of habitats across bioregions.</td>
<td>Maintain forest stand structural complexity, spatial complexity of habitats (diversity, size and spatial arrangement of habitat patches) and connectivity of habitats across bioregions.</td>
<td>To provide habitat, as surrogate for biodiversity and to maintain essential land and water systems. Biodiversity generally Water Old growth Hollow dependent species Coarse woody debris</td>
<td>Statewide Bioregional</td>
<td>There is no current policy commitment for this. Distribution of forest stages for each forest community is already monitored as part of the RFA, SOF, Montreal reporting at a statewide level. It should also be undertaken at a bioregional level. The 5 yearly monitoring period used for the RFA is an appropriate time frame for monitoring this indicator. Recommend that a review of current forest structure by IBRA region is undertaken and that forest structure is monitored.</td>
<td>Forest community growth stage area at a statewide level/1996 area: Forest community growth stage area at a bioregional level/1996 area (See Attachment 3)</td>
<td>5 yearly RFA report</td>
</tr>
<tr>
<td>Maintain at least 30% of native vegetation with a focus on trees with mature and old - growth elements currently</td>
<td>Maintain at least 30% of native vegetation with a focus on trees with mature and old - growth elements currently</td>
<td>To provide habitat for biodiversity (threshold habitat cover levels), as surrogate for</td>
<td>PCU CCU</td>
<td>None apart from current code provisions which contribute toward the 30% (WHC, WHS, SSR).</td>
<td>Minimum of 30% retained at PCU and coupe level. A higher proportion may be required depending on</td>
<td>Annual FPA audit (See Attachment 3)</td>
</tr>
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<td>Secondary objective (measurable objective)</td>
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| available at all four spatial scales.     | biodiversity and to maintain essential land and water systems.  
Biodiversity generally  
Water  
Old growth  
Hollow dependent species  
Coarse woody debris | All scales.  
To ensure populations of coarse woody debris-dependent species are maintained across their range. The coarse woody debris type with the greatest potential to harbour species of conservation value is derived from large old trees; hence the key to sustaining such species | None specifically for conservation of this habitat.  
Any new provisions need to note that aggregated retention preferred for wet forest particularly in areas where the proportion of old growth is currently low. Fuel wood harvesting prescriptions are required in areas where aggregated retention does not occur. CRC milestone (2–3 years away). | Indicator needs development. Further landscape level studies are required to determine required threshold levels of spatial arrangement of mature forest. | 5 yearly |

*1 Ensure a continued supply of coarse woody debris (CWD) appropriate to the forest type by maintaining the ecological processes that give rise to and replenish CWD habitat.
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<td>species in the production forest landscape is sustaining large old trees at appropriate spatial and temporal scales.</td>
<td>ns (beyond the normal formal and informal reserve network), catering for the more demanding species for the long term may require maintaining old trees at fine spatial scales (i.e. down to the level of individual coupes).</td>
<td></td>
<td>Indicator needs to be developed from Tasmania specific information on fauna requirements.</td>
<td>Annually</td>
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<td>*3</td>
<td>Ensure a continued supply of hollow-bearing trees at multiple spatial scales.</td>
<td>To ensure populations of hollow-dependent species are maintained across their range.</td>
<td>PCU and CCU</td>
<td>Code provisions for CCU level (being revised to take into account new information). FPA, Fauna Technical Note 7.</td>
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<td>Maintain remnant vegetation within the landscape where important for maintaining regional biodiversity.</td>
<td>To provide stepping stones (islands of structural diversity) for the movement of fauna, particularly where vitally important for maintaining regional biodiversity. Such areas can function as nuclei of older forest, surviving from the current stand, that will become core areas for mature forest dependent biodiversity as the surrounding forest grows. Species in forest remnants may be adapted to environments that were historically different and they may have value as a genetic resource.</td>
<td>Bioregional PCU</td>
<td>Code provision Botany manuals Need for revision.</td>
<td>Remnants have been identified in PCU plans and retained.</td>
<td>Annually</td>
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<td>*1 *2 Disperse harvesting in space and time such that adjacent areas of native forest or plantation are not harvested until the dominant height of the regeneration of any adjoining coupe is at least 5 m (or adjoining coupes should be separated in time by at least 3 years) and an acceptable stocking is achieved. In addition, aggregates of more than 3 coupes should be dispersed over at least a 10 year period.</td>
<td>Dispersing harvesting in space and time will reduce any localised impact on natural and cultural values.</td>
<td>Bioregion and PCU</td>
<td>Code provisions need revision</td>
<td>Coupes have been dispersed in time and space</td>
<td>Annual 3 year plan audit</td>
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<td>*1 *2 Ensure that coupe size and silviculture are adequate for understorey recolonisation within harvest cycle.</td>
<td>A mosaic of forest at different stages of growth and development is preferable to large areas of uniform age and habitat.</td>
<td>PCU and CCU</td>
<td>Code provisions need revision Guidelines needed</td>
<td>Review needed to establish optimum coupe size appropriate for different forest types and silviculture.</td>
<td>Annual</td>
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<td>*1 Avoid isolating patches of native forest, by retaining native forest corridors in areas</td>
<td>Connectivity will influence processes such as population persistence and</td>
<td>All</td>
<td>Biodiversity Spines (FT internal policy) Recommend that Biodiversity Spines be</td>
<td>Biodiversity spines have been established and mapped.</td>
<td>Annual—3 year plan audit</td>
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<td>managed intensively for wood production (e.g. plantations). Ensure cutting cycles in these corridors maintain biodiversity through structural diversity and mature forest elements.</td>
<td>recovery after disturbance, the exchange of genes and individuals and the occupancy of habitat patches. Some species disperse randomly, hence large areas of appropriate vegetation need to be retained particularly in areas where the matrix is dominated by unsuitable habitat.</td>
<td><em>2</em></td>
<td>applied where appropriate across all tenures.</td>
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<td><em>Retain strips of uncut mature forest to provide landscape connectivity for species not readily able to disperse across harvested areas.</em></td>
<td>Important for connectivity (as above). In particular such unlogged strips are required to increase the habitat suitability of areas used for wood production and to aid movement of some species.</td>
<td>All</td>
<td>Wildlife Habitat Strips (WHS). Section D3.2, page 61 of the code and associated Tech Note. Panel recommend that FPA review the provisions, implementation and management of WHS.</td>
<td>WHS have been established, mapped and monitored.</td>
<td>Annual FPA annual report.</td>
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<td><em>Ensure plantation design and management takes account of</em></td>
<td>To assist the maintenance of biodiversity across</td>
<td>PCU and CCU</td>
<td>See draft plantation design guidelines</td>
<td>Biodiversity guidelines have been incorporated in plantation planning</td>
<td>5 yearly</td>
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<td>Secondary objective</td>
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<td>biodiversity conservation principles.</td>
<td>its range.</td>
<td></td>
<td></td>
<td>and management.</td>
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<td>Maintain or improve the status of forest species</td>
<td>Maintain potential habitat of threatened species and species of high conservation significance.</td>
<td>To assist the maintenance of populations of threatened species and RFA priority species across their range.</td>
<td>All</td>
<td>Significant habitat framework. Already monitored as part of the RFA. However there are shortcomings in this area. Difficulty completing recovery plans and implementation of recovery actions is hampering progress. More emphasis needs to be given to implementing recovery actions identified in listing statements. Code provisions delivered via the Threatened Fauna Adviser.</td>
<td>Number of species in different threat classes. Species range and potential habitat maintained or improved.</td>
<td>Annually</td>
</tr>
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<td>Ensure that other species do not become threatened.</td>
<td></td>
<td>All</td>
<td>Habitat policies Code provisions RFA set of indicator species.</td>
<td>No further listing of species where forest practices are an issue. The panel recommend a review of current indicator species, to include freshwater and other species in a monitoring program.</td>
<td></td>
<td>5 yearly, RFA</td>
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<td>Sub-objective</td>
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<td>Maintain or improve the health of native habitats</td>
<td><strong>Minimise the impact of introduced organisms on native habitats</strong></td>
<td>All scales</td>
<td>Some code provisions Forest Botany Manual Recommend other statewide mechanisms are flagged in the code (e.g. Tasmanian Weed Strategy, Hygiene guidelines).</td>
<td>Area of occurrence of diseases, pests and ecological weeds. Establish a statewide health surveillance program.</td>
<td>Annual/5 yearly</td>
<td></td>
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<td>Maintain the resilience of freshwater ecosystems at multiple spatial scales.</td>
<td>Maintain aquatic habitats, including retaining habitat diversity, water quality and environmental flows so that their ecosystem values (including their biotic communities and biophysical characteristics) are maintained within the range of natural variation over time. Surrogate for aquatic biodiversity Maintains essential aquatic systems</td>
<td>All scales</td>
<td>CFEV catchments Ensure regional/property plans and FPP prescriptions protect HCV CFEV ecosystem units in conjunction with water management plans where present. Soil and Water provisions of the code including Class 4 stream guidelines. Support development of, 1) tools such as PIRI-Tas and WAFL being developed by DPIW, CSIRO (PIRI-Tas) and DPIW, FPA (WAFL) (may be useful at the</td>
<td>Trend in proportion of audited coupes with accelerated bank and bed erosion (currently not regularly audited). Area and proportion of forested part of major CFEV catchments clearfelled and/or converted in any year. Area and proportion of forested part of CFEV HCV sub-catchments harvested (clearfelled and/or converted) in any year. These catchments need to be</td>
<td>Annual reporting on % and 5 yearly reporting on catchment areas (see Attachment 4).</td>
<td></td>
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<td>Manage riparian zones so that ecosystem processes for aquatic systems are maintained or enhanced.</td>
<td>Surrogate for riparian biodiversity Maintains essential in-stream and riparian systems.</td>
<td>All scales</td>
<td>Soil and water provisions of code. Stream-side reserves on Class 1,2,3 watercourses are implemented. MEZ on class 4 streams</td>
<td>Steam-side reserves on Class 1,2,3 watercourses are implemented. Other indicators that arise from new tools being developed. An effectiveness monitoring system is in place.</td>
<td>Annual</td>
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<td>bioregion and PCU scale), 2) draft guidelines for drainage depressions and 3) draft guidelines for karst depressions. Support the development of a long-term water and sediment quality monitoring program, appropriate to the biophysical environment, to assess the effectiveness of prescribed actions. Support the development of catchment harvesting thresholds and a system to map and monitor change. Recommend a <em>Forest Practices Code</em> provision to maintain undisturbed levels and patterns of stream flow. The provision should be formally reviewed and updated.</td>
<td>identified and integrated into FPA resources. Number of breaches of chemical codes of practice.</td>
<td></td>
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<tr>
<td>Secondary objective</td>
<td>Sub-objective (measurable objective)</td>
<td>Justification and key bio values captured by sub-objective</td>
<td>Scale of application</td>
<td>Status of actions (policy, Forest Practices Code provisions) and recommendations</td>
<td>Performance indicators</td>
<td>Frequency of monitoring required and reporting method</td>
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<tr>
<td></td>
<td></td>
<td>Alien species and unplanned escaped fires may alter inputs to streams and affect exports from streams.</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>*1Maintain a proportion of class 4 stream catchments within each CFEV catchment.</td>
<td>PCU CCU</td>
<td>Proportion of high conservation CFEV class 4 sub-catchments harvested in any one year.</td>
<td>Proportion of high conservation CFEV class 4 sub-catchments harvested in any one year.</td>
<td>Annually</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Maintain lateral connectivity between riparian zones with other habitats.</td>
<td></td>
<td></td>
<td>Proportion of riparian zone adjacent to a) unlogged native vegetation; b) native</td>
<td></td>
</tr>
</tbody>
</table>

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Review of the biodiversity provisions of the Tasmanian Forest Practices Code
Report to the FPA  April 2009
<table>
<thead>
<tr>
<th>Secondary objective</th>
<th>Sub-objective (measurable objective)</th>
<th>Justification and key bio values captured by sub-objective</th>
<th>Scale of application</th>
<th>Status of actions (policy, <em>Forest Practices Code</em> provisions) and recommendations</th>
<th>Performance indicators</th>
<th>Frequency of monitoring required and reporting method</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>1</em>In situ conservation of genetic diversity across the full geographic and ecological (abiotic and biotic) range of the species and species complexes</td>
<td>Need to maintain long-term adaptability and evolutionary flexibility of species. Particularly important to ensure</td>
<td>All</td>
<td>Some code provisions Develop gene pool management plans for key forest tree species to assist with decision-making.</td>
<td>Reserves (informal or formal) capture the full range of ecological, genetic and geographic diversity of the species and biotic associations Measures in place to buffer risks to genetic</td>
<td>5 yearly</td>
<td></td>
</tr>
<tr>
<td>Maintain longitudinal connectivity within river networks.</td>
<td>Allow up and downstream dispersal by in-stream fauna.</td>
<td>Identify high priority (risk) stream barriers and restore passage at them.</td>
<td>Number of culverts and other in-stream barriers which may inhibit the passage of in-stream fauna. Proportion of class 3, 2 and 1 stream with intact native riparian vegetation. Proportion of class 4 streams with intact native riparian vegetation.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ensure that refuges for threatened species and narrow-range endemics are retained.</td>
<td>Threatened elements of aquatic biodiversity</td>
<td>Identify key refuges including HCV CFEV ecosystem units.</td>
<td>Proportion of designated habitat retained.</td>
<td></td>
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</tr>
<tr>
<td>Maintain natural levels of genetic diversity and patterns of differentiation in forest species and species complexes to ensure their long-term</td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Secondary objective</td>
<td>Sub-objective (measurable objective)</td>
<td>Justification and key bio values captured by sub-objective</td>
<td>Scale of application</td>
<td>Status of actions (policy, <em>Forest Practices Code</em> provisions) and recommendations</td>
<td>Performance indicators</td>
<td>Frequency of monitoring required and reporting method</td>
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</tr>
<tr>
<td>evolutionary potential, retain natural values and retain genetic resources for human use.</td>
<td></td>
<td>resilience to climate change. Forest trees particularly eucalypts are foundation species on which other organisms depend and interact. They are also the main components harvested in native forests. Forestry operations through seed transfer, harvesting and regeneration, and off-site gene flow can modify genetic resources of these forest trees. Tasmanian eucalypt taxa are often not well differentiated and in some cases a finer scale approach may be needed.</td>
<td></td>
<td></td>
<td>structures.</td>
<td></td>
</tr>
<tr>
<td>Improve conservation status of threatened species and key</td>
<td>Avoid extinction of</td>
<td>CCU</td>
<td>Code provisions and legislation for in situ</td>
<td>The proportion of the range of threatened</td>
<td>5 yearly</td>
<td></td>
</tr>
<tr>
<td>Secondary objective</td>
<td>Sub-objective (measurable objective)</td>
<td>Justification and key bio values captured by sub-objective</td>
<td>Scale of application</td>
<td>Status of actions (policy, Forest Practices Code provisions) and recommendations</td>
<td>Performance indicators</td>
<td>Frequency of monitoring required and reporting method</td>
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</tr>
<tr>
<td></td>
<td>species or threatened components of gene pools..</td>
<td>elements of the species gene pools.</td>
<td>statewide</td>
<td>conservation of threatened taxa. Need extension to threatened components of genetic diversity within species. Threatened elements of high conservation value within forest tree gene pools need identification and in – situ protection. Restore degraded habitats or populations and implement ex situ plantings where necessary.</td>
<td>species in reserves. Proportion with management plans. Proportion of threatened populations of forest tree species of conservation value which are in reserves or have conservation measures in place. Proportion of vulnerable components of the forest tree genetic resource in ex situ plantings.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Minimise genetic effects of introduced organisms on native gene pools</td>
<td>Maintain integrity of native gene pools and natural values</td>
<td>Species PSU</td>
<td>E. nitens is exotic to Tasmania and hybridisation with native eucalypt species is occurring. Flora Technical note in progress. Assess risks and develop management strategies where necessary (eg buffer zones, weeding, deploy alien species elsewhere). Risks associated with non-native provenances of E. globulus and other introduced eucalypts species and populations need to be</td>
<td>Proportion of Forest Practices Plans reporting risk assessments, number of cases where strategies to minimise risk implemented, absence of hybrids establishing and reaching reproductive maturity in native vegetation.</td>
<td>5 yearly</td>
</tr>
<tr>
<td>Secondary objective</td>
<td>Sub-objective (measurable objective)</td>
<td>Justification and key bio values captured by sub-objective</td>
<td>Scale of application</td>
<td>Status of actions (policy, <em>Forest Practices Code</em> provisions) and recommendations</td>
<td>Performance indicators</td>
<td>Frequency of monitoring required and reporting method</td>
</tr>
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<td>---------------------------------------------------</td>
</tr>
<tr>
<td>Maintain capacity for adaptability of the elements of biodiversity in the face of climate change.</td>
<td>Manage landscapes for greater resilience to cope with increased average temperatures and changed water and fire regimes</td>
<td>Adaptation of forest trees and associated organisms will depend factors such as (i) <em>in situ</em> genetic diversity and gene flow within and between species (ii) ability to disperse to more suitable habitat. Climate change is likely to see an upslope shift in species ranges and patterns of adaptation. The drier, lower, eastern portion of the island is believed to have been a major forest refuge during glacial periods. Eucalypt endemism and genetic</td>
<td>All</td>
<td>assessed. Risk from of ornamental and other plantings of eucalypts and other genera currently unclear</td>
<td>Number of forest taxa reported to be adversely affected by climate change</td>
<td>5 yearly</td>
</tr>
</tbody>
</table>

*Forest Practices Code*
<table>
<thead>
<tr>
<th>Secondary objective</th>
<th>Sub-objective (measurable objective)</th>
<th>Justification and key bio values captured by sub-objective</th>
<th>Scale of application</th>
<th>Status of actions (policy, Forest Practices Code provisions) and recommendations</th>
<th>Performance indicators</th>
<th>Frequency of monitoring required and reporting method</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>diversity is higher in this area which is likely to harbour important biodiversity elements for future environments. The maintenance of migration routes for forest species through habitat connectivity is an important consideration. The lowland coastal forests of the island are an important interface between terrestrial and marine ecosystems, that requires particular attention.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Attachment 1 to table 6.1

Non-threatened forest communities—must be maintained at a level no less than 75% of the 1996 CRA native forest area of each community in each IBRA bioregion or, a minimum of 2000 hectares in an IBRA bioregion (whichever is the higher) unless not of bioregional significance (OR a review of mapping and conservation status determines that the exceeding of the threshold is not of conservation significance) (table 6.1)

1. Background to Tasmania’s Permanent Native Forest Estate Policy

The Tasmanian Permanent Forest Estate Policy was established through the Tasmanian Regional Forest Agreement, and revised in November 2005. The policy aims to maintain a Permanent Native Forest Estate that comprises areas of native forest managed on a sustainable basis (for all its various conservation, production and amenity values) by placing limits on conversion of native forest communities to other land uses, including plantations. The policy does not restrict the harvest of native forest types where the silvicultural system ensures successful regeneration and maintenance of that forest community.

The Permanent Native Forest Estate Policy is given effect through the FPA’s consideration of applications for Forest Practices Plans under the Forest Practices Act 1985.

The Permanent Native Forest Estate Policy requires the following levels of retention of native forest in Tasmania:

- **Statewide extent of native forest**: 95% of the estimated 1996 area of native forest is to be maintained
- **Threatened (Rare, Vulnerable and Endangered) forest communities** are to be maintained, except where conversion will not substantially detract from the conservation of that forest community or conservation values within the immediate area
- **Non-threatened forest communities** (in order to ensure that no non-threatened forest community becomes threatened) the policy requires that the mapping and conservation status of any non-threatened forest community will be reviewed, to assess its bioregional significance, if the rate of conversion is likely to result in the area of a forest community falling below:
  - 75% of the estimated 1996 area of that community in an IBRA bioregion or
  - a minimum of 2000 hectares in an IBRA bioregion.

Otherwise non-threatened forest communities must be maintained at a level no less than 50% of the 1996 area of the community in each IBRA bioregion.
2. Analyses of the extent and conversion of non-threatened RFA forest communities

The panel has analysed figures on the FPA’s annual report database (as at 2007), and determined that the conservation status of some non-threatened RFA forest communities need to be reviewed in some IBRA4 Bioregions. Based on their estimated extent in 1996 and the amount of conversion between 1996 and 2007 and their estimated extent and the amount of conversion between 1750 and 2007 (see table A below):

- more than 25% of some forest communities have been converted within a bioregion (or conversion is approaching this figure) since 1996; or
- A community has an area of less than 2000 ha within a bioregion (or its area is approaching this figure); or
- the amount of conversion (or forest loss) of the community within a bioregion has exceeded 70% since 1750 (or is approaching this figure).

The table below lists non-threatened forest communities that meet one or more of the above conditions. Some of these communities have been extensively converted to plantation and/or agricultural use.

The analysis took account of some post-RFA reviews of the extent and conservation status of some RFA communities, including a review of *Eucalyptus amygdalina*-dominated communities (undertaken in 2004).

The panel notes that forest communities exceeding or approaching these thresholds (particularly the third threshold) may be considered as meeting the JANIS criteria for threatened community status at the bioregional level.

In addition the panel notes that the dominants of some of these communities (e.g. *E. regnans*) are prime commercial species.

Non-threatened forest communities—should be maintained at a level no less than 75% of the 1996 CRA native forest area of each community in each IBRA bioregion or, a minimum of 2000 hectares in an IBRA bioregion (whichever is the higher) unless not of bioregional significance (as under 4.4.3 below) or a review of mapping and conservation status determines that the exceeding of the threshold is not of conservation significance.
Table A - Non-threatened forest communities of concern with regard to Permanent Native Forest Estate Policy requirements

The following data was obtained from FPA annual reports and from pre-1750 estimates used by CARSAG. RFA ‘xxx’ indicates communities where mapping anomalies have contributed to high proportional decreases in extent within a bioregion.

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>E. obliqua dry</td>
<td>Ben Lomond</td>
<td>39,521</td>
<td>29,573</td>
<td>25</td>
<td>8,236</td>
<td>21,337</td>
<td>72</td>
<td>28</td>
<td>46</td>
</tr>
<tr>
<td>E. regnans</td>
<td>Ben Lomond</td>
<td>41,580</td>
<td>27,517</td>
<td>34</td>
<td>9,108</td>
<td>18,409</td>
<td>67</td>
<td>33</td>
<td>56</td>
</tr>
<tr>
<td>E. rodneyi</td>
<td>Ben Lomond</td>
<td>40</td>
<td>39</td>
<td>0</td>
<td>77</td>
<td>XXX</td>
<td>XXX</td>
<td>XXX</td>
<td>XXX</td>
</tr>
<tr>
<td>E. viminalis–E. ovata–E. amygdalina–E. obliqua damp</td>
<td>Ben Lomond</td>
<td>5,588</td>
<td>2,091</td>
<td>63</td>
<td>867</td>
<td>1,224</td>
<td>59</td>
<td>41</td>
<td>78</td>
</tr>
<tr>
<td>Acacia melanoxylon on rises</td>
<td>Ben Lomond</td>
<td>76</td>
<td>75</td>
<td>0</td>
<td>24</td>
<td>51</td>
<td>68</td>
<td>32</td>
<td>33</td>
</tr>
<tr>
<td>E. pulchella–E. globulus–E. viminalis grassy/shrubby</td>
<td>Central Highlands</td>
<td>4,326</td>
<td>1,750</td>
<td>60</td>
<td>51</td>
<td>1,699</td>
<td>97</td>
<td>3</td>
<td>61</td>
</tr>
<tr>
<td>E. viminalis–E. ovata–E. amygdalina–E. obliqua damp</td>
<td>Central Highlands</td>
<td>771</td>
<td>1,093</td>
<td>XXX</td>
<td>91</td>
<td>1,002</td>
<td>92</td>
<td>8</td>
<td>XXX</td>
</tr>
<tr>
<td>E. viminalis–E. ovata–E. amygdalina–E. obliqua damp</td>
<td>Freycinet</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>225</td>
<td>XXX</td>
<td>XXX</td>
<td>XXX</td>
<td>XXX</td>
</tr>
<tr>
<td>E. regnans</td>
<td>Freycinet</td>
<td>3,385</td>
<td>3,280</td>
<td>3</td>
<td>771</td>
<td>2,509</td>
<td>76</td>
<td>24</td>
<td>26</td>
</tr>
</tbody>
</table>
Attachment 2 to table 6.1

‘Maintain forest areas so that a 50% loss since 1750 on a bioregional basis is not approached. In those areas where this is being approached or has already been exceeded maintain all existing viable forest areas.’ (Table 6.1)

In two bioregions (Midlands and Woolnorth) the loss has exceeded 50% and is approaching 70% (Table B).

Table B - Extent of forest loss in each of the IBRA 4 bioregions for the period 1750–2007.

<table>
<thead>
<tr>
<th>Bioregion</th>
<th>1750 area</th>
<th>2007 area</th>
<th>% loss since 1750</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Lomond</td>
<td>740556</td>
<td>461477</td>
<td>38</td>
</tr>
<tr>
<td>Central Highlands</td>
<td>699178</td>
<td>556361</td>
<td>20</td>
</tr>
<tr>
<td>D’Entrecasteaux</td>
<td>324916</td>
<td>248851</td>
<td>23</td>
</tr>
<tr>
<td>Freycinet</td>
<td>588111</td>
<td>435055</td>
<td>26</td>
</tr>
<tr>
<td>Furneaux</td>
<td>52334</td>
<td>30341</td>
<td>42</td>
</tr>
<tr>
<td>Midlands</td>
<td>739623</td>
<td>238379</td>
<td>68</td>
</tr>
<tr>
<td>Woolnorth</td>
<td>847021</td>
<td>340539</td>
<td>60</td>
</tr>
<tr>
<td>West and South West</td>
<td>804141</td>
<td>770618</td>
<td>4</td>
</tr>
<tr>
<td>STATE</td>
<td>4795880</td>
<td>3081620</td>
<td>36</td>
</tr>
</tbody>
</table>

The two bioregions Ben Lomond and Woolnorth show significant forest loss in the 10 years since 1996 (Table C).
Table C - Extent of forest loss in each of the IBRA 4 bioregions for the period 1750–1996, the period 1996–2007 and the period 1750–2007.

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Ben Lomond</td>
<td>740556</td>
<td>500654</td>
<td>29</td>
<td>71</td>
<td>461477</td>
<td>39177</td>
<td>8</td>
<td>62</td>
<td>38</td>
</tr>
<tr>
<td>Central Highlands</td>
<td>699178</td>
<td>572175</td>
<td>18</td>
<td>82</td>
<td>556361</td>
<td>15814</td>
<td>3</td>
<td>80</td>
<td>20</td>
</tr>
<tr>
<td>D'Entrecasteaux</td>
<td>324916</td>
<td>261593</td>
<td>19</td>
<td>81</td>
<td>248851</td>
<td>12742</td>
<td>5</td>
<td>77</td>
<td>23</td>
</tr>
<tr>
<td>Freycinet</td>
<td>588111</td>
<td>444127</td>
<td>24</td>
<td>76</td>
<td>435055</td>
<td>9072</td>
<td>2</td>
<td>74</td>
<td>26</td>
</tr>
<tr>
<td>Furneaux</td>
<td>52334</td>
<td>30405</td>
<td>42</td>
<td>58</td>
<td>30341</td>
<td>63</td>
<td>0</td>
<td>58</td>
<td>42</td>
</tr>
<tr>
<td>Midlands</td>
<td>739623</td>
<td>244853</td>
<td>67</td>
<td>33</td>
<td>238379</td>
<td>6474</td>
<td>3</td>
<td>32</td>
<td>68</td>
</tr>
<tr>
<td>Woolnorth</td>
<td>847021</td>
<td>375839</td>
<td>56</td>
<td>44</td>
<td>340539</td>
<td>35303</td>
<td>10</td>
<td>40</td>
<td>60</td>
</tr>
<tr>
<td>West and South West</td>
<td>804141</td>
<td>776052</td>
<td>3</td>
<td>97</td>
<td>770618</td>
<td>5434</td>
<td>1</td>
<td>96</td>
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<tr>
<td>STATE</td>
<td>4795880</td>
<td>3187430</td>
<td>34</td>
<td>66</td>
<td>3081620</td>
<td>124078</td>
<td>4</td>
<td>64</td>
<td>36</td>
</tr>
</tbody>
</table>

Considerable work has been undertaken in the last decade to attempt to understand the relationship between native vegetation and maintenance of biodiversity and ecosystem functions. James and Saunders (2001) summarised a review of literature, discussions with scientific experts and scientific workshops to outline a conceptual framework for developing and implementing terrestrial biodiversity targets in the Murray-Darling Basin.

The landscape level targets determined were as follows:

*The minimum acceptable* goal for a functioning landscape, providing some services and retention of a moderate proportion of biodiversity, is 30% native vegetation cover at the landscape level. ...This level represents a critical threshold below which major deleterious and irreversible changes occur. *The recommended* landscape level cover of native vegetation is somewhere between 30% and 70%.
Attachment 3 to table 6.1

A comparison of forest growth stage by IBRA4 bioregion for 1996 and 2006

*Regen* = forest <20 years old, *Regrowth* = forest >21 years old, *Mature* = forest classified as mature (from photographic interpretation (PI) of the vegetation age structure within each IBRA region (Stone, 1998).


![Growth stage by IBRA (1996 & 2006)](image)
Growth stage for WET forest only

Area (ha)

- Regen
- Regrowth
- Mature

IBRA IV

Attachment 4 to table 6.1

Forest cover (plantation and native forest) in CFEV catchments in Tasmania and proportion subject to clearfell and regeneration to native forest or conversion (both agriculture and plantation) or conversion to plantation (softwood and hardwood) only, in last nine years (1999–2000 to 2007–2008) (data from FPA Forest Practices Plan database). A discount factor of 20% was applied to harvest areas indicated on the plans to account for areas left unharvested during the operations for a number of reasons (Scott, 2007).

<table>
<thead>
<tr>
<th>Catchment</th>
<th>Catchment area (ha)</th>
<th>Forested area</th>
<th>Clearfell and regen (ha)</th>
<th>Clearfell and regen (% of forested area)</th>
<th>Clearfell and conversion to plantation (ha)</th>
<th>Clearfell and conversion to plantation (% of forested area)</th>
<th>Clearfell and conversion (ha)</th>
<th>Clearfell and conversion (% of forested area)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arthur</td>
<td>251864.6</td>
<td>81295.5</td>
<td>2700.2</td>
<td>3.32%</td>
<td>8020</td>
<td>9.87%</td>
<td>8268.8</td>
<td>10.17%</td>
</tr>
<tr>
<td>Black-Detention</td>
<td>65638.7</td>
<td>28985</td>
<td>1601.3</td>
<td>5.52%</td>
<td>2103.2</td>
<td>7.26%</td>
<td>2718.8</td>
<td>9.38%</td>
</tr>
<tr>
<td>Blythe</td>
<td>37319.3</td>
<td>16289.9</td>
<td>338.4</td>
<td>2.08%</td>
<td>858</td>
<td>5.27%</td>
<td>903.3</td>
<td>5.55%</td>
</tr>
<tr>
<td>Boobyalla-Tomahawk</td>
<td>64479.7</td>
<td>26153.2</td>
<td>21.6</td>
<td>0.08%</td>
<td>1508.6</td>
<td>5.77%</td>
<td>1709</td>
<td>6.53%</td>
</tr>
<tr>
<td>Brumbys-Lake</td>
<td>148247.4</td>
<td>65295.6</td>
<td>112.8</td>
<td>0.17%</td>
<td>359.2</td>
<td>0.55%</td>
<td>680.9</td>
<td>1.04%</td>
</tr>
<tr>
<td>Cam</td>
<td>29218.7</td>
<td>7554.5</td>
<td>144.8</td>
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Appendix A
Review of interstate approaches to biodiversity conservation in wood production forests

Introduction
The following is a summary review of the approaches taken to biodiversity conservation in areas subject to production forestry activities in WA, NSW and Victoria.

Legislative and Policy Framework
Overview:

- All states have established Government Business Enterprises or equivalents with responsibility for wood production, and have independent oversight and regulation of forest practices/biodiversity conservation.
- All states have Acts/policies to cover SFM principles and agreements within NFPS, RFAs, and EPBC and to cover particular state needs such as threatened species, old growth and rainforest.
- Not all states have legislated forest practices codes across tenures, but all have some equivalent framework.
- Threatened species legislation is tenure blind in all three states, but operating procedures and regulatory mechanisms differ between public and private.

New South Wales

- *Forest Practices Code for Plantations* (public and private)
- habitat protection rules (Riparian, Old Growth, Rainforest, Ridge and Headwater etc)
- species specific survey and protection for species not covered adequately by habitat protection rules
- planning, reporting and review
- RFAs and other policy/legislation ‘provide for’ rather than ‘protect’ threatened species
- overall NSW approach is generally very prescriptive and regulatory.
State forest

- NSW Biodiversity Strategy is overarching policy document.
- Forestry and National Park Estate Act: picks up NFPS and RFAs
- NSW Forest Agreements
- Integrated Forestry Operations Approvals: A regulatory framework which covers 4 Acts—Fisheries, Forestry, Environmental Protection and Water Quality)
- Species recovery planning process, including legislated threatened communities and processes.

Private forests

Forest Practices Code: There are four regional codes to suit local areas. Also need to consider Native Vegetation Retention Act via Property Vegetation Plan (PVP).

Western Australia

Timber harvesting is regulated in different ways according to tenure.

- Conservation and Land Management Act: State forest
- Forest Products Act: State forest
- Wildlife Conservation Act. All tenures
- Environment Protection Act: All tenures
- Forest Practices Act: plantations on all tenures
- Forest Management Plan developed by DEC, reviewed by EPA signed off by Minister for Environment.: State forest:
- MOU between Department of Environment and Conservation and the Forest Products Commission
- Sandalwood Act: Unallocated Crown Land

Victoria

- Sustainable Forests and Timber Act
- Flora and Fauna Guarantee Act
- Code of Practice for Timber Production 2007, not formally legislated but ratified by Parliament giving it legal standing.
- Environment Protection Authority audits
- Code covers all tenures, but private land is self regulating except for plantations and local government approvals.
Principles and objectives

All states espouse similar principles and objectives, viz:

- Promotion of ESFM through:
  - setting up a CAR reserve system
  - threatened species protection through regulation across tenures
  - habitat protection rules (eg, Riparian, Old Growth, Rainforest, Ridge and Headwater etc)
  - species specific survey and protection for species not covered adequately by habitat protection rules
  - planning, monitoring reporting and review.

- Industry security through:
  - Wood Supply Agreements/Sustained Yields—set annual allocation limits over a 10-20 year period.

- Transparency through:
  - reporting to parliament and the community

Planning and implementation

New South Wales

Strategy

- CAR reserve system (JANIS criteria applied)
- threatened species protection through management by prescription on State forest
- industry security through wood supply agreements etc. biodiversity requirements (habitat surrogate protection rules) taken into account when setting sustainable yield targets.

Planning process and tools

- strict regulatory approach
- three RFAs, four forest agreements
- Integrated Forestry Operations Approvals, IFOA (licence to operate) for State forest deliver management prescriptions for biodiversity, in particular threatened species (five yearly reviews). Deliver RFA requirements for different regions
- species habitat maps used in development of strategic plans (habitat zoning, tactical plans)
- NSW RFA says ‘provide for’ not ‘protect’ threatened species
- move toward Species Management Plans on State forest
• notification of threatened species habitat sent to Department of Environment and Climate Change as map—various activities need Department of Environment and Climate Change approval
• separate Code of Practice for plantations with desk-top assessment only
• Private Code of Practice reviewed and latest draft August 07. Four Codes for different regions
• maps and planning tools for private land provided to landowners
• decision support system for private vegetation plan (PVP) development including Environmental Outcome Assessment Methodology (EOAM) for catchment management authorities
• three sets of planning tools:
  o State forest tools (IFOA, SH Maps, SMPs etc.)
  o Private codes of practice for different regions
  o Clearing regulation tools (EOAM and PVP)
• 20% (SF) and 10% (private) triggers for review.

Development of management prescriptions

• Comprehensive Regional Assessments provided data sets on species localities-habitat modelling
• no formal process involving scientists, no scientific advisory committee
• negotiating obligations with all stakeholders for forest agreements and rules for IFOAs that mitigate harm within practical confines of timber production
• Species Recovery Plans objectives are taken into account
• habitat approach (Habitat Protection Rules) taken at compartment level (200 ha) on State forest
• species specific surveys and then exclusion zones/management prescriptions protection for species not covered by habitat protection rules on State forest
• two tiers to IFOA prescriptions—landscape and regional
• surveys required for sensitive species or where no agreed prescriptions. Most compartments require surveys. Regional ecologists undertake surveys using prescribed methods developed by specialists (Meek 2004)
• no species specific surveys on private land and wording for threatened species management prescriptions are slightly different to State forest IFOA rules
• risk assessment and management for species not on threatened species list
• currently emphasis on fauna and vertebrate fauna in particular
• prescriptions on private land are similar but different to State forest (e.g., SSRs some partial harvest allowed on private). More flexibility, some disturbance allowed.

Implementation

• training of regional ecologists at ‘wildlife schools’
• regional ecologist interprets/checks IFOA conditions for harvest plans, internal review process
• coupe level management actions delivered via Site Specific Operational Plans (SSOPs) on State forest. These harvest plans signed off by Regional Manager
• biodiversity requirements at stand level integrated with silvicultural practice in many operations (e.g. group selection, single tree selection etc.) on State forest
• Property Vegetation Plans on private land (mean 100 ha).

Western Australia

Strategy

• network of reserves and landscape level habitat retention
• management by prescription at coupe level.

Planning processes and tools

• Code of Practice but not covered directly by legislation
• Forest Management Plan
• Three year and Annual Harvest Plans (AHPs) and coupe plans
• desktop assessment to identify Fauna Habitat Zones (FHZs)
• intensive planning, translating Code of Practice guidelines into coupe plans. Different amounts of interactions with DEC for different parts of planning.
• DEC sign off on Annual plans. Signed plan can take three months to develop. Hygiene surveys and threatened flora surveys may delay process, not fauna
• fauna strategic planning system (expert system).

Development of management prescriptions

• prescription development and design undertaken by DEC then delivered to Forest Products Commission (FPC) planner. Planner incorporates into plan
• each coupe signed off by DEC.
Implementation

- pre-operation checklist for coupes
- Code of Practice guidelines are applied in coupes
- hollow retention at stand-level as an example of adaptive change.

Victoria

Strategy

- reserve system
- land allocation at landscape level by DSE taking into account biodiversity requirements
- coupe level management prescriptions.

Planning processes and tools

- Code of Practice
- Management Plans with special management zones by DSE
- Allocation Order supplied to Vicforest planners by DSE
- Timber Release Plans (3 yr plans)
- Coupe Plan or Operators Procedure –endpoint of planning
- private land coupes approved by local government

Development of management prescriptions

- biodiversity taken into account in the development of Allocation Orders
- action statements for threatened species deliver prescriptions for Forest Management Plans
- non statutory consultation process
- coupe level planning within constraints of outcomes of landscape planning
- coupe reconnaissance survey contributes to development of coupe level prescriptions. Carried out by forest officers
- move away from prescriptive approach—habitat tree retention measures are about only measure for biodiversity that is still prescriptive at coupe level
- heavy reliance on GIS data. Slow updating of layers if anything found during coupe surveys
- threatened species dominates at FMP level but not at coupe level
• principles based on Montreal Indicators
• code has expected goals and some prescriptions (e.g., SSRs)
• main biodiversity issues taken into account at land allocation level are threatened species and habitat, habitat trees, stream-side reserves
• advice provided by Arthur Rylah scientists when required.

Implementation

• following coupe reconnaissance survey, the exclusion areas are marked by forest officer
• no training of forest planners who mark the coupe but very clear in plan
• if maps show habitat but coupe survey finds no habitat then can be re-zoned through amendment process.

Research Monitoring and Review

Overview:

• all states are moving away from pre-op surveys to landscape scale monitoring of surrogates
• managers, planners and scientists in Victoria and NSW are uncomfortable with aspects of current processes for development, uptake and application of new information. This was not seen as a problem in WA.

New South Wales

• implementation monitored by Department of Environment and Climate Change in 5% of coupes on State forest (reactive)
• SFNSW internal four tier audit system
• if management prescriptions impact on 20% or more of harvest compartment then review of ‘rule-set’ is triggered. Temporary exclusion zone established and monitoring to test assumptions in species management plan
• effectiveness monitoring undertaken by Forest Science Centre, Department of Primary Industries. Ecologists and scientists make submissions to Department of Environment and Climate Change.
• no formal process to capture results of ‘effectiveness monitoring’ by researchers outside of system
• currently a move toward development of landscape management plans (researchers at State Forest NSW and policy Department of Environment and
Climate Change staff) ensuring consistency in objectives and effectiveness monitoring. Move away from pre-harvest survey approach

- currently no resourcing of adaptive management.

**Western Australia**

- implementation monitoring carried out by FPA, DEC and external informal audit by community (Community Forest Inspections driven by Department of Environment and Conservation, Forest Products Commission and councils)
- examples of direct use of research in management
- strong, active central science division closely integrated with forestry. Formal and informal exchange of ideas. Work closely with silviculturists
- ongoing review of external literature to ensure external research taken into account
- provide advice based on biology/science—compromises for socio-economic decisions made by Minister
- formal presentations and field days
- final prescriptions go to Conservation Commission and public comment
- effectiveness monitoring carried out to see if Fauna Habitat Zones are working
- Forestcheck program ($500 000 per year) will provide some information
- move away from monitoring processes to monitoring outcomes. Identify the most important outcomes for the year.

**Victoria**

- 10% of State forest coupes checked for implementation standard each year
- EPA audit DSE planning and coupe planning
- no Audit on private forest
- if State forest coupe regenerated to standard then coupe handed back to DSE for management, if not then stays with VicForests
- management procedures reviewed annually and results of new research incorporated into Management Plan
- good relationship between Forest Regulation and VicForests
- no effectiveness monitoring, and poor uptake of research outcomes (eg., habitat tree case study)
- code reviewed every 10 years. Management procedures reviewed annually.
Summary Points

New South Wales

- emphasis on biodiversity, in particular threatened vertebrate species at strategic and operational level
- strict regulatory approach on state land. Very prescriptive (desired outcome and prescribed method). Precautionary approach in development of rule-sets
- development of prescriptions/outcomes in isolation. Little practitioner involvement. Issues when trying to gain acceptance.
- low level of compliance and effectiveness monitoring resulting in little adaptive management
- on State forest, current move away from pre-harvest survey then exclusion zone approach to more landscape level approach with consistent objectives, effectiveness monitoring to feed back into licence (IFOA) provisions. More effective all round (e.g. Barking owl)
- regional ecologists are strength of NSW system. They have environmental qualifications and are based in the regions. Weakness is that they are not currently trained in how to implement prescriptions
- negatives—pre-logging surveys, no monitoring of effectiveness and little independent implementation monitoring
- different rules for plantations, no threatened species licence required
- different agency, separate system, planning tools, code of practice for private land and lack of consistency between state and Private
- review mechanism for private system but no formal adaptive management process.

Western Australia

- independent compliance audits by Environment Protection Authority and community groups
- biodiversity requirements taken into account at strategic level. This translates to good agreed landscape level measures and less emphasis on operation level assessment
- at stand-level (coupe level) more emphasis on habitat retention outside of the harvest boundary. Good integration of silviculture goals and biodiversity goals
- close link between practitioners and researchers ensures uptake of research results. Good examples of success in this area (e.g. hollows work)
• overarching commitment to sustainable forest management makes adoption of research outcomes easier
• strength is research and adaptive management in WA.

Victoria

• biodiversity taken into account primarily at strategic level. Decisions on Allocation Orders made on the basis of Biodiversity as well as wood production
• heavy reliance on GIS layers in planning, slow updating of layers may be an issue. Little coupe level planning
• threatened species dominates at Forest Management Plan level but not at coupe level
• code layout is good for biodiversity. Objectives/outcome based, principles based on Montreal Indicators
• coupe assessments carried out by Forest Planners in regions
• no strategic effectiveness monitoring
• no training of forest planners, need for contractor training identified
• significant changes in last 10 years—move away from site based protection to consolidated refuge—move away from pre-logging surveys as recognition that wrong scale for biodiversity. Cost of surveys prohibitive for ‘hard-to-find’ species.

Conclusions:

• all states have separated biodiversity regulation and wood production functions
• Tasmania has the most comprehensively tenure blind forest practices system
• all states are working to use CAR reserves plus landscape surrogates to deal with the general run of biodiversity issues
• all states also recognise value of strategic level approaches to dealing with threatened species above the coupe level using surrogates where possible and only dealing with specific species management issues when necessary
• all states use wording to make it clear that the system is to provide or cater for threatened species, but not protect every individual
• all states are moving to defining clear objectives and outcomes-based monitoring backed by prescriptive/regulatory approach at coupe level only where necessary
• effectiveness monitoring is part of the system in WA, moving that way in NSW, but not happening in Victoria
outside Tasmania, most breaches which cannot be catered for internally are dealt with by ‘name and shame’ approaches

- heavy reliance on good desk-top (GIS/database approaches) which in turn rely on good curation maintenance and updating methods
- everyone is under resourced.

**People Interviewed for Interstate Comparison**

**NSW**

*Dept Environment & Climate Change*

- David Nicholson: Head of Forest Policy regulation
- Shaan Gresser: Snr FPO
- Paul Campbell: Resources and Conservation Unit, FPR (oversees RFA and NSW FAs)

*PNF*

- Paul Massey-Reed: Manager
- Greg Lollback: A/PNF Ops manager Grafton
- Jud Agius: A/manager Policy

*Forests NSW:*

- Andy Stirling: planning manager NF Division (phone)
- Warwick Bratby: Planning manager W Division (phone)
- Jason Moltenkin: Planning manager Planted Forests Division (phone)
- Kris Grounder: auditing policy, MIG, certification

*DPI Science and Research division:*

- Rod Kavanagh, Principle Research Scientist
- Trent Penman, Fire Ecology Research Officer
- Frank Lemckert, Senior Research Scientist
- Brad Law, Senior Research Scientist

**WA**

*DEC: Sustainable Forest Management Division: State forest*
Appendix B
Agreed Procedures (see also background document 2 Wapstra 2007b)

Procedures for the management of threatened species in wood production forests under the forest practices system

Threatened species as listed in the schedules to the Threatened Species Protection Act 1995 will be managed in wood production forests under the forest practices system as follows.

1. Provisions of the Forest Practices Code. The Forest Practices Code prescribes the approach that must be taken with respect to the conservation of flora and fauna, including threatened species. The Forest Practices Code (2000) provides that threatened species must be managed in accordance with procedures agreed between the Forest Practices Board (FPB) and the Director of the National Parks and Wildlife Service (pursuant to s.5 of the National Parks and Wildlife Act 1970). This document sets out those Agreed Procedures.

2. Forest Practices Officers—Forest Practices Officers are responsible for planning and supervising forest operations and are therefore key personnel for the transmission of good management prescriptions to landowners and forest workers. Specialists within the FPB and DPIWE will actively support and facilitate the continuing training of Forest Practices Officers.

3. Endorsed management prescriptions
   3.1 Fauna
      3.1.1 The Threatened Fauna Manual for Production Forests in Tasmania and the Threatened Fauna Adviser Expert System program will be the basis for providing management prescriptions at the operational (coupe) scale.
      3.1.2 The Threatened Fauna Manual for Production Forests in Tasmania and the Threatened Fauna Adviser program will be updated on a regular basis, as new information becomes available. In addition, the manual and program should be reviewed at least every 5 years, to coincide with the 5 yearly reviews under the RFA. The development and review of the manual and program and any updates will be subject to consultation among specialists within FPB and DPIWE, landowners and Forest Practices Officers. The manual and program and any changes will be subject to formal endorsement by the following bodies—the Director of the National Parks and Wildlife Service, the Scientific Advisory Committee established under the Threatened Species Protection Act and the Forest Practices Advisory Council established under the Forest
Practices Act. Any proposed changes will be taken as endorsed by a body where that body has not responded within 3 months to a request for endorsement of a change. New site data that become available to the FPB will be added to the Threatened Fauna Manual (web version) as soon as practical after the site is received (within 2 weeks) to ensure that the most up-to-date information is available to the forest industry. Such alterations to the Threatened Fauna Manual do not require endorsement by the parties listed above. Specialists from DPIWE will supply relevant data on forest-associated threatened fauna, as the data become available.

3.1.3 Forest Practices Officers will consult the Threatened Fauna Manual for Production Forests in Tasmania (or up to date version in GIS format) to determine whether an operational area contains or is likely to contain threatened species.

3.1.4 The Forest Practices Officer will consult the Threatened Fauna Adviser to determine the appropriate endorsed management prescription and will seek further specialist advice from the Senior Zoologist of the FPB where required by the provisions of the Threatened Fauna Adviser.

3.1.5 Where an operational area contains or is likely to contain threatened species, the Forest Practices Officer will notify the Senior Zoologist of the FPB.

3.1.6 Where a Forest Practices Officer seeks further advice for a specific operational area in accordance with the Threatened Fauna Adviser, or where endorsed prescriptions are not appropriate for an operation, the Senior Zoologist of the FPB will consult with the DPIWE to determine an appropriate management prescription. This should involve consultation and negotiation among the specialists, the Forest Practices Officer and the landowner and may involve field inspections or surveys. Advice will be provided within 6 weeks, otherwise the Forest Practices Officer may proceed on the basis of best available information.

3.2 Flora

3.2.1 The Forest Botany Manual will be the basis for providing management prescriptions at the operational scale.

3.2.2 The manuals will be updated on a regular basis, as new information becomes available. In addition, the manuals should be reviewed at least every 5 years, to coincide with the 5 yearly reviews under the RFA. The development and review of the manuals and any updates will be subject to consultation between specialists within FPB and the DPIWE, landowners and Forest Practices Officers. The manuals and any changes will be subject to formal endorsement by
the following bodies—the Director of the National Parks and Wildlife Service, the Scientific Advisory Committee established under the *Threatened Species Protection Act* and the Forest Practices Advisory Council established under the *Forest Practices Act*. Any proposed changes will be taken as endorsed by a body where that body has not responded within 3 months to a request for endorsement of a change.

3.2.3 Forest Practices Officers will consult the manuals to determine whether an operational area contains or is likely to contain threatened species.

3.2.4 Where an area contains or is likely to contain threatened species, the Forest Practices Officer will notify the Senior Botanist of the FPB to seek advice on management for the species.

3.2.5 Endorsed management prescriptions will be developed and issued where possible for individual species or groups of species. ‘Endorsed management prescriptions’ means endorsed by the Director of the National Parks and Wildlife Service, the Scientific Advisory Committee established under the *Threatened Species Protection Act* and the Forest Practices Advisory Council established under the *Forest Practices Act*. When the operation will follow an endorsed management prescription, the Forest Practices Plan can be determined in consultation with the FPB Senior Botanist without further consultation with DPIWE. Details of the site and operation will be provided by the FPB to DPIWE.

3.2.6 Where standard endorsed prescriptions are not available or are not appropriate for an operation, prescriptions will be provided on a case by case basis. The development of these prescriptions should involve consultation and negotiation among the relevant specialists within FPB and DPIWE, the Forest Practices Officer and the landowner and may involve field inspections or surveys. Advice will be provided within 6 weeks, otherwise the Forest Practices Officer may proceed on the basis of best available information.

4 *Forest Practices Plans* - Once the Forest Practices Officer has obtained an endorsed management prescription, the officer will apply the prescription by incorporating appropriate provisions into the Forest Practices Plan for the area. The provisions of a certified Forest Practices Plan are legally binding on all parties who operate within the area covered by the plan for the duration of the plan. A permit for the purposes of s.51 of the *Threatened Species Protection Act* is not required where a Forest Practices Plan has been certified in accordance with these procedures.

5 *Monitoring of compliance*—Compliance with the provisions of the Forest Practices Plan, including provisions that relate to threatened species, will be assessed by a Forest Practices Officer and a report on compliance will be lodged
with the FPB within 30 days of the expiry of the plan, as required under s.25A of the Forest Practices Act. The Board will publish information on compliance in its Annual Report.

6 Independent audit and enforcement—The Board will audit the standard of planning and the degree of compliance with the implementation of the provisions of the Forest Practices Code and Forest Practices Plan, including those that relate to threatened species as part of its annual audit. Results will be published in the Board’s Annual Report, as required under s.4 of the Forest Practices Act. Appropriate action will be taken with respect to instances of poor planning, or failure to comply with the provisions of a plan, in accordance with the provisions of the Forest Practices Act. Potential breaches of the Threatened Species Protection Act will be reported to DPIWE as soon as practicable.

7 Monitoring of efficacy of prescriptions—The Board in association with the DPIWE will monitor the efficacy of management prescriptions through a coordinated approach to research.

8 Research—The FPB and the DPIWE will consult with landowners and other stakeholders to determine the priorities for research into the ecology and management requirements of threatened species. Both bodies will coordinate an approach to secure appropriate levels of funding from all available sources. The forest industry recognises its role in contributing to research into the effects of forest management practices on threatened species. The forest industry will consider the research needs for threatened species as part of its overall contribution to forest practices research under the terms of the forest practices research fund.

These procedures are agreed:

........................................
Chair
Forest Practices Board
Date:....................................

........................................
Director of the National Parks and Wildlife Service (pursuant to s.5 of the National Parks and Wildlife Act 1970)
Date:....................................
Appendix C
Definitions

**Adaptive Management** The acquisition of additional knowledge from research and monitoring and the application of that information to ensure the continuing improvement of management practices.

**Biological diversity** A concept encompassing the diversity of indigenous species, their genes and the ecosystems occurring in a given region. Also called 'biodiversity', it includes 'genetic diversity', which reflects the diversity within each species; 'species diversity', which is the variety of species; and 'ecosystem diversity', which is the diversity of different communities formed by living organisms and the relations between them. Biological diversity is the variety of all life forms—the plants, animals and microorganisms—the genes they constitute, and the ecosystems they inhabit (Commonwealth of Australia 1995).

**Biodiversity Spines** A network of wood production native forest managed to provide a native forest link between large patches of native vegetation, including conservation reserves, at a landscape level. They are not reserves. They have been strategically placed to ameliorate the threat of landscape-scale fragmentation, by a) limiting the potential extent of habitat loss for native forest biodiversity at the sub-regional or forest block scale, and b) ensuring that native forests are maintained in strategically important areas which would otherwise have been available for conversion. Biodiversity Spines are managed under the general guidelines that:

- no conversion for plantations are permitted
- rotation lengths for native forest harvesting are at least 80 years (where otherwise they could be reduced, particularly on good sites or where growth has been enhanced by thinning, to 60 years)
- there is additional emphasis on dispersing the harvesting of coupes in space and time (Forestry Tasmania 2008a).

**CAR Reserve** A component of the comprehensive, adequate and representative reserve system, as defined in the *Tasmanian Regional Forest Agreement 1997*.


**Forest Botany Manual** A manual developed by the FPA for Forest Practices Officers and referred to in the Forest Practices Code. It includes modules for different bioregions. The purpose of the manual is to satisfy the flora management requirements of the Forest Practices Code and related legislation and policies.

**Forest Practices Authority (FPA)** The independent statutory body responsible for the development and management of the forest practices system.
**Forest Practices Code** A code established under the *Forest Practices Act 1985* which prescribes the manner in which forest practices must be conducted in order to provide reasonable protection to the environment.

**Forest Practices Officer (FPO)** FPOs are employed either by forest owners or the forest industry to prepare and supervise FPPs. They are trained, authorised, directed and monitored by the FPA. Selected FPOs are authorised to certify FPPs.

**Forest Practices Plan (FPP)** A plan for forest operations, specified in Section 18 of the *Forest Practices Act 1985*. FPPs contain prescriptions and a map detailing how the planned operations will be conducted. FPPs must be consistent with the *Forest Practices Code* and be certified by a FPO before work starts.

**Forest practices system** The system established pursuant to the objective set out in schedule 7 of the *Forest Practices Act 1985* (Tas.).

**Forest Reserve** An area of State forest, formally gazetted for long-term intent, to be managed for recreational, scientific, aesthetic, environmental or protection purposes.

**Formal Reserve** A reserve equivalent to IUCN Protected Area Management Categories I, II, III, IV or VI as defined by the World Commission on Protected Areas. The status of formal reserves is secure, in that their revocation requires approval of the Tasmanian Parliament.

**Habitat** All habitat types within the potential range of a species that are likely to support that species in the short and/or long term. It may not include habitats known to be occupied intermittently.

**Habitat Tree** A mature living tree selected to be retained in a coupe because it has features of special value for fauna (e.g. hollows). Habitat trees should be selected on the basis of size and the presence of hollows. In situations where no suitable trees are present within the operation area, large trees are to be selected which have the potential to develop hollows.

**Native vegetation** All native forest and native non-forest vegetation.

**Potential habitat** All habitat types within the potential range of a species that are likely to support that species in the short and/or long term. It may not include habitats known to be occupied intermittently. *Potential habitat* is determined from published and unpublished scientific literature and/or via expert opinion, is agreed by the Threatened Species Section, DPIW in consultation with species specialists, and endorsed by the Scientific Advisory Committee under the *Threatened Species Protection Act 1995* (TSSAC).

**Significant habitat** Habitat within the known range of a species that (1) is known to be of high priority for the maintenance of breeding populations throughout the species range and/or, (2) conversion, of which, to non-native vegetation is considered to result in a long term negative impact on breeding populations of the species. It may include areas that do not currently support breeding populations of the species but that need to be maintained in order to ensure the long-term future of the species. *Significant habitat* is determined from published and unpublished scientific literature and/or via expert opinion, agreed by the Threatened Species Section (DPIW) in consultation with species specialists, and
Known range (or actual range) The area of land within the minimum convex polygon encompassing all the known localities where the species is known to occur. It is the area within which the species is most likely to occur. This term is synonymous with ‘extent of occurrence’ as referred to under the Tasmanian Threatened Species Protection Act 1995.

Core range Encompasses the area, within the known range, known to support the highest densities of the species and/or thought to be of highest importance for the maintenance of breeding populations of the species.

Potential range Includes the known range, but also includes the area within which the species has not been found but may occur based on environmental conditions.

Informal Reserve A reserve on public land other than a Formal Reserve. On State forest this comprises an area identified as a Protection Zone under the Management Decision Classification System. It also includes other administrative reserves on public land that are managed to protect conservation values.

Maintain To provide the potential for the elements of biodiversity to survive and continue to evolve in areas covered by the forest practices system. This may be achieved flexibly in a number of ways for example by:

- use of temporary set asides or retention of native vegetation
- use of formal and informal reserves
- avoidance of or reduced intensity of adverse activities.

Management Decision Classification (MDC) system A system for zoning land managed by Forestry Tasmania (see Orr and Gerrand 1998).

Natural and cultural values Includes biodiversity, soil and water, geoheritage, cultural heritage and landscape values.

Natural Values Atlas Flora and Fauna locality database managed by the Tasmanian Department of Primary Industries and Water.

Paddock trees Isolated trees, small modified patches and woodland remnants up to 1 ha (Gibbons and Boak, 2002). A paddock tree is a tree around which the other components of a native vegetation community have been removed. Paddock trees are recognised as occurring as isolated trees (e.g. single tree in a paddock, widely spaced single trees throughout a paddock, etc.) but also as small copses of trees (e.g. group of trees on a rocky patch of paddock) and narrow linear strips (e.g. patchy riparian strips, roadside strips, etc.). Although paddock trees usually occur in farmed paddocks, they can also be found along road reserves, in cemeteries, parks and urban areas. Paddock tree attributes that influence their value:

- tree species
- tree age (value increases with age)
- tree health (habitat value increases with health)
- level of isolation (generally a decrease in value with increasing isolation, but not always the case)
- location (higher value in pastoral areas than plantation areas, higher value if in larger patch)
- history of tree (e.g. surrounding land use).

**Remnant vegetation** The remaining vegetation (>1 ha) in a landscape after land clearance/alteration. A remnant can be of any size (above 1 ha) or condition. Anything that is native and remaining from the ‘original’ forest or non-forest vegetation is a remnant—including individual trees, both live and dead (dead trees are often important in supplying nesting hollows and rotten wood habitat for invertebrates and reptiles). Individual trees (live or dead) are important in an agricultural landscape as they provide stepping-stones for movement of native animals across the landscapes (Salt et al. 2004). Based on the conclusions of Salt et al. (2004), it is hard to argue that the position of a remnant relative to larger tracts of native forest is important in determining its value. The context of a remnant is important because the presence of surrounding remnants affect its value as a habitat or ‘stepping stone’. In one sense remnants near large tracts of native forest or other remnants are more valuable because they can harbour greater biodiversity. Remote remnants may be important if they are repositories of rare species or communities for that region, although isolation often results in species loss (particularly if they are small).

**Significant Habitat** is defined as habitat within the known range of a species that (1) is known to be of high priority for the maintenance of breeding populations throughout the species range and/or, (2) conversion, of which, to non-native vegetation is considered to result in a long term negative impact on breeding populations of the species. It may include areas that do not currently support breeding populations of the species but that need to be maintained in order to ensure the long-term future of the species. **Significant habitat** is determined from published and unpublished scientific literature and/or via expert opinion, agreed by the Threatened Species Section (DPIW) in consultation with species specialists, and endorsed by the Threatened Species Scientific Advisory Committee (TSSAC).

**Spatial scales**
1) statewide
2) bioregional (IBRA)
3) Planning Context Unit (PCU) - a notional contextual area around the planning node which depends on the scale of operation—the panel suggest using the CFEV major drainage basins
4) Coupe context scale (CCU) which on State forest may be a notional 400 ha unit around the coupe, or may be a private property boundary and surrounding land-use context.

**Strategic planning** In this document means a proactive process of deciding what the purpose of the particular component of the forest practices system will be and the
defining of objectives, actions and allocation of resources required to meet the purpose (modified after Hughes 2001). In the case of forest practices system, components of this process may operate at all four spatial scales, but should operate in advance of operations to minimise the need for last-minute, coupe-level decisions.

Streamside reserves Forest Practices Code minimum SSRs are part of CAR informal reserve system. However, additional streamside buffer areas set aside for threatened species, e.g., *Astacopsis gouldi*, are ‘vulnerable land’ under the code.

Sustainable forest use Includes maintaining the ecological processes within forests (the formation of soil, energy flows, and the carbon, nutrient and water cycles), maintaining the biological diversity of forests and optimising the benefits to the community from all uses of forests within ecological constraints (Commonwealth of Australia, 1995).

Technical Note Series Provides supplementary information and technical explanation for Forest Practices Officers on commonly encountered fauna and flora management issues in production forests (a full list of FPA Technical Notes is provided at <www.fpa.tas.gov.au>). These technical notes are advisory guidelines and do not constitute additions/alterations to the Forest Practices Code.

Threatened fauna Includes all fauna species listed on Schedules 3, 4 and 5 of the Tasmanian Threatened Species Protection Act 1995 and/or the Commonwealth Environment Protection and Biodiversity Conservation Act 1999.

Threatened Fauna Adviser (TFA) A decision-support system developed by the Forest Practices Authority, in consultation with DPIW, specialists and the forest industry, to assist with decisions on the presence of potential habitat and recommended management actions for forest-dependant threatened fauna in wood production forests.

Threatened Fauna Manual A planning manual for Forest Practices Officers. It is referred to in the Forest Practices Code and the agreed procedures. It was first developed in 1995 to ensure that threatened fauna and their habitat was taken into account during the planning of forestry operations.

Vegetation Management Agreement (VMA) sets out commitments by both the landholder and the Crown in relation to native vegetation management for the period of the agreement. The period may vary, but generally will be 10 years. Once a VMA is developed and signed, it will be a legal agreement for the agreed period. It provides exemption from, or accreditation under existing and future vegetation clearing provisions in Tasmania’s regulatory systems; management security to undertake agreed clearing during the life of an agreement; other benefits such as incentive payments and better access to public grants.

Vulnerable land cannot be further ‘cleared’ (within the broad meaning of the term under the Act) without further assessment by the FPA. Vulnerable land:

- is within a streamside reserve or a machinery exclusion zone as defined in the Forest Practices Code (streamside reserves vary from 10 metres from the streambanks for a class 4 stream to 40 metres for a class 1 river)
• has steep slopes in excess of the limits prescribed in Table 7 (page 54) of the
Forest Practices Code (these limits range from 11-19 degrees depending on the
rock type)
• is within the high or very high soil erodibility class within the meaning of the
Forest Practices Code (see page 52 and Appendix 6 of the Code)
• consists of, or contains, a threatened native vegetation community (see table 1
below)
• is inhabited by a threatened species
• contains vulnerable karst soils (see page 101 of the Forest Practices Code)
• contains an area of trees reserved from harvesting or clearing under an expired
forest practices plan.

Three Year Plans  The three year wood production plans developed for State forest areas
by Forestry Tasmania (see Forestry Tasmania 2008b).

Wildlife Habitat Strips  Strips of mature forest retained across the landscape to maintain
habitat diversity (See FPA Fauna Technical Note 8 for more information)

Wildlife Habitat Clumps  A wildlife habitat clump is an area containing at least two
habitat trees that is set aside in a coupe to aid in the maintenance of fauna habitat
diversity (See Fauna Technical Note 7 for more information)
Appendix D
Salvage sampling proposed approach

Document prepared for the Forest Practices Code Biodiversity Review by Nina Roberts
October 2007

What is Salvage sampling

‘Salvage sampling’ is biological sampling (usually of the more cryptic groups such as
invertebrates) conducted in areas of vegetation that are to be cleared or otherwise
modified or destroyed (Mesibov 2004). It is also referred to as ‘biodiversity sampling’
(Mesibov 2007) and ‘data gap sampling’ (FPA 2001a). The purpose of the sampling is
not to find and protect the habitat of significant species, it aims simply to salvage and
archive the biodiversity of a given site where habitat destruction has already been
approved. Specimens collected are lodged in museums, herbaria and gene-banks for the
purpose of keeping a permanent record of what occurred.

Why is it important?

Biodiversity is being lost rapidly as human impacts on the planet continue to intensify.
Dwindling biodiversity is associated with habitat loss, climate change and competition
with invasive species. Much of what is being lost is poorly documented, and in the case
of many cryptic taxonomic groups, is likely to include a multitude of species not yet
known to science.

The worthiness of gathering and storing information about what is being lost is summed
up well by W. Baldwin Spencer, writing 80 years ago:

...the land and fresh-water fauna is disappearing rapidly, and unless we now
make an organized effort it will be too late to study it effectually, and future
generations will wonder what manner of people we were not to leave behind us
some adequate record of the marvellously interesting forms of animal life which
we had succeeded in exterminating... (quoted by Mesibov 2007)

Salvage sampling is an acknowledgement that biodiversity is being lost and will continue
to be lost, and that there is an urgent need to document what is soon to disappear. It does
not diminish the need for appropriate conservation measures and good policy for
threatened species conservation.

Where is it needed?

Areas of highest priority for salvage sampling are generally agreed to be those that are:

1) about to be destroyed
2) furthest from protected areas
3) furthest from previous biological sampling sites.
Current national and international status of Salvage sampling

There appear to be little if any formal processes for salvage sampling known from interstate or overseas (based on personal communications with Bob Mesibov, Sept 2007).

Forest Practices Authority and salvage sampling

Within the forest practices system the concept of ‘data gap sampling’ is comparable to salvage sampling. ‘Data gap’ areas (ie those areas where very little is known about the invertebrate fauna) were identified by Mesibov (1996) following an analysis of locality records available for selected groups of Tasmanian invertebrates. In the 2001 revision of the Threatened Fauna Manual it was agreed (between DPIWE, FPB and FT) that these ‘data gap’ areas would be listed in the manual mapsheets to flag the need for data gap sampling prior to any forestry operations, particularly those that involved clearance or conversion of the vegetation. A document was also developed to provide a method that could be used to prioritise and implement data gap sampling (FPA 2001a).

Where ‘data gap’ areas are identified in the Threatened Fauna Manual there is a note that a survey for invertebrates may be necessary prior to operations in these areas. It is not obligatory for a Forest Practices Officer to alert the Forest Practices Authority (FPA) of operations in these areas, and it has happened only twice during the six years since the 2001 Threatened Fauna Manual was released.

In one of the cases where FPA specialists were alerted to an operation in a ‘data gap’ area, staff of the FPA Zoology program conducted sampling and brief report documenting the methods and the results of the sampling was prepared (FPA 2001b).

What happened in the other case, and what would be expected to happen in future cases should the FPA be alerted, is that FPA ecologists contacted relevant research scientists to let them know of the intended operation and give them the opportunity to sample. The sampling is not funded by the FPA, but rather facilitated by the FPA. The FPA was also not intended to be the recipient of the data collected. Any data or specimens gathered would be lodged with the state database or museums by the scientists involved in the sampling.

The FPA document on a proposed method for data gap sampling (FPA 2001a) identified the order of priority for areas to be sampled to be:

1) NF to plantation
2) NF clearfell to NF
3) NF selective harvest (SED highest priority)
4) Roading

Considerations for how bring salvage sampling into the Forest Practices Code or planning tools:

The merits of creating a condition for salvage sampling as part of the forest practices system need to be carefully considered.
• It is probably not feasible to put it as a condition that salvage sampling occur in all conversion situations because there aren’t enough salvage samplers to go around—especially when all the potential salvage sampling fields are considered.
• Could perhaps make it a condition that salvage sampling is permitted (as a ‘right’ in conversion areas, if it occurs within a reasonable period, and the sampler is a bona fide operator, and that appropriate permit conditions are met, and that safety and operational requirements aren’t compromised etc.).

References


## Appendix E

FPA’s research and monitoring priorities identified by the FPA Research Working Group, November 2007
(see also background document 4, Wapstra and Munks 2008)

<table>
<thead>
<tr>
<th>Research Topic</th>
<th>Priority by FPA program</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Biodiversity</td>
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<tr>
<td>Monitoring the implementation of <em>Forest Practices Code</em> fauna and flora provisions</td>
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</tr>
<tr>
<td>Distribution, ecology and impacts of forestry practices on flora and fauna species of high conservation significance (threatened and RFA priority species), and their habitats</td>
<td>High</td>
</tr>
<tr>
<td>Value of headwater streams and impacts (intensity, duration and extent) of forestry practices on stream values</td>
<td>High</td>
</tr>
<tr>
<td>Special values and management of mature forest habitat, in particular issues relating to retention of hollow resource for hollow users (RFA priority fauna)</td>
<td>High</td>
</tr>
<tr>
<td>Managing special values risks associated with extensive plantations at the local catchments and landscape levels</td>
<td>High</td>
</tr>
<tr>
<td>Values and management of retained habitat (remnants, Wildlife Habitat Strips, Habitat Clumps, streamside reserves, cultural heritage reserves, karst reserves)</td>
<td>High</td>
</tr>
<tr>
<td>Rehabilitation of riparian areas for the maintenance of ‘special’ values including aboriginal heritage values</td>
<td>Low</td>
</tr>
<tr>
<td>Review distribution of forest and non-forest vegetation with a priority for</td>
<td>High</td>
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<tr>
<td>Research Topic</td>
<td>Priority by FPA program</td>
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<td></td>
<td>Biodiversity</td>
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<tr>
<td>conservation—Remapping of vegetation communities</td>
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<tr>
<td>Sustainable management of tree ferns (<em>Dicksonia antarctica</em>) and their role in forest ecosystems</td>
<td>High</td>
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<tr>
<td>Public perceptions of existing forest visual landscape practices</td>
<td>Low</td>
</tr>
<tr>
<td>Assessing the present land stability and ecological communities in the forest estate in relation to recent and ancient human impacts</td>
<td>Medium</td>
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</tbody>
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Appendix F


The Biodiversity Review Panel considered the existing biodiversity provisions of the *Forest Practices Code* as part of the review process. Background reports were prepared and comments were canvassed from practitioners including the Forest Practices Executive Review Team, other specialists and Forest Practices Officers. These comments and suggestions by the panel are made below on changes to the existing *Forest Practices Code* provisions to inform the broader code Review. In the following discussion, original wording from the *Forest Practices Code* is in italics and discussion points and recommendations are in text boxes.

D. Conservation of Natural and Cultural Values

*Conservation of environmental diversity (biodiversity, including flora, fauna, threatened species, and genetic resources; landscape; cultural heritage; and geodiversity, including soils and landforms;) will be principally catered for in a systematic reserve system on public land, by a voluntary private land reserve system, and by management prescriptions in production forests.* (P51,DP2)

- What is meant by ‘genetic resources’? Does the *Forest Practices Code* intend to mean the range of genetic variation of all species, genetically modified (GM) eucalypts, or genetic mutations (e.g. hybrids)?

- Discussion of term ‘genetic resources’—is it covered by the term ‘biodiversity’?

- Ecological concept of alpha, beta and gamma diversity (genetic diversity at the population level is gamma diversity). Examples of important intraspecific genetic variation include King Island *E. globulus*, and *E. gunnii* pop at Miena. The concept of conserving gamma diversity is applied when developing prescriptions for threatened plant species. This explanation should be included somewhere in the *Forest Practices Code*. The *Forest Practices Code* needs to stick to concept of genetic diversity as relevant at an operational level—issues of GM plantations and mutations are beyond scope of the code.

- Use of word ‘resources’ may need reviewing although this term is already covered in term ‘biodiversity’ defined by the panel.

*Natural and cultural values in adjacent reserves should be considered during the planning and conducting of forest operations.* (P51,DP3)
• Often the biodiversity value of an adjacent reserve is not known (may never have been surveyed) so consideration of the values may be difficult. Perhaps some guidance on the type of values that should be considered can be provided (e.g. weed and disease management, threatened flora and fauna, old growth habitat, relict rainforest, etc.).

• Does the term ‘reserve’ need defining in terms of biodiversity values? Is it just a formal gazetted reserve or also an informal retained habitat patch?

• Often the intent of reservation is well documented (e.g. in RFA reports).

• Whether or not values in reserves are well established, there are key operational issues relating to reserves in almost all cases e.g. weeds, *Phytophthora cinnamomi* (PC) etc.

• Need to clarify ‘what is a reserve’. It is as defined in the RFA.

• Important point to convey here is to ‘assess the impact’ (i.e. it shouldn’t matter what’s in the block, as long as issues are addressed).

• The ways in which impacts on reserves need to be considered could be addressed in a Tech Note, to keep *Forest Practices Code* short/simple. Currently the Special Values Sheet already gives the key things to consider.

• Important to make it easy for FPOs to identify reserves and any special values when known. Although FT has internal systems for zoning areas with various values, this may not be the case for others. Can be especially difficult to identify Private Forest Reserves, especially if new. NVA or other GIS tool is needed to help with identification of reserves and special values.

• Keep *Forest Practices Code* words but the term reserves need to be defined for the code.

  *Management of natural and cultural values should be integrated where this is compatible with maintaining these values.* (P51,DP4)

• Should this state ‘…integrated where possible if such integration does not unacceptably compromise a particular value’.

• This is implied. See suggested wording change.

• In addition, is there ambiguity in this statement? Does it refer to integration of natural and cultural values with each other (e.g. a cave with an artefact also protects a threatened plant and acts as a Wildlife Habitat Clump) or does it refer to the integration of natural and cultural values with other provision of the Forest Practices Plan?

• The panel agree with suggested wording change.

  *Resource manuals and other available information on flora, fauna, threatened species, cultural heritage, geomorphology, landscape and soils will be consulted where appropriate (reference here to website for list of resources).* (P51,DP5)
- Should this reference the list of planning manuals listed at the back of the *Forest Practices Code*? Or is some more generic statement needed referring planners to a website or a general planning manual AND recognise that some manuals are subject to ongoing review and updating?

- It needs to be clear that the *Forest Practices Code* is supplemented by a range of planning tools - it is a constantly changing/adapting set of guides/regulations. Yet the main body of the *Forest Practices Code* should not include lists of such resources—refer to references at back, or to website.

- Don’t want to have a list of manual in the main body of the *Forest Practices Code*—list of references should be at the back, and people can access resources on the web.

- To avoid code going out of date all the time, would be best if it refers to another document managed by the Forest Practices Authority (FPA) that could be updated regularly (a list of planning tools/resources/manuals). Reference to such a document could be made at several points in the *Forest Practices Code* to ensure uses are aware of it.

- The panel agree that need to add reference.

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*Measures taken to conserve natural and cultural values will be consistent with effective fire management, silvicultural practices and safety requirements.* *(P51,DP7)*

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- This is the point made under several comments for preceding sections of the *Forest Practices Code*. This wording (but flipped around) should be included in these sections e.g. under the section on harvesting techniques, road construction, fire management. Is there some ambiguity in the manner of wording?

- Why is the statement limited to fire, safety and silviculture?

- The importance of this point is to avoid prescriptions for special values being in isolation from other aspects of a successful operation.
**Basic Approach**

Natural and cultural values should be considered at the strategic or property level (e.g. during 3-year plan development, Whole Farm Plans, Property plans) and used to guide evaluations during the preparation of Forest Practices Plans. (P51,DP8)

- This statement is very generic. Should it refer to some examples of the strategic approach e.g. 3-Year Plans, Forest Management Plans, Whole Farm Planning?
- Statement okay as is—okay to keep it general.
- Discussion whether the heading ‘Basic Approach’ is appropriate…maybe ‘General principals and Basic Approach’.
- Panel agree with change of heading to principles and need to flag strategic level of planning but this needs to be defined. Panel has recommended change to Basic Approach wording.

**Requirements for the conservation of natural and cultural values, including specific sites, will be recorded to aid in future decision making and ensure continuity of management. (P51,DP9)**

- Given the legal interpretation of ‘should’ and ‘will’ statements (e.g. see introductory section of Forest Practices Code), this provision is very important and is effectively hidden. There are significant administrative issues related to this statement with respect to management of threatened species databases, supply of updated vegetation mapping, location of semi-permanent features such as WHC, etc. Recent GIS advances may make implementation of this provision more feasible.
- Where the management info (not just location info) is recorded is a critical issue.
- Currently, private consultants don’t have any repository for this info (e.g. reserve locations, Wildlife Habitat Clumps).
- FPA has a responsibility to be the repository.
- Also issue of where do species habitat prescriptions for coupes end up?
- Future planners need to be able to trace back reason for special coupe planning (e.g. increased SSR).
- Also important to have mechanism for monitoring follow up.
Areas of high conservation significance may be designated as special management zones (or similar) where there is agreement with the landowner or land manager. Forestry operations in such zones will comply with the agreed management recommendations to ensure maintenance of natural and cultural values. Advice should be sought from an appropriate specialist before conducting any forest operations. (P51, DP10)

- The term ‘special management zone’ has a defined meaning under FT’s Management Decision Classification system. The previous versions of the Forest Practices Code and the current fauna planning manuals (including the online Threatened Fauna Manual and the Threatened Fauna Adviser) still refer to the outdated term ‘wildlife priority area’ and this needs to be rectified.

- Agreed this is inconsistent. ‘Wildlife priority area’ should be removed from code and replaced with SMZ.

- The whole statement is virtually meaningless in any real sense, except where land managers already have a planning system (e.g. FT’s MDC system) because of the ‘where there is agreement with the landowner’ and the lack of implementation (because of lack of agreed protocols) for the previous statement in the Forest Practices Code (see comments above).

- The last sentence is presumably linked to the preceding two but if read alone it implies that all forestry operations need to have advice provided by a specialist. Also, the concept of ‘appropriate specialist’ is vague and should be more specific (e.g. ‘…as indicated under current administrative procedures…’).

- This Forest Practices Code provision also highlights the issue of the definition of ‘forestry operation’. The Forest Practices Code flip-flops from trying to deal with all situations (viz. P51, DP1 ‘Such values can occur in forest and non-forest environments’) to dealing strictly with the traditional concept of a forestry operation.

- At FT, SMZ are used as a flag for potential issues—they have no status in themselves for protection of areas. It doesn’t have the meaning intended in the Forest Practices Code (hence suggested wording changes, above)

The sustainable management of natural and cultural values within production forests under the forest practices system will be determined in accordance with:


- the Tasmanian Regional Forest Agreement 1997 (including the provisions for the Comprehensive Adequate and Representative reserve system);
  
  - the policy for maintaining a Permanent Forest Estate;
  
  - policy mechanisms that relate to State forest;

- the duty of care of landowners under the provisions of this code, which is defined
as the fundamental contribution of the landowner to the conservation of natural and cultural values that are deemed to be significant under the forest practices system. The landowners duty of care includes:
· all measures that are necessary to protect soil and water values as detailed in this code;
· the reservation of other significant natural and cultural values. This will be at a level of up to 5% of the existing and proposed forest on the property for areas totally excluded from operations. In circumstances where partial harvesting of the reserve area is compatible with the protection of the values, the level will be up to 10%. The conservation of values beyond the duty of care is deemed to be for the community benefit and should be achieved on a voluntary basis or through compensation mechanisms where available. (P51-52; DP11)

This broad provision of the Forest Practices Code has several issues that need to be discussed.

- Definition of ‘sustainable management’, a concept not included in the glossary and open to such wide interpretation that it has and will continue to create management conflicts.
- Agreement that this terms needs definition—add it to the glossary and seek a definition consistent with other government documents.
- The fact that the provision specifically refers to pieces of legislation (as the Forest Practices Code does elsewhere) is of concern unless there is a general statement in the introduction of the code about the legal protocols and mechanisms for dealing with legislative changes and names, etc.
- This provision specifically mentions some legislation that include the concept of the Resource Management and Planning system (the implications of this were discussed in previous background documents).
- Why does this Forest Practices Code provision also include mention of ‘policy mechanisms that relate to State forest’ and why not include other mechanisms that relate to other tenures?
- State forest is the only area where policy consistently applies. Other tenures have inconsistent mechanisms.
- The panel note that this ‘provision’ needs rewording as other policies not mentioned.
- The concept of ‘State Policies’ (presumably deliberately written as a capital P, to indicate a policy under the State Policies Act rather than a small p policy under other processes) may need some clarification.
The duty of care policy is generally poorly understood and possibly deserves an administrative document such as a technical note indicating the intent of the policy and some examples on how it can be/has been implemented. The policy needs updating because of changes to the *Nature Conservation Act 2002*.

- The panel query if this provision is needed at all.
- The ‘Duty of Care’ term needs to be clarified—it could be a point unto itself—probably needs a ‘text box’ to draw attention to it.
- There is a board policy document that addresses duty of care (policy statement 16/10/97 ‘Conservation of values under the forest practices system’).

### D1. Soils

**General principles**

**Basic Approach (P52)**

- Does this section of the *Forest Practices Code* need to highlight the often critical links between some soil types and some threatened vegetation types (e.g. Coastal *E. globulus*/*E. viminalis* forest on dune sands) and threatened fauna (e.g. threatened carabid beetles on gilgai clays in the Midlands)?
- Need to keep it simple, so probably keep such discussion (as suggested in above comment) out of this section, but perhaps have a general section of the *Forest Practices Code* that addresses integration of values.

### D3. Flora and Fauna

**General principles**

*Conservation of biodiversity is assisted by maintaining and restoring habitat, enhancing opportunities for recolonisation of disturbed areas, and linking natural habitats to allow genetic interchange.* (P58, DP3)

- What does ‘restoration of habitat’ mean? Does it mean restoration of existing degraded habitat (which is hardly ever done, at least not under the forest practices system) or restoration of habitat after disturbances under the forest practices system (which is almost always done) or both concepts?
- The term ‘restoration’ has some connotations to the concept of ‘recovery’, a legal term under the EPBC and TSPA. Is the *Forest Practices Code* attempting to aid in species’ recovery or just maintenance?
- Panel agree wording has to be careful. Need to be aware of legal implication of terms.
• The concept of ‘genetic interchange’ through ‘linking forest areas’ is attempting to get into the concept of habitat fragmentation. Also, linking forest areas avoids the issue of using non-forest vegetation (whether artificial or natural, often a combination) to create/maintain such links (think of species such as butterflies vs. aquatic species).

• The panel recommend that wording for General Principles such as this one need to be in accord with recommended objectives, suggested wording change provided.

Biodiversity at the community, species and genetic levels can be maintained by retention of habitat in formal and informal reserves including Wildlife Habitat Strips and streamside reserves dispersed throughout the forest, and the use of seed sources native to the site when regenerating forests.

Generally, retention of forest with old growth characteristics is preferable to retention of regrowth of the same forest type. (P58, DP4)

• There are a lot of concepts included in this general principles. The issue of the concept of ‘genetic resources’ has been discussed under two separate points. The concept of retaining fauna has connotations of enclosures, etc. The last phrase, while reasonably accurate, does not tell the whole picture. In fact, the retention of a range of ages of forest and non-forest seral stages of different vegetation mapping units is very important; management tools such as WHS can be used to target some of the older growth features.

• Old growth needs to be separated out as a separate point, and importance of a range of ages needs to be stated.

• The panel recommend that wording for General Principles such as this one need to be in accord with recommended objectives. This needs rewording.

Basic Approach

Planning for biodiversity conservation should initially be carried out at a regional level (e.g. whole property, forest block or district forest management plan). At this level:

– strategies will be developed to maintain species diversity, particularly in highly modified landscapes and in landscapes where vegetation or species are highly susceptible to fire, disease or other disturbance, including catchment level disturbance;

– dispersed coupes will be considered;

– management agreements for threatened species and other biodiversity values will be taken into account. (P58,DP5)
• There are a lot of ‘should’ statements throughout this dot point. The concept of ‘particularly in extensive plantation areas’ is not explored anywhere else in the Forest Practices Code, with respect to biodiversity values wording changes suggested.

As far as practicable, areas of retained vegetation (including Wildlife Habitat Strips—see page 62) should include localised features such as:

– threatened species;
– species with disjunct or unusual distributions;
– sites with high species diversity;
– inadequately reserved communities;
– forests that have old growth characteristics;
  – other significant biological values (e.g. important research sites).  
(P59,DP1)

• Given that this is a Basic Approach dot point; there should be some statement about ongoing management of such retained patches being compatible with the values they were retained for?
• Add point about ongoing management of such retained patches.
• The panel recommend that wording for Basic Approach such as this one need to be in accord with recommended objectives.
• The panel recommend that another dot point referring to ongoing management is required.

In parts of the state where native forests occur mainly as remnants, consideration will be given to:

– retention of native forest remnants to aid in the maintenance of biodiversity and landscape values;
– restoration of habitat including widening and linking Wildlife Habitat Strips, particularly where species and communities of high conservation significance are known to occur. (P59, DP2)

• The concept of ‘remnant’ is defined in the RFA (broad scale, large remnants, even mapped) and is defined loosely in the Forest Botany Manual. There are many views of what a remnant is (can a forest remnant be surrounded by plantation or just pasture, what distance to nearest patch of forest, condition issues, size of patch issues, viability, etc.).
• See previous discussion of issues with the use of the term ‘restoration’.
• There is value in tighter definition of ‘remnant’ in *Forest Practices Code*, but can also support this with a Technical Note. FPA could also run a training day on remnants. Preparation of a Technical note will help to address wording issues here.
• The panel has recommended a definition of remnants and Basic Approach for their management. The panel note the need for a planning tools and training to assist with the management of remnants.

D3.1 Flora Conservation

**General Principle**

*The general requirements and guidelines for conservation of flora values are outlined in the flora planning tools and data bases. Other sources of information include vegetation maps, the flora databases held by Forestry Tasmania and DPIWE and advice from specialists. (P59, DP3)*

• Level of detail on sources of information will depend on new *Forest Practices Code* structure.
• Perhaps also mention planning manuals such as weed and disease manuals, FPA flora technical notes, etc.
• Suggestion to just reference ‘planning tools’ and elsewhere (in a separate ‘live’ document—see below) outline what these are.
• Important to refer to a ‘live’ document to keep on top of constant changes to planning tools that support the *Forest Practices Code*. Recommendation to use general terms like ‘planning tools and databases’ in the *Forest Practices Code* itself.
• Should avoid specific names of government departments (e.g. DPIW).
• Group discussed possibility of having hotlinks in web or CD version of *Forest Practices Code* to link directly to planning tools: having hotlinks seen to have merits for the planning component of the *Forest Practices Code* (which would be used in office), but not the operational component, which would be a field document (if the code were split into two documents—see section 2 of these minutes).
• Important to maintain prescriptive and mandatory aspects of *Forest Practices Code*.
• The panel notes that this is not a ‘principle’ but relates to the approach taken and decision-support tools available. Suggested changes to the words proposed.
Basic Approach

Planning and Assessment

See also Section D3 above.

Planning for broad areas of forest will require the consideration of the conservation requirements of plant communities and species, maintenance of values in formal and informal reserves, and other flora-related issues.

During the preparation of a Forest Practices Plan the proposed operational area will be assessed to determine:

– the plant communities present;
– whether threatened plant species are known or likely to occur;
– whether other significant flora values are known or likely to occur. (P60, DPs1-3)

- This statement seems to be quite good and broad enough to weather changes to the system. However, the statement is poorly worded. In addition, this clause seems to refer to forested areas, not extensive rural areas, plantation estates, etc.
- Need to be inclusive of non-forest vegetation (as elsewhere).
- The panel agree with the suggested wording—planning for forest management taking a strategic approach…..

Site Management for Flora

Disturbance to native vegetation in localised environments (such as rocky knolls, swamps, heaths, and stream banks) should be avoided or minimised. These environments are often associated with plant communities and species with a priority for conservation, and are important in maintaining diversity at a local level. (P60, DP4)

- A draft flora technical note is in preparation for management of rocky knolls in forested habitats (for both flora and fauna values, amongst others). See previous comments on management of swamps. Note: the heading ‘site management for flora in native forests’ makes the absence of such a section on the management of flora values in agricultural and/or plantation landscapes more obvious.
- Terminology needs to be consistent with special values sheets (which currently have ‘sites of significance for flora’).
- General point raised here about how the regulatory requirements for threatened non-forest vegetation fit in with forest practices system. The FP system hasn’t yet been adapted to fully accommodate recent changes (e.g. how would a special values evaluation sheet be filled in?)
• The panel agrees with revised wording and comments. Landscape level of planning for forest should also take into account non-forest areas.

Vegetation that is susceptible to Phytophthora cinnamomi (e.g. swamps, heaths, sedgelands, dry lowland forest on sandy or poorly drained sites, and low altitude rainforest on infertile sites), should be protected from accidental infection by the fungus by the implementation of hygiene measures. (P61, DP1)

• As with other sections of the Forest Practices Code, this clause needs rewording to reflect the current assessment procedures, cite the relevant planning manuals and guidelines (and include them in the reference list at the back of the Forest Practices Code).

• The panel agrees that this needs to be made current.

Patches of myrtle or rainforest that are to be retained should be protected from fire, damage and disease (notably myrtle wilt). This may require buffering of some patches (e.g. by extending streamside reserves) and avoiding or minimising damage during road construction or maintenance (see page 13). (P61, DP2)

• The concept of ‘buffering’ is complex because many reserves are perceived to already have buffers so this becomes a buffer on a buffer. This clause could refer to the Flora Technical Note (relict rainforest management).

• Some reserves do have an ‘in built’ buffer, and others need an ‘additional’ buffer to protect values. The need for an additional buffer often depends on the vegetation that is being protected, and how close it comes to the reserve boundary. Reserve buffer is definitely not taken into account when assigning the reserve boundary for private forest reserves (which raises importance of having access to locations of PFR in a database easily accessible by FPOs).

• From above points—need to expand on reserve buffers elsewhere in the document, or, because it is quite complex, it needs to be addressed by planning tools (e.g. Technical Notes).

• Need ability to access information on the specific values of a reserve so these can be taken into account during planning.

• The panel agree with comments and note that private spatial databases such as SPARQS maintained by Gunns is a useful tool for FPOs planning on Private. This data currently not on NVA. FPA to consider adding layers such as CAR reserve layer to FPA web page for FPOs?
Measures should be taken to ensure exotic weed species, (e.g. pampas grass, ragwort, blackberry and Spanish heath), do not become established in native forest, particularly reserves. Native forest most at risk includes areas adjoining plantations, and drier forest types in general. Machinery should be washed down before being transported from one area to another, particularly when moving from infested to uninfested areas. (P61, DP3)

- This should reference the Weed Management Act 1999, Statutory Weed Management Plans and briefly explain the obligations of landowners/managers with respect to ‘declared weeds’. This is an issue that is potentially one of the more significant biodiversity management issues.

- Does this Forest Practices Code provision deal specifically with native forest?

- Should expand this topic in the section of the Forest Practices Code which addresses weeds and diseases in more detail (current section E4). Here, current level of wording appropriate, but should refer to section which provides more detail. Make sure terms and wording are consistent.

- The panel agrees but the Weeds Management Act 1999 should be referred to stating obligations of landowners. The panel also agrees that should refer to forest and non-forest native vegetation.

Consideration should be given to the protection (e.g. by buffering) of native forests, particularly reserves, from incursion by adjoining plantation species. For example, dry forests may be invaded by radiata pine, and some planted eucalypts may hybridise with related species in adjacent native forest. (P61, DP4)

- The concepts of genetic swamping, hybridising, etc. are only just starting to be recognised widely. This issue is important and the panel should be briefed by one of the current specialists or someone on the working group examining this issue.

- A Technical Note is in progress to address the issue of hybridisation with hardwood plantation species. The issue should also be flagged in this section of the Forest Practices Code, and possibly even expanded in a purpose-created section of the code.

- Recommendation for specific discussion on this issue amongst relevant experts.

- The panel agrees and objective (desired outcome), measures and indicators have been developed.

Disturbance to localised environments rich in epiphytic species should be avoided or minimised, particularly in drier parts of Tasmania. Such environments include relict or old growth rainforest, dense patches of musk or manferns and sheltered boulderfaces. If possible, trees should not be felled into or yarded across these environments, partly to reduce the volume of slash and consequently the intensity of regeneration burns.
Epiphytic species will recover most rapidly on sites which are not subjected to high intensity burning. (P61, DP5)

- There are flora technical notes on management of tree ferns and relict rainforest, both of which provide recommendations on this provision of the Forest Practices Code. These should be referenced.

- Can be confusing dealing with Swamps as sites of flora significance. There is stronger wording on prescriptions for swamps in section C, but this might not be sufficient if the swamp is being treated as a significant flora site. Definition of swamp can be an issue, which leads to problems and confusion in marking out the boundary. Possibly need a Technical Note on swamps.

- Need include in this section points about fire management, and how this varies with different vegetation needs.

D3.2. Fauna Conservation

General principles

Fauna conservation will be considered in all stages of forest management. In particular, the requirements of threatened species will be addressed. (P61, DP6)

- This is a General Principle so it should be general, not specific. This provision also raises the issue of the concepts of ‘fauna management’ vs ‘fauna conservation’, especially in light of the Forest Practices Code’s emphasis on finding ‘an acceptable balance between environmental values and wood production’.

- This section might disappear if combined into Biodiversity section.

- Note suggested wording change (to simplify).

- The panel agrees. It is not a ‘principle’ and needs to be replaced with objective (desired outcome).

Sources of information include the Threatened Fauna Manual for Production Forests in Tasmania 12, Threatened Fauna Adviser 13, technical notes 14 and specialist advice. (P61, DP7)

Should threatened flora and fauna values databases be referred to here, and in a more generic sense or just refer to ‘biodiversity databases’, not specific types of databases.

The panel agrees with both points

Basic Approach
Planning and Assessment for Fauna

See also Section D3 above.

During the preparation of a Forest Practices Plan the proposed operational area will be assessed to determine:

– the known occurrences and potential habitat for threatened species;
– the presence of or requirements for Wildlife Habitat Strips;
– the requirements for Wildlife Habitat Clumps;
– the presence of or requirements for special management zones for fauna.

A specialist will be consulted for advice where appropriate. (P61, DPs8-9)

• A draft flora technical note is in preparation for management of rocky knolls in forested habitats (for both flora and fauna values, amongst others). See previous comments on management of swamps.

• This part would be combined with flora under proposed restructure of Section D. The panel agree with restructure and note that the strategic context needs to be included.

Site Management for Fauna

Wildlife habitat strips should be retained to maintain habitat diversity. As a guide, strips of uncut forest 100 m in width, based on streamside reserves but including links up slopes and across ridges to connect with watercourses in adjoining catchments, should be provided every 3-5 km. These strips should connect any large patches of forest which are not to be harvested, such as formal and informal reserves.

Patches of mature forest (Wildlife Habitat Clumps) containing habitat trees with nesting hollows and other old growth structural elements should be retained in coupes with few retained areas (e.g. streamside reserves, areas reserved for other values, areas reserved for operational reasons etc.). Retention of such Wildlife Habitat Clumps assists maintenance of the habitat requirements of old growth dependent fauna species, particularly hollow dependent fauna, and enhances recolonisation of areas following harvesting.

Within coupes where no burning or low intensity burning is intended (mainly partially harvested coupes), Wildlife Habitat Clumps should be retained in areas which are not within 200 m of other retained areas. Clumps should be retained at a rate of approximately 1 clump every 5 ha and should contain a minimum of 2 to 3 habitat trees and where possible a range of trees and shrubs of other ages.

In coupes where high intensity burning is required to achieve regeneration or where cable harvesting is used (mainly clearfell coupes), Wildlife Habitat Clumps should be retained along the boundary of the coupe where they can be protected from disturbance. As a guide retain clumps at approximately 200 m intervals along a coupe boundary in areas not within 200 m of other reserved areas. These clumps should be about 50 m by 20 m in size. Consideration should be given to retaining adjoining clumps when adjacent coupes are felled.
**Review of the biodiversity provisions of the Tasmanian Forest Practices Code**

**Report to the FPA April 2009**

- WHCs are one of the key off-reserve, in-coupe management tools used to cater for forest-dependent fauna. There is so much to discuss on this topic that the review panel should seek advice from a separate working group.

- Note: the heading ‘site management for fauna in native forests’ makes the absence of such a section on the management of flora values in agricultural and/or plantation landscapes more obvious.

- There is a specific technical note (*Fauna Technical Note 7*) on managing WHCs and the Threatened Fauna Adviser makes extensive reference to the use of WHCs to partially cater for the management requirements of several species of threatened fauna.

- There is also a specific technical note (*Fauna Technical Note 8*) on managing WHSs and Forestry Tasmania has some internal policies on the management of WHSs that should be examined. Note: the WHS provision of the *Forest Practices Code* is a tenure-neutral statement, which is poorly understood by private managers, and is also aimed at extensive swathes of native forest, so caters poorly for extensive plantation landscapes. Planners seem stuck on the concept of 100 m wide strips and that they must contain forest.

- Regarding inclusion of prescribed distances for WHS widths and spacing in the first paragraph: Reference should be made to tools that expand on the suitable prescriptions in different circumstances. The 3-5 km spacing is questioned.

- Specifying a width of habitat strips in the *Forest Practices Code* is problematic because it depends so much on specific forest and site attributes. There are also problems with the management of strips (incursions, wood-hooking etc).

- There are different ideas even within the FPA about the primary function of WHCs. How effective they are depends on the criteria they’re being judged against.

- These issues should be sorted out over time in Technical Notes etc.

- Need to be careful to take account the differences in the way this provision is applied in practice on different tenures.

- Regarding deletion of two last paragraphs—level of detail regarded as inappropriate. Instead include reference to planning tools.

- This provision has to be kept as a ‘should’ statement because in reality there are situations where WHSs or WHCs are not appropriate or are not workable (e.g. some private land). There is also a problem with enforcement.

- Suggestion to make two ‘should’ statements—one regarding regional level planning (e.g. Biodiversity Spines—see below), the other regarding coupe level, so that this provision is more inclusive of different tenures and the limitations associated with some tenures. This way FPOs could (and should) take on board the principles of connectivity.
when preparing FPPs for small private properties also. Suggestion to mention Biodiversity Spines as an example of regional level planning.

- For statement about coupe scale planning, give examples of biodiversity management at the coupe scale, incorporating some ideas about regional connectivity.

- The two points made regarding remnants on P59 under the second major dot point should be integrated with this provision (which will become a provision regarding conservation at different scales).

- Suggestion to mention management of devil/quoll habitat in the Forest Practices Code (similar in length and emphasis to the rocky knolls and epiphyte mention in flora section).

- There was discussion regarding the need to integrate principles of habitat connectivity in plantation management. This might become increasingly relevant in future given no further conversion and large areas of existing plantation on changing rotation.

- Landscape level material needs to stay clearly in realm of ‘how to do it’—‘should’ and ‘will’ statements are appropriate.

[‘Biodiversity Spines’ used by FT: Concept developed to try to balance expansion of plantation estate by maintaining ‘coupe size’ links of native forest across the landscape—this includes native forest regeneration coupes as well as reserves. They were established in areas where there was to be plantation expansion. In some cases they included areas of current plantation (i.e. would require that they are converted back to native forest).]

The panel agrees with above comments (apart from reference to specific threatened species provisions).

D3.3 Species of High Conservation Significance (Threatened and Priority species) and Threatened Plant Communities

Basic Approach


Note: outdated legislation names—Forest Practices Code needs to either be more generic or have a introductory legal statement covering this matter.

The panel agree - include current legislation in an appendix?

What is an ‘inadequately reserved plant community’? Is it just those listed as threatened on Schedule 3 of the Nature Conservation Act 2002, priority A or B floristic communities
Threatened species and inadequately reserved plant communities will be managed in accordance with these policies and legislation and procedures agreed between the FPA and conservation specialists in DPIW, the government department responsible for administering the Threatened Species Protection Act.

The panel notes that wording is incorrect.

The Agreed Procedures will include the development of endorsed management prescriptions through consultation among landowners, Forest Practices Officers and specialists within the Board and DPIWE. Under the Agreed Procedures Forest Practices Officers will:

– consult manuals, planning tools and databases to determine if threatened species or inadequately reserved plant communities occur or are likely to occur in the operational area;

– notify the appropriate specialist within the Forest Practices Board if threatened species or plant communities occur or are likely to occur in the operational area;

– obtain an endorsed management prescription for the operational area and incorporate this prescription into the Forest Practices Plan. This may involve further consultation between the Forest Practices Officer, the landowner, and specialists within the Forest Practices Board and DPIWE. (P64, DP2)

The Agreed Procedures have been discussed in detail in other background documents. The adequacy of the Agreed Procedures to deal with strategic matters (e.g. broad scale plantation planning) and other activities (e.g. agricultural clearing, residential developments) needs to be addressed.

Need to be aware of legal implications of wording.

The panel agree that Agreed Procedures were designed to deal with FPP level (coupe level) decision-making not strategic level planning.
Need for an agreed Basic Approach to take threatened species/communities into account at strategic level, recognising Fauna and Flora Strategic Planning Groups and associated planning process.

Also need to look into what operations are actually covered by Agreed Procedures—current understanding is that they only relate to ‘forest operations’ as defined in *Forest Practices Act 1985* and RFA. What is the Basic Approach therefore for other operations (e.g. subdivision, clearing for agriculture etc.). What is the requirement under EPBC Act?

The conservation of threatened species and plant communities may be achieved by reservation or prescription in accordance with the duty of care policy, voluntary arrangements or agreements (e.g. special management zoning on State forest; conservation covenants on private land), or through legislative processes as mentioned above. (P64, DP3)

The conservation of threatened species and plant communities may be achieved by reservation or prescription in accordance with the duty of care policy, voluntary arrangements or agreements (e.g. special management zoning on State forest; conservation covenants on private land), or through legislative processes as mentioned above. (P64, DP3)

Note: outdated program name.

Issues about definition of inadequately reserved and flow-on policy changes as discussed above.

- As already flagged, duty of care needs to be clearly defined with definition not buried in the *Forest Practices Code*.

The panel agrees

*A3 Planning*

*A3.1 Strategic Planning*

General principles

The legislative and policy framework within Tasmania provides a comprehensive basis for strategic and operational planning. Strategic planning is undertaken on the basis of processes such as:

- The Tasmanian Regional Forest Agreement and Forests and Forest Industry Strategy;
- Forest Management Plans and Management Decision Classification zoning on State forests;
- Forest Management Plans and Private Timber Reserves on private land;
Three Year Plans prepared for State forests and private forests under the provisions of the Forest Practices Act 1985. (P3, DP1)

While this General Principle is illustrated by examples, it does not include reference to the concepts of ‘catchment planning’, ‘whole property planning’, ‘vegetation management agreements’, ‘game management planning’ and ‘integrated pest management’, amongst others. In addition, it does not make any reference to more recent forest practices planning concepts such as ‘plantation design’ as exemplified by Munks and McArthur (2000) and ‘coupe size planning’ as has been explored by FPAC.

There is an opportunity here for including more discussion on the potential benefits of using the formal 3-Year Plan process for strategic biodiversity planning and actually require the input of specialist expertise from the FPA in the production of the 3-Year Plans.

- Possibly break this section into two main dot points—the first would be ‘legislative general principles’, and would include existing dashed points, second would indicate less formal strategic planning, to make clear that there are other strategic planning considerations that don’t fall under the legislative and policy framework.

The panel agrees

- The specific planning concepts mentioned above are too bio-centric and would be better in Section D. This section needs to stay as very general principles. (point was also made that term ‘whole property planning’ has farm property connotations, perhaps a different term needed when referring to forest estates of large companies)

The panel agrees

- This is not a part of the Forest Practices Code consulted frequently by practitioners (it’s assumed knowledge) but it could be expanded for the sake of non-practitioners who are looking for a planning overview.

The panel notes that this should be part of a more generic information document not part of Forest Practices Code.

- There is FPO dissatisfaction with the way the strategic approach is currently working.

The panel notes this.

- 3 yr planning is an important side issue, but not necessarily requiring changed wording here. Three year planning under the Forest Practices Act 1985 is principally about consultation with councils regarding proposed infrastructure etc, but FPA specialists need to make it more of a priority to consider 3 year planning when giving special values advice and allocating research priorities.

The panel notes that biodiversity consideration at the 3 year planning level is a critical component of biodiversity planning overall (not just a side issue). The planning process under the FPs system needs have a more balanced approach with more
emphasize on strategic level planning (currently focus is on operation level). This part of the Forest Practices Code should be revised to include an advice process for biodiversity and other landscape values at the strategic level (e.g. 3 year plans, fire management plans, roading plans) and linked to other planning processes (e.g. weed management plans, aerial spraying plans).

**Good planning at both the strategic and operational level reduces environmental impact and operational costs.** (P3, DP2).

Is there an opportunity at this juncture in the Forest Practices Code to flag more strongly the need to strategic biodiversity planning (e.g. land management agreements, cross-tenure catchment planning, etc.)? Should the Forest Practices Code include some guidelines on the mechanisms for achieving good strategic planning, and how such mechanisms can be implemented in a practical way?

**A3.2 Operational Planning - Forest Practices Plans**

**General principles**

Operational planning is carried out on the basis of Forest Practices Plans and associated plans such as burning plans. (P3, DP3)

The issue of separate burning plans (and other types of plans such as aerial spraying plans, etc.) needs addressing because these peripheral activities have the potential to impact on biodiversity values and may not be adequately considered under the routine administrative assessments undertaken for FPPs.

These considerations are taken into account with current processes (e.g. burn plans). Information in this part of the Forest Practices Code is at a generic level (more public information level). If we get into mentioning biodiversity here we’ll also need to mention other special values.

The panel agrees covered in above point

*The environmental effects of all forest operations envisaged for an area including access, harvesting, restoration, reforestation where applicable and maintenance, will be considered before operations start.* (P3, DP6)

The panel notes that no change is required and that this is an important Forest Practices Code statement.
Basic Approach

Provisions within Forest Practices Plans will be consistent with safe working practices. Persons carrying out operations under a Plan will also comply with other relevant laws, including the conditions of any licences, permits and other authorities issued. (P5, DP5)

- There are potential conflicts between safety requirements and biodiversity values management (e.g. ‘hazardous trees’ and WHCs) and some permit conditions/requirements are unclear as to how they relate to a certified FPP.
- A supporting document (e.g. technical note, or section in the planning manual) could be prepared to provide a checklist of the types of conflicts that might arise and some potential solutions.
- This statement is just to make clear that other laws also apply, not just the Forest Practices Code.
- ‘All’ has been removed from wording as previously it was too strong.
- Technical note on dangerous trees could be useful (base on training course for risk assessment)—this can refer to biodiversity values, landscape values etc. Note that dangerous trees are typically more of an issue for landscape values than biodiversity values.
- The panel agrees with suggested changes

B. Building access to the forest

Note that there is currently a roading manual in draft form (which might be adopted under new structure)—this might address many of the comments raised below.

The panel notes that this may affect Forest Practices Code wording.

B1. Planning and Locating Roads

General principles

Adopt the design standard that ensures the road will carry the anticipated traffic with safety, taking into account potentially adverse effects on natural and cultural values. (P6, DP1)

- Is there a need to emphasis environmental values as the primary concern rather than traffic levels and safety?
- Include additional words as suggested above.
- Refer to operational or planning manuals at the start of this section.
- The panel suggest wording change.
• Fit the road to the topography so that a minimum of alterations to the natural features will occur. Ridgetop roading is generally preferable. Midslope roads should be avoided as much as possible in steep country. (P6,DP2)

• This is in almost direct conflict with the management of Phytophthora cinnamomi where ridgetop roading is not encouraged because of the potential to spread the pathogen to two separate catchments. In addition, some threatened flora are very much restricted to ridges and upper slopes (e.g. Hibbertia calycina in the Scamander area) and some threatened fauna are likely to be disadvantaged by ridgetop roading on some circumstances (e.g. wedge-tailed eagle nest just below a ridge).

• Ridgetop road might also conflict with some visual management values but midslope roads can be detrimental to other biodiversity values (e.g. many headwater streams effectively start below the ridgeline on the mid to upper slopes (e.g. midslope road across numerous class 4s and drainage channels in steep country with threatened hydrobiid snails).

• Note that the draft roading manual has exceptions to these principles—this can include consideration of Phytophthora for example.

• The Phytophthora Technical Note also includes all necessary information for this concern, bringing together different aspects of the Forest Practices Code.

• Note suggested wording change.

• The panel notes that any form of roading is in conflict with the maintenance of biodiversity values and the aim is to minimise the adverse impacts on a case by case basis.

Ascertain the presence of significant unstable areas and of natural and cultural values by using local knowledge and consulting:
- table 7, Landslide Threshold Slope Angles (page 54);
- Appendix 3 - A Guide for Operations on Very High Erodibility Class Soils (page 111);
- Appendix 4 — A Guide for Operations on Soils with High or Very High Erodibility by Wind (page 113);
- Section D — Conservation of Natural and Cultural Values (page 51);
- Resource Manuals or other sources (pages 102-104);
- Specialists. (P6,DP3)

• Is this statement better placed earlier? The concept of ‘local knowledge’ is not defined.

• Many of these dash points would end up in supporting documents rather than in the Forest Practices Code under the new structure.

• The panel agrees

• ‘Local knowledge’ is the process of familiarising yourself with what’s already in the area and at the site during the planning phase. Site inspections form part of local
knowledge. Wording should seek to make this meaning clear in the text (not technical enough for glossary).

- The panel agrees; needs to refer to assessing known risks at the site level. Suggestion for clarifying term - could add ‘e.g. site inspections’ after ‘local knowledge’ in above provision.

Avoid road locations in steep narrow valleys, swamps, slip prone or other unstable areas, very highly erodible soils, natural drainage channels, streamside reserves and areas where roading would substantially affect significant other values. The potential for road construction to introduce or spread weeds or disease needs to be considered. (P6, DP4)

- This is a very broad General Principle with good intent but it is vague. Perhaps some examples of ‘significant other values’ might be useful. Some obvious ones, from a biodiversity perspective, include karst areas, reserved old growth forest, vegetation susceptible to PC, an area with an eagle nest (or lack of eagle nests).
- The need for strategic planning of roads is highlighted time and time again by roads being constructed prior to a consideration of longer term management issues (e.g. Plenty Link Road now goes past and above an eagle nest, numerous other such examples).
- Nowhere does there seem to be a General Principle to say ‘Consider all alternatives and don’t just choose the most economical. Other factors might override economics. Don’t road through a forest reserve if you can road along a dedicated road reserve. Don’t construct parallel roads because of tenure dispute.
- A General Principle on the potential of roads to introduce weeds and/or disease seems to be missing. Need for ongoing monitoring of weeds and disease also not recognised.
- All of the above considerations can go into the operational manual; it is not so appropriate here in General Principles.
- Need to add words indicating there is a need to consider that road construction may introduce weeds and diseases (see suggested words above). The panel agrees.
- This provision also has some definitional issues: the term ‘avoid’ carries connotations of the traditional use of the ‘should’ statement. In addition, the concepts of ‘substantially affect’ and ‘significant other values’ are open to very wide interpretation. Are some examples needed?
- Need to give some definition of these terms - perhaps expand on with examples. This could be extended in technical manuals etc. The panel agrees.

Roads will be located to avoid caves, sinkholes, streamsinks and springs. Swamps will be avoided where practicable. (P7, DP3)

- Is this statement too broad? The statement below about rocky knolls is specific as to why such sites are important. Caves, sinkholes, streamsinks and springs and swamps
have significant biodiversity values (including threatened fauna and flora) and the concept of ‘avoid’ or ‘avoided where practicable’ is less strong than guidelines provided in planning tools such as the Sinkhole Manual (e.g. for management of sinkholes) and the Threatened Fauna Adviser (e.g. for management of threatened karst species), and what prescriptions may be delivered through the Forest Botany Manual for high priority vegetation types and/or threatened flora.

• This provision highlights the need to closely align wording in the Forest Practices Code provisions and the supporting documentation.

• There also remains the issue of the definition of a ‘swamp’ (see comments under Glossary).

• Agree with above statement about importance of aligning wording between the Forest Practices Code and other docs.

• Need to add some more general wording about some environments being sensitive, and that they will be considered in the various other planning tools. E.g. ‘there are several localised environments associated with natural and cultural values, including X, X, X and X, these need to be identified (during FPP evaluation) and treated by specialist advice’.

• The panel agrees.

Rocky or exposed knolls should be avoided, as they may be important for rare or inadequately reserved vegetation, or be visually sensitive. (P8,DP4)

• There is a consistency issue in this statement. The use of the terms ‘rare’ and ‘inadequately reserved’ should be linked to the terms used under the Nature Conservation Act (e.g. use a generic term such as ‘threatened’ or specify ‘rare, vulnerable or endangered’) or the Forest Botany Manual (e.g. a generic term such as ‘communities with a high priority for conservation management). A draft technical note is in preparation for management of rocky outcrops. The Forest Botany Manual specifically lists this type of environment as a site of potential significance for flora.

• Include this point in more general point about localised environments (see above) and refer to relevant planning tools. The panel agrees - need for consistency.

Interference to natural drainage will be minimised. (P7,DP6)

• With respect to threatened aquatic species, the Threatened Fauna Adviser (current version) provides some quite specific recommendations on how to minimise interference to natural drainage. Perhaps some additional emphasis is required here because if someone is just planning a road, while they are directed to Section D of the Forest Practices Code, the Basic Approach as presented does not adequately indicate the potential complexity of the situation.
• Is there an issue with the emphasis of this statement? Current emphasis is on minimising interference—should this not be on maintaining existing drainage characteristics?
• This is quite a major issue with respect to the long term management of aquatic and riparian habitats, especially given the massive network of existing roads (along with their maintenance and quality issues), and a technical note covering crossings, drainage diversion, etc. might be warranted.
• Possibly change to ‘natural drainage should be maintained’…although given that culvert requirements can lead to changes to drainage this can lead to a contradiction between provisions. Maybe add ‘consistent with the requirements for road construction’ after ‘minimised’
• Could add ‘or habitat for aquatic species’ after ‘natural drainage’.
• The panel do not agree because natural drainage cannot be maintained. This is about minimising adverse impacts and the panel has suggested an objective under consideration of freshwater systems. The second dot point should be covered at a higher level.

Access tracks not required for carting may cross watercourses at natural crossing points without the use of drainage structures provided disturbance to the watercourse beds and banks is minimised. The number of these crossings will be kept to the absolute minimum required for access. (P9,DP1)

• The Threatened Fauna Adviser may prescribe additional conditions to this statement, especially in catchments with species such as threatened crayfish and hydrobiid snails, particularly with known sites immediately downstream. So this provision need to flag other planning manuals and the fact that additional prescriptions might be required in other situations.
• Fauna considerations should be picked up in the FPP planning process, as part of special values evaluation.
• Because some access tracks might not get considered within the planning process (maybe due to fire requirements or a bridge being down, or sometimes just convenience of accesses) there does need to be some provision to ensure unplanned access gets approved by an FPO where appropriate (e.g. where there may be fauna issues to consider). The best way would probably be for clear wording in FPP indicating when such values are present and that there should be ‘no crossings unless authorised’, for example. Reference to TFA or specialist advice would determine when this wording was needed.
• The panel agrees with the need to incorporate links to other Forest Practices Code planning tools.
• Clear objectives need to be provided in the Forest Practices Code and the flexibility in decision-making on the ground by the FPOs responsible for meeting the Forest Practices Code objective needs to be maintained.
Culverts draining roads should be located so that discharge filters through ground vegetation with filtering capacity. (P9, DP9)

- There are situations where this prescription may conflict with threatened flora, threatened fauna or high priority vegetation type management.
- The emphasis should not be on forest vegetation, but on ground-layer vegetation (e.g. grass or Gahnia). At the moment this provision doesn’t make clear the intention—see suggested change of wording.
- The panel has suggested words

The minimum diameter of culvert pipes should be 300 mm. The optimum size will depend on local knowledge of climate and conditions. In the following situations where the risk of culvert blockage or consequence of failure is high, the minimum diameter of culvert pipes will be 375 mm unless otherwise specified by a Forest Practices Officer:
- areas subject to high intensity rainfall events e.g. parts of eastern Tasmania;
- areas with high or very high erodibility class soils;
- midslope roads in steep country. (P10, DP2)

- Should the requirements for threatened aquatic fauna be mentioned here? The Threatened Fauna Adviser recommends some quite specific crossing designs (e.g. bridges in some situations, re-designed culverts to allow animal passage, etc.).
- There is a split in this section of the Forest Practices Code between provisions that relate to culverts on-streams and provisions that relate to culverts not on streams—this split should be made more clearly. The above provisions relate to culverts not on streams (note that page 11 currently mentions the culverts on-streams considerations).
- The panel agrees
- The comment regarding aquatic fauna (above) is not relevant here (it relates to section for culverts on streams).
- The panel agrees

B3 Road Construction
B3.1 Clearing and Formation
Basic Approach
Roadlines should be logged out during or before road construction, and timber salvaged during or soon after construction. All trees pushed or felled should be left so as to ensure that the timber can be recovered in a safe manner. (P12, DP1)

There are situations where roads are constructed prior to a full assessment of the forest the road is designed to access, such that the road has had to be closed and rehabilitated and/or substantially redesigned (e.g. Murdochs Road example, Repulse example).
Where a road passes through a streamside reserve or Wildlife Habitat Strip, clearing of vegetation should be minimised and trees felled parallel to the road and away from the watercourse wherever possible. (P12, DP3)

- This statement is reiterated on the fauna evaluation sheet with respect to management of Wildlife Habitat Strips, and is equally applicable to management of roads through high priority vegetation types.
- Can the statement be expanded to include additional statements as per the WHS provisions on the evaluation sheet such as ensuring debris is not pushed into the stream, adjacent WHS, etc. and perhaps even in some circumstances have debris removed to another site.
- No problem with adding WHSs to this provision.
- The panel agrees. *Forest Practices Code* words need editing.

Hazardous trees which have a significant probability of falling onto the road surface should be removed during construction. Where a hollow-bearing hazardous tree is located in a reserve prior approval from a Forest Practices Officer will be obtained before it is removed. (P12, DP4)

- This provision does not make reference to the potential biodiversity values of such trees (e.g. hollow-bearing trees), and the definition of ‘reserve’ should be clarified.
- The general issue of ‘hazardous trees’ in relation to management of biodiversity values is incorporated into a policy but this should be re-examined in the context of the current review.
- The panel suggests leave as hazardous but ‘reserve’ definitions need to be clear.
- It is the risk assessment that will ultimately determine whether trees need to be removed or not (so even though it’s important to draw attention to their habitat value, this will not be the final determining factor).
- Only some FPOs are authorised to carry out risk assessments (hazardous tree assessments)—so it is this person who needs to consider habitat values.
- The panel notes that the risk assessment needs to include habitat values and the authorised FPO needs to have had the appropriate training.
- Also, habitat trees may end up being felled for road maintenance/safety reasons after an FPP has expired. So a tree initially kept for habitat reasons might be lost later anyway. (Roadside trees are also vulnerable to firewood cutters).
- It is necessary to include some wording (either in the *Forest Practices Code* or the roading manual) to caution that roadning can make trees hazardous that are not initially hazardous.
- Locations of habitat trees (and thus location of habitat clumps) should contribute to determining where roads are located—i.e. roads set out to avoid habitat trees. This would probably work for in-coupe roads but probably not for system roads.
• Note that a hazardous tree and a habitat tree are not necessarily the same thing—here we just want to make sure habitat trees are considered in some way in road location planning.

• The panel agrees

  Where practicable, stripped topsoil should be stockpiled in suitable accessible locations for future use on batter slopes, borrow pits, quarries and landings associated with the road, or be used immediately for these purposes. (P13, DP1)

• Does this provision need to refer to Phytophthora cinnamomi management?

• Agreement with this comment. Also refer to declared weeds.

• The panel agrees

  In water catchments close to town water supply intakes, known or predicted localities of threatened aquatic fauna, and areas of important karst drainage and swamps, surplus fill will be transported away or otherwise contained to minimise disturbance within streamside reserves. (P13, DP4)

• The concept of ‘critical area’ is poorly defined but the Threatened Fauna Adviser is clearer with respect to the management of several aquatic species.

• The panel agrees with wording change.

  Where roads are constructed through areas containing myrtle, myrtle wilt disease is a risk. Machine and falling damage to the adjacent myrtle stands and heaping of debris into the undisturbed myrtle area should be avoided. Where practicable, live myrtle trees inadvertently damaged during construction should be removed. Measures should be implemented to avoid the spread of other diseases and weeds, as detailed in Section E4. (P13, DP7)

• There is an old myrtle wilt management guideline document available (Forestry Commission production) but it is out-of-date. The Forest Botany Manual provides some additional guidance on management of myrtle wilt and perhaps, as in other sections of the Forest Practices Code (viz. Wildlife Habitat Clumps), reference could be made to another planning tool.

• Another issue with this provision is that its intent is unclear—it surely does not intend to the provisions to be applied to a patch of myrtle rainforest that will subsequently be clearfelled?

• The other issue about this statement is that it does not take into account FPA’s greatest traditional concern about management of myrtle wilt, which is where myrtle forest is located in a formal reserve (especially one recognised for its rainforest) adjacent to an operation. This raises the issue of ‘buffers on already buffered reserves’. The input of
other experts is suggested (e.g. FPA, FT, PWS, etc.) and the Reserve Code of Practice should be examined to see what it states about this situation.

- The detail here about myrtle would be better elsewhere in the Forest Practices Code (or in the relevant operational manuals) - it is not widely applicable because it relates to specific environments. Perhaps weeds and disease should be dealt with in the one section within the roading section. Alternatively, perhaps include a general comment at beginning of the roading section regarding consideration of weeds and diseases.

- Technical Note on myrtle wilt should be referred to (could have general sentence to replace above wording, saying myrtle wilt is an issue and the Technical Note should be referred to). The panel agrees.

B3.2 Road Drainage

Basic Approach

Drainage will not be directed into sinkholes and vegetation will be retained on the margins of sinkholes. (P14, DP2)

- The Sinkhole Manual would provide additional prescriptions in relation to this issue, and it has direct relevance to biodiversity values (e.g. threatened karst species), and this manual should be specifically referred to in this Forest Practices Code provision.

- The current provision does not provide a guideline on how much vegetation will be retained on the margins of sinkholes and how such vegetation will be managed.

- The statement is vague because there is no definition of ‘concentrate’ and it conflicts marginally with previous statements about roads avoiding sinkholes.

- A cross-reference to the sinkhole manual is needed here (the manual is very specific)

- The panel agrees with wording change and cross reference comment

Adequate provision will be made at culvert inlets (e.g. rock-lined or concrete sumps) and outlets (e.g. energy dissipaters) to minimise erosion being caused by flow entering or discharging from the drain. (P14, DP6)

- Does this statement need to be reworded to take account of the Threatened Fauna Adviser provisions for some aquatic fauna, and the requirements elsewhere in this section of the Forest Practices Code to allow for fish passage (also a requirement of the Inland Fisheries Act)?

- The panel agrees that needs to be consistent with other relevant planning tools.

Culvert outlets on watercourses should be protected by energy dissipaters such as large rock where natural watercourse beds downstream do not provide sufficient protection against bed scour or erosion. Care should be taken to ensure that dissipaters do not themselves cause or enhance bank or bed erosion or inhibit fish passage. (P15, DP1 and diagram)
• Does this statement need to be reworded to take account of the Threatened Fauna Adviser provisions for some aquatic fauna, and the requirements elsewhere in this section of the Forest Practices Code to allow for fish passage (also a requirement of the Inland Fisheries Act)? Is the diagram adequate?

• This provision is dealing primarily with non-stream situations. The revised Forest Practices Code or operational manuals should make clearer this separation between stream and non-stream provisions.

• The panel agrees

New watercourse crossings will be designed and maintained to minimise disturbance to the passage of fish and other aquatic fauna. Consider replacement of existing crossings which are identified as resulting in fragmentation of aquatic habitats. Specialist advice should be sought. (P15, DP5)

• Should direct reference to the Inland Fisheries Act 1995 be made to emphasise the legal obligations? Should reference to a technical manual be provided?

• Legal obligations under Inland Fisheries Act are not currently clear—need to clarify.

• The panel agrees that this Act needs to be cross referenced earlier in Forest Practices Code and legal obligations clarified.

Special prescriptions relating to culvert placement and design may be required for watercourses containing threatened aquatic species. (P15, DP6)

• Because this is almost a certainty in many areas of the State, this provision should be expanded to account for at least the minimum recommendations of the Threatened Fauna Adviser.

• Although there are guidelines in TFA these are vague—this matter is probably best dealt with in technical documents.

• The panel agrees that this is dealt with in Technical Note 15.

Culvert pipes should be set at or marginally below the level of the natural watercourse bed to facilitate passage of aquatic fauna. (P15, DP7)

• Does this provision need to refer specifically to threatened fauna in addition to ‘aquatic fauna’ and does it also need to refer to a planning document?

• Combine this point with previous point.

• The panel notes that this is picked up in Technical Note.
Sediment traps of logs, rocks, straw bales, etc. will be required in places where high flows of water are expected on high and very high erodibility class soils, and should be considered in other sensitive sites or in areas to be windrowed or cultivated. Straw bale traps will require maintenance and should be periodically replaced when saturated with sediment. (P16, DP1)

- Is a cross-reference to the weed management section of the Forest Practices Code required? Straw bales (or similar devices) can be the source of weed establishment, especially along roads and near bridges. The Weed Management Act requires that in many situations, certain weed species are not spread.
- The panel agrees that this is an important point about cross-referencing and needs to be made at a higher level.
- This Forest Practices Code provision is an example of one operational activity receiving a lot of detail (attempted to be captured in one paragraph and a diagram or two) but others or equal importance, especially from a management of biodiversity values perspective (e.g. WHC) receiving far less detail. Does this sort of provision require less detail plus a supporting document?
- In practice straw bales are not often used (rocks and branches more typical)
- Make it clear in roading manual that straw bales are okay but grass hay are not because of weed introduction.
- The panel agrees

B3.4 Steep Country (Slopes 20°and Above)
Basic Approach
A ridgetop roading approach should be used and midslope roads avoided as much as possible. However, species and plant communities with a priority for conservation, and occurrence of weeds or species susceptible to Phytophthora or visual skylines may require consideration (see Section D). (P19, DP1)

- See previous comments regarding need to consider management of Phytophthora cinnamomi.
- See suggested wording changes. This fits in planning tools.

B4. Upgrading Existing Roads and Access Tracks
Basic Approach
Substantial upgrading of roads is regarded as road construction for the purposes of this Forest Practices Code, and the approach detailed under Section B3 should be followed where practical. (P20, DP9)

- There seems to be a general opinion that existing roads can be simply upgraded without the need to go through a rigorous assessment process. This is simply not the case as such roads were often constructed well before a Forest Practices Code and have
potential to impact on many biodiversity values (e.g. aquatic ecosystems, swamplike ground, threatened species sites, etc.) and have ongoing management issues (e.g. weeds and disease).

- Disagree with above comment. There is currently consideration of special values during road-upgrade planning. Evaluation by planners of the relative merits of upgrading versus new road construction includes consideration of values.
- There may need to be a split between upgrading and maintenance provisions.
- The panel considers that FPA should consider splitting provisions for upgrading and maintenance.

Existing roads and access tracks that do not meet current Forest Practices Code specifications, and that are causing or likely to cause significant environmental damage to soil, water or biodiversity values, will be upgraded within harvesting coupes, (and should be upgraded elsewhere) to rectify these problems, or be closed and the sites rehabilitated. Significant environmental damage includes one or all of the following:
- a long term increase in watercourse turbidity, measurable as an increase in median turbidity by over 20 nephelometric turbidity units (NTUs) over a 2 week period, or associated death of aquatic fauna;
- blockage of watercourse channels;
- mass slumping or deposition of material into the watercourse;
- significant active erosion of table drains and/or the road surface. (P20, DP10)

- As discussed above, does ‘significant environmental damage’ also include some biodiversity values?
- In reference to above comment - biodiversity values are already mentioned in dash point one (death of aquatic fauna). See also suggested additional reference in main text.
- Substitute first point with ‘Long term measurable increase in turbidity’ (don’t need to mention NTUs etc); death of aquatic fauna is next point.
- Mention of weeds and disease is needed in the roading section but this might be best in road maintenance section.
- The panel agrees

Consideration will be given to replacing structures which impede the passage of aquatic fauna with more appropriately designed structures over time. (P20, DP11)

The Inland Fisheries Act has some specific provisions with respect to fish passage requirements. This provision of the Act does not make mention of the age of the roads (i.e. whether a new road or an existing road).
B5. Quarries and Borrow Pits

Quarries and borrow pits will be located and worked to minimise their impact on natural and cultural values. (P21, DP2)

- Does this broad statement need some further qualification with respect to some biodiversity values? For example, *Phytophthora cinnamomi* management is now covered by various planning tools, including FPA’s *Flora Technical Note 8*. Also, there have been several issues related to operation of existing quarries close to wedge-tailed eagle nests.
- No changes needed—this is broad principle statement.
- The panel agrees

The Chief Forest Practices Officer will be consulted before quarries are opened in karst areas or in the catchment of a Category A or B karst area (as indicated in An Atlas of Tasmanian Karst 3). (P21, DP8)

- Does this statement need to be broadened to include reference to biodiversity and specifically karst-dependent threatened fauna because the Threatened Fauna Adviser would not allow the construction of a quarry in such situations.
- Provision okay as is.
- The panel agrees

Quarries or borrow pits will not be established within 40 m of any watercourse unless specific approval is given by the appropriate authority. Approval to locate a quarry or borrow pit closer than 40 m to a watercourse will not be granted by the appropriate authority unless stormwater from the quarry can be adequately settled and filtered. (P21, DP9)

- This statement does not make reference to biodiversity values, only whether the stormwater from the quarry can be adequately settled and filtered. There are various threatened fauna that might be influenced by other potential impacts of a quarry so close to a stream (e.g. removal of shading, accidental chemical spills, etc.).
- Provision okay as is. The panel agrees

When work on any quarry or borrow pit commences:
- the area of disturbance and vegetation clearance should be kept to the minimum necessary (but trees adjoining the site may need to be removed for safety reasons);
- surface material (top soil and organic debris) will be stockpiled, uncompacted, for use in the final rehabilitation of the site. (P22, DP1)
The statement about removal of hazardous trees does not take into account potential biodiversity values of such trees. In addition, previous entries in the Forest Practices Code require that such trees be assessed prior to removal. See previous comments.

Don’t need to include more information on hazardous trees here.

The panel agrees, however the note the need for a Forest Practices Code principle relating to resolution where there are conflicting values.

To prevent spread of Phytophthora by mixing of top soil with quarry material, the surface material should be stockpiled on a dry elevated site so that the chances of mixing with quarry material is minimised. Runoff from this stockpile will be directed away from the quarry site. See also page 93. (P22, DP2)

There is now a detailed FPA Flora Technical Note and associated DPIW documents regarding management of Phytophthora cinnamomi and these should be referred to here, and perhaps additional broad guidelines added.

Refer to Phytophthora Technical Note instead of to page 93 of Forest Practices Code.

Need to also mention risk of weed spread. Something like - ‘Quarries and borrow bits should be located on sites that are free of exotic species and in particular declared weed species, and be maintained free of those species’.

The panel agrees

B6. Bridge, Causeway and Ford Construction

Basic Approach

Causeways and fords should be located and constructed so as to cause minimum disturbance to the streambanks, bed and natural flows. This can be done by avoiding deep box cuts on the approaches, protecting the road surface from scour (by using materials such as concrete or flexmat), and siting the crossing on a stable substrate with either sheet stone or a scour resistant material immediately downstream.

Causeways and fords will be designed and maintained to minimise disturbance to the passage of fish and other aquatic fauna. Specialist advice should be sought. (P23, DPs3-4)

The Threatened Fauna Adviser provides some recommendations with respect to threatened aquatic species. Does the Basic Approach section need a reiteration of the need to consider aquatic fauna (especially threatened species) in choosing the design of a crossing (e.g. ford vs bridge for passage of trout vs threatened galaxiids).

Add wording to the effect of ‘Consideration must be given to threatened species when deciding whether to put in a bridge or a ford. Both the type of structure and design of structure need to be considered’

The panel agrees
B7. Road Maintenance

General Principle

Regular maintenance of roads is essential to ensure that stable running surfaces and functional drainage systems are maintained. This is important to minimise sediment input to watercourses from roads. (P24, DP2)

- The concept of regular road maintenance is directed towards sediment control. However, there are several other issues that should be considered as part of road maintenance including threatened flora and fauna presence (several instances of bridge and road maintenance that have eliminated or adversely disturbed threatened species because databases were not checked and advice not sought), weed management (e.g. some chemicals used to control weeds might eliminate threatened flora such as control of Erica will eliminate Euphrasia viz. South Sister site), timing of activities (e.g. road maintenance close to eagle nests, road maintenance during times of fish migration, etc.).
- Suggestion to add here—‘Natural and cultural values should also be considered prior to road maintenance activities’.
- The panel agrees

Basic Approach

Road owners should have in place a system that ensures regular monitoring and maintenance of roads. (P24, DP3)

A good concept but only likely to be achieved by managers of larger land areas.

Roads should be inspected regularly and action taken to prevent and control severe erosion or failure of roads, particularly in steep country. This includes:
- restoration of the road formation or construction of water bars to prevent erosion;
- clearance of table drains and culverts;
- replacement of drainage structures before failure;
- protection at culvert outlets to prevent scouring;
- filling of settlement cracks. (P24, DP4)

- This dot point is focussed on erosion and failure of roads but it should also focus (or at least mention) adverse effects on biodiversity values (e.g. weeds)
- Make an additional dot point about weed infestation: ‘Management of weeds and disease will be considered in road maintenance programs with the aim of controlling infestations and preventing their spread.’
- The panel agrees

All silt traps and sumps will be regularly inspected and maintained by clearing accumulated sediment.
Control roadside vegetation only to the extent necessary to keep the road surface dry, to permit good visibility, and for weed and fire control purposes. Soil exposure on road verges should be kept to a minimum. (P24, DPs6-7)

- This does not take into account the presence of biodiversity values, especially threatened flora that have a penchant for roadside verges (e.g. threatened species of *Pimelea*, *Pomaderris*, *Euphrasia*, etc.).
- In response to above comment—it’s not really feasible to take account of roadside biodiversity values here.
- The panel agrees that verges may be important for threatened species.

On completion of harvesting operations, roads that are to be retained for fire control, forest management etc., will have drains and culverts cleared and road surfaces crowned. They will be left in a condition that minimises erosion and should be maintained in that condition. (P25, DP1)

- This provision does not allow for the consideration of why a road might need to be closed, and it appears that this basic broad planning concept is missing from any General Principle in the *Forest Practices Code*. Some example situations: new roads can allow access to previously unexplored parts of the forest and allow access to fisherpeople to sensitive threatened galaxiid sites, increase poaching of giant freshwater crayfish, increase risk of weeds in wilderness areas, increase risk of PC and fire getting into reserves, allow access past active wedge-tailed eagle nests.
- Need to add further dot point (probably right at beginning of this section, in B1): ‘Control of access should be considered if natural or cultural values could be impacted adversely by uncontrolled access or if there is a risk of unauthorised land use’

B8. Water Supply and Other Significant Catchments

Basic Approach

*Particular care should be taken and additional measures may be required in town or domestic water supply catchments, and in other catchments such as those of high conservation value*, including those important for threatened aquatic fauna or containing freshwater aquaculture facilities. (P25, DP4)

- Appendix 2 of the *Forest Practices Code* identifies some of the town water supply and freshwater aquaculture facilities. Could a similar appendix be included for listing key sensitive aquatic habitats and species and/or make a reference to the Threated Fauna Adviser? This is an example perhaps of the usefulness of GIS technology that can be updated frequently and linked to other tools.
- Key sensitive areas for aquatic species would have to go into TFA or other updatable list, not in code or widely available documents. The panel agrees.
• High conservation significance catchments identified by projects such as CFEV are not identified in this Forest Practices Code provision.
• Conservation significant catchments identified in CFEV will be covered in planning tools (TFA) so probably don’t need to make reference to it here.
• Need to mention relevant planning tools such as CFEV in Appendix to Forest Practices Code.

E. Establishing and maintaining forests

General principles

Management will aim to conserve soil and water quality, maintain biodiversity and long term site productivity reduce visual impact and protect other natural and cultural values. Prompt reforestation will contribute to the achievement of these aims. (P74, DP1)

• Section E has a weak emphasis on biodiversity values. It should be emphasised that selection of appropriate techniques and especially adequate monitoring and action will have the best results for biodiversity values.
• The requirements of the RFA, TCFA and Permanent Native Forest Estate policies should be emphasised for certain vegetation types.
• In response to above comment: No need for changes here—General Principle only.
• Additional ‘General Principle’ to add:
  ‘Planning for reforestation and maintenance should be undertaken at a strategic or landscape level, particularly when establishment of plantations could adversely affect natural and cultural values.’
• The panel agrees

Pests, weeds and diseases can adversely affect forest health. Owners of plantations, in particular, may need to seek advice on measures to protect their forests from pests and diseases. (P74,DP6)

• There is an emphasis in this provision on ‘owners of plantations’. One of the ongoing concerns on native forests is that of invasive and infestive weeds (e.g. Erica, broom, gorse) and Phytophthora cinnamomi.
• Need to re-word the second sentence. Suggested wording:
  ‘Advice may need to be sought on protection measures, particularly for plantations and in regenerating native forests containing threatened species and communities.’
• Further point to add here:
‘Planning needs to take account of constraints that might apply to damage control activities because of natural and cultural values, such as nearby presence of wedge-tailed eagle nests.’

- The panel agrees with modification

**E1. Reforestation**

**E1.1 Planning**

**Basic Approach**

The following factors will be considered and, where appropriate, detailed in the Forest Practices Plan (see the Selected Bibliography, page 104, for further detailed advice):

- natural and cultural values (P74, DP9)

- The presence of ‘natural and cultural values’ is hidden away amongst one of several ‘site factors’ and has equal weighting to landowners management objectives, etc.

- Various biodiversity values will have a major influence on reforestation planning (e.g. presence of eagle nests preventing reforestation during a critical growth period, spraying of herbicides can kill retained vegetation, especially if threatened species are present, and numerous other examples).

- The panel disagrees - leave as is.

**E1.2.2 Plantation Development**

**Basic Approach (P.78 onwards)**

- The management of plantations is an ongoing issue, mainly with respect to threatened fauna (e.g. aquatic species—where the *Threatened Fauna Adviser* provides quite detailed guidelines, some of which are now superseded by the draft class 4 guidelines) but also more generic biodiversity values (e.g. paddock tree management, remnant management, concepts of ‘restoration’ and ‘linking of habitats’).

- There is potentially a need for an additional sub-section on plantation planning, which could include issues such as hybridisation between plantation species and local trees, and management of remnant patches within plantations. This might end up in the planning section of the *Forest Practices Code*, depending on the code structure.

- See suggested wording for additional dot point for General Principles for section E.

- There may be a need to also flag the importance of strategic considerations for forest establishment in different place or different format depending on *Forest Practices Code* structure—e.g. within a strategic planning document specifically for plantation development.

- The issue of management of vegetation adjacent watercourses in ex-pasture plantation sites (ref to page 81 of code) will require consideration. It is going to be the topic of further discussion by a working group.
• E1.3 ‘Species Selection’—under ‘plantations’ subheading need to mention potential for plantation eucalypts to hybridise with closely related species, particularly if located in reserves.

• There is also the issue of wildlings (either pine or eucalypt) that may establish in areas important for conservation, however this probably can’t be addressed currently through species selection—this issue should instead be mentioned section E4.

• Suggested words to add in section E4—‘Consideration should be given to the potential of plantation wildlings to establish in adjacent areas, including reserves, and management that may be needed to control such establishment.’

• The panel agrees with the comments above, however, in addition the issue of WHS management in plantation areas requires consideration.

E1.5 Protection from Grazing and Browsing
General principles (P87)

• Weed control (i.e. use of herbicides) and browsing control/management have the greatest potential to impact on biodiversity values.

• Disagreement with the comment above: weed/browsing management may be important but is unlikely to have ‘greatest potential’ to affect biodiversity values. We need to recognise that unsuccessful forest establishment can have a greater impact on many values than activities associated with successful forest establishment (e.g. weed or browsing management).

• The issue of browsing control (including shooting and chemical controls) near wedge-tailed eagle nests needs to be raised in this section. Suggestion is to mention wedge-tailed eagle issue as part of a new point in the General Principles for section E that addresses consideration of biodiversity values (see wording suggested under ‘General Principles’).

• Importance of regeneration success needs to be considered in the planning process.

• Note that the first stage to protection and grazing is monitoring of the problem—it’s only once identified that protection controls are introduced.

• The panel agrees

E1.6 Fire Breaks and Access Tracks
Basic Approach (P88)

• See previous comments on fire breaks and access tracks.

• No suggested changes.

• Fire dams and water storage areas should be planned and maintained, the panel agree, taking into account aquatic fauna values, and erosion risk, especially during floods. Dams should preferably be built in drainage depressions, and locations in or adjoining...
Class 1 or 2 watercourses should be avoided. Dam planning and construction approval may be required from DPIW. (P89,DP1)
- There are some situations where planning tools strongly advise against disturbance to all drainage features (e.g. Threatened Fauna Adviser, Sinkhole Manual, etc.).
- See suggested wording change.

### E2. Use of Chemicals

*General principles (P89 onwards)*

- Weed, disease and pest management often involve the use of chemicals and have potentially substantial conflicts with management of biodiversity values.
- A general issue that needs to be raised is that some of these types of activities are carried on outside the scope of a FPP and so the provisions for the management of biodiversity values are not always carried through to another plan type (e.g. an aerial spray plan, a fire management plan, etc.).
- Need to be careful of what is regulated by code, and what other regulations are relevant.
- In first General Principle—add ‘threatened species’ after ‘karst systems’.
- The panel agrees but note that should be ‘biodiversity, including threatened species’.
- E3.3—on burning. It could be worth noting during the review process the FPAs position on fuel reduction burning and the potential need for approval under FP system. This is not necessarily a biodiversity related point.

### E4. Pest, Disease and Weed Control

*General principles (PP92-93)*

- See comments above.
- The new *Flora Technical Note* on management of PC should be reviewed as part of this review processes and relevant changes made to section E4.2. Reference to the more specific requirements of the *Weed Management Act 1999* are absent (see also previous comments).
- Add a point about plantation wildling control, e.g. ‘Consideration should be given to the potential of plantation wildlings to establish in adjacent areas, including reserves, and management that may be needed to control such establishment.’
- *Weed Management Act 1999* needs to be looked at in review process. Suggest code refers to how to access Weed Management Act (website) and mentions regional (municipal) differences in controls on species.
- The panel agrees
G. Glossary

- Some terms are potentially missing from the glossary, e.g. biodiversity (note: geodiversity is defined).
- Yes—would be good to include biodiversity. Definitions for this term used in other documents should be reviewed.
- The panel agrees.
- Some terms need updating, as identified below:
  - Conservation—The wise use of natural resources, on a sustainable basis, to meet the needs of both present and future generations. This includes measures to protect or maintain natural and cultural values.
  - Is this really a good definition of conservation or is this really ‘conservation management in the context of an industry’?
  - This definition is okay with suggested additional words (see above). The panel will look at other definitions. Need to be careful it matches the way in which the term is used in the Forest Practices Code.
  - The panel agrees with sentiments but will review definitions, eg., in NFPS and will consider as alternative.

Partial harvesting—Harvesting systems which include the retention of some trees e.g. advance growth, seed tree, shelterwood, group and single tree selection.

See previous comments on the concept of ‘seed tree retention’.

The panel agrees that partial harvest definition should be consistent with silvicultural manual definitions.

Private Land Reserve Program—A program established under the Tasmanian Regional Forest Agreement designed to develop that part of the Comprehensive Adequate and Representative reserve system applicable to private land.

- Needs updating to reflect the myriad of conservation programs.
- Change definition to definition of the reserve, not the program.
- The panel agrees but also need to acknowledge the range of programs.

Reserve/Reservation—An area of land formally or informally set aside for specified purposes. Formal reserves include State Reserves, Forest Reserves etc. Informal reserves include Wildlife Habitat Strips, and other areas where harvesting activities are specifically excluded by management zoning.

Does this need to make reference to ‘vulnerable land’?

Panel: Update to CAR reserve definitions
Need to include definition of Vulnerable land in Glossary.

Streamside reserve—All areas within a minimum distance specified in the Forest Practices Code from the banks of watercourses (including some class 4 streams and drainage lines), lake, artificial storage or tidal water (see also table 8, page 56).

Concept of a SSR on a class 4 stream entirely absent.
Panel water specialist to consider

Swamp—A generally or permanently waterlogged area which may or may not have associated tree growth; or a tract of low, ill-drained ground with patches of open water in which reeds, rushes and sedges occur (these may also be defined as wetland). Swamp sediments are dominated by still water deposits, commonly with a high organic content.

- Quite a good definition but see comments in main section under swamps.
- The panel agrees that this definition needs to note that it includes wetlands.

Threatened species—A species listed on current schedules of the Tasmanian Threatened Species Protection Act 1995 or the Commonwealth Environment Protection and Biodiversity Conservation Act 1999. Priority species identified in the RFA are also to be considered as threatened species.

- The panel to recommend a separate Priority species definition Also the EPBC, RFA priority species, etc. Make more generic?
- See suggested wording changes.
- The inclusion of RFA priority species in this definition needs further consideration.

Wildlife Habitat Clump—An area containing habitat trees set aside in a harvesting coupe to aid in the maintenance of fauna habitat diversity.

- This definition, and the definition of habitat tree earlier in the glossary should be reviewed by a separate group.
- This has already been reviewed by hollows working group
- The panel recommends that definitions in the various parts of the Forest Practices Code are reviewed subject to the new structure of the Code.
C. Harvesting of timber

C1.1 Dispersed Harvesting Design

General Principle

By dispersing harvesting in space and time any localised impact on natural and cultural values may be reduced. (P26, DP5)

- Should this be ‘…may be reduced…’ because there may be situations where aggregates are better than dispersed coupes, or dispersal may be beneficial to one value but not another? For example, consolidation of a localised plantation node within a catchment without threatened species might be better than scattering individuals coupes across several catchments which do support threatened species. It might be better to consolidate several coupes in one location to avoid scattering several coupes requiring additional kilometres of road and where impact on values may be multiplied (e.g. multiple stream crossings versus one; one eagle territory affected versus several, etc.).
- Change to ‘may be reduced’, as suggested above.
- The panel agree and have provided relevant objective.

Basic Approach

In native forest to be primarily harvested by clearfelling or seed tree retention and subsequently managed as native forest, planning should incorporate a dispersed coupe design. To achieve this:

- a regeneration unit or cutting coupe should not exceed 100 ha but the requirement for safe burning boundaries may over-ride this limit;
- the cutting sequence of regeneration units should where practicable be planned so that adjacent areas of native forest or plantation (?) are not harvested until the estimated average height of regeneration across the harvesting unit of any adjoining coupe is at least 5 m and an acceptable stocking standard is achieved. (P26, DP6)

- The Forest Practices Code does not provide a definition of ‘disperse’ and the only guideline is the second dash point, which has a ‘where practicable’ statement embedded in it. The concept of ‘acceptable stocking standard’ is nowhere explained and may lead to issues of interpretation.
- The concept of ‘safe burning boundaries’ has traditionally been used to allow coupes to exceed 100 hectares. It would be interesting to examine the FPP database and analyse trends in clearfell coupe size over several years and tenures. The impacts of larger coupes on biodiversity are expected to be higher in many situations so perhaps this statement needs careful consideration. Factors such as catchment effects, presence of certain threatened species, adequacy of informal reserve planning, etc. should be considered.
• The second dash point assumes adjacent areas are also clearfells but adjacent areas may already be plantation or an extensive area of high intensity selective logging (or the tenure may be different and near future plans unknown).

• There are technical bulletins that specify what is acceptable stocking (this is not an issue that needs to be dealt with in the Forest Practices Code)

• Operationally, the 5 m principle is hard to implement because of height variation across coupe (it also seems the reason for 5 m being chosen is not clear). It seems the main issue here is avoiding having clearfell coupes spreading across the landscape.

• A large portion of what’s done on private property is selective harvest anyway.

• A range of other issues mean that it is now very rare to get clearfell coupes of 100 ha or more—most are around 50 ha, with the exception of scattered trees on pasture. There were some much larger areas during the era of conversion to plantation, when large regrowth areas were converted.

• Given that clearfell coupes now rarely approach 100 ha, there may be a need to re-evaluate maximum coupe size, and whether it is a ‘should’ or ‘will’ statement.

• Regarding the second dash point, consider changing ‘regeneration’ to ‘reforestation’ if this statement is intended to include plantation coupes (there is often confusion between regeneration and native forest). Alternatively it might simply be changed to ‘harvesting units’.

• The panel has dealt with this in objective development and suggests some word changes here.

**Dispersed harvesting is desirable in other non-clearfelling operations. (P27, DP1)**

• This provision is sometimes used to justify quite extensive areas of so-called ‘partial harvesting’ silviculture (e.g. 100s of hectares of seed tree retention coupes in a single catchment). The term ‘desirable’ is neither a ‘should’ or a ‘will’ statement and is not linked to any firm policy.

• The potential impact of large-scale non-clearfelling operations on biodiversity values is probably not known but can be predicted to be more severe than carefully designed dispersal of smaller coupes subject to similar silviculture.

• Whether this statement needs to be modified to prevent large-scale non-clearfell operations (without in-coupe habitat retention), or modify such a scale by inclusion of additional provisions, or place thresholds (as with the clearfell operations) is a question for further debate.

• Definitions of different native forest silvicultural regimes are included in the Forest Practices Code glossary but the distinction between clearfelling selective harvesting is not defined because seed tree retention silviculture is not defined anywhere. A comparison of the Silvicultural Technical Bulletin terminology (‘modified form of clearfelling’) and wide acceptance of the system as a ‘selective harvesting’ is necessary. The Threatened Fauna Adviser and Technical Note 7 (Wildlife Habitat Clumps), and the Forest Practices Code section on WHCs, assumes seed tree retention is a form of
selective harvesting. This technical note will need updating if changes to the *Forest Practices Code* are made.

- The term ‘non-clearfelling operations’ is unclear because it refers to a broad range of prescriptions. ‘Seed tree retention’ is at the high-impact end of the spectrum of ‘selective harvesting’. It is better if seed tree retention is taken out of this provision and included instead under the clearfelling provision (see suggested wording change under first ‘Basic Approach’ point).

- Add a further General Principle:
  - ‘Planning needs to take account of constraints that might apply to natural and cultural values’ (or similar words)
  - Panel agree and have covered in objectives.

*Dispersed harvesting should be considered for plantations. Large blocks of plantation established at a similar time should be managed to improve dispersal over subsequent rotations. (P27, DP2)*

- Munks and McArthur (2000, and references therein) provide substantial advice on the management of fauna values and the relationship to plantation design. This document provides detailed guidelines and recommendations in relation to both strategic and operational management of plantations and these should be examined carefully as part of the present review.

- Absent from Section C of the *Forest Practices Code* is a section on clearing for non-wood production purposes (e.g. agricultural clearing, subdivisions, quarries, dams, etc.). Because of this emphasis on native forest harvesting, subsequent provisions in the *Forest Practices Code* related to biodiversity values are largely absent (e.g. WHCs, WHSs, special site retention, etc. provisions, are all aimed at native forest or plantation activities).

- This is an important point, but code cannot feasibly take account of all non-wood production activities that currently require an FPP—needs to be addressed elsewhere.

- Need to have FPA policy on land-use activities covered by FPS. FPS should provide policy direction, guidance, planning tools and overview (monitoring). The panel note needs to be a review of decision support tools across agencies to deliver on objectives.

- The second phase of the provision above is a general statement but there are no policies for implementation of the provision.

- The point of this provision is to re-introduce variability in age-class. Large estates have natural variability anyway. Accept this provision as-is (address non-wood production issue outside of Code)

- Panel agree.

*Clearfelling will not be permitted on areas with sensitive and non-resilient natural and cultural values (e.g. vulnerable karst soils) (see Glossary) unless authorised by the*
Chief Forest Practices Officer. Clearfelling should be avoided in other karst areas if high conservation or water supply values are present. (P27,DP4)

- Note that the Threatened Fauna Adviser specifically refers to karst areas and species. As such, the ‘unless authorised by the Chief Forest Practices Officer’ should perhaps indicate what circumstances might allow for an exemption from this provision or what particular values/advice will be used to make the decision.

- The Threatened Fauna Adviser recommends against clearfelling in a number of additional situations (e.g. within the entire range of the blind velvet worm, in certain vegetation types within the range of other threatened species) and these should perhaps be flagged.

- Happy with this provision as-is. No need to detail exemptions in code as there are too many and they are complex.

- Panel note that other values need to be flagged. Word changes suggested

C1.2 Fire Planning
General principles
When designing a coupe that will require the use of fire for reforestation, consider how to prevent fire from damaging adjoining land. (P27, DP5)

- There does not appear to be a general provision in the Forest Practices Code to ensure that fire management first takes account of biodiversity values. Best way to illustrate the concern is to note that extensive cable harvesting within the range of the giant velvet worm or some hydrobiid snails, and it was only after the harvesting was complete that the real issue of the need to achieve a certain intensity burn and therefore a predicted failure to meet the Threatened Fauna Adviser recommendations included in the FPPs was realised.

- A lack of tactical fire planning has been identified by some forest managers.

- This provision is about coupe design, and how that can influence fire planning for the coupe—therefore the reference to protection of the regenerating coupe from fire should be deleted (this is a separate, broader, issue, although measures to keep fire in are likely to be helpful in later keeping fire out also). Broader fire issues are better dealt with in section F of the Forest Practices Code.

- Suggested alternative to ‘consider how to prevent….’ = ‘planning should be undertaken to reduce the risk of unplanned fires on adjacent land’.

- Additional dot point here: ‘Planning should be undertaken to take account of natural and cultural values’

- Panel agree

The risk of fire escape from harvesting operations needs to be minimised by ensuring that contractors are aware of fire prevention requirements, and are prepared in the eventuality of fire occurring. (P27,DP6)
It is noted that the specific concerns of fire in karst areas is separately referred to (which is important for associated biodiversity values) but should other biodiversity values also be referred to here? For example, the fauna evaluation sheet has a specific question about clearfell operations adjacent to WHSs that require high intensity burns. Another example might be sensitive vegetation types (e.g. relict rainforest—a technical note is available for this issue) adjacent to operations. Perhaps even specific examples like an eagle nest next to an operation, an excluded threatened flora site, Wildlife Habitat Clumps within and on boundaries of coupes, etc.

Remove reference to burning in karst areas as this is a separate issue and is dealt with elsewhere.

Panel agree

Basic Approach
Coupe Design

Forest Practices Plans should include an evaluation of fire risk, and incorporate a design that is appropriate for fire management. Refer to the publications Silvicultural Use and Effects of Fire 4 and High Intensity Burning 5. (P27,DP8)

Should such an assessment take note of particular natural and cultural values? For example, if the assessment of fire risk on a cable clearfelled coupe considered that there was a risk that the fire would be very high intensity but the Threatened Fauna Adviser recommends a low intensity burn, this should be noted in the FPP.

Happy with provision as-is (section D takes account of special values)

Panel agree. Dealt with at a higher level.

The fire risk associated with the surrounding land should be assessed on the basis of the type of fire hazard, the prevailing severe fire weather direction, and the proximity of the fire hazard. (P27, DP9)

Sometimes this provision will result in a fuel reduction burn being conducted adjacent to or prior to a forestry operation. The operation itself might have minimal (or managed) risks to biodiversity values but the adjacent fuel reduction burn might have substantial risks (e.g. burning a buttongrass swamp full of burrowing crayfish, burning near eagles nests or sensitive vegetation, etc.) to values not identified because the standard coupe planning protocols (i.e. evaluation sheets, database checks, specialist advice) are not followed.

Happy with provision as-is.

FT has a system in place which requires that all issues around the coupe are identified before burning is conducted.

Panel note that systems like FT’s should be generally applied and have developed an objective to deal with this issue.
The topography, shape, size and boundaries of the coupe need consideration in the design phase. Where possible choose natural fire boundaries (e.g. ridgeline, moist gully). If constructed fire breaks are planned, avoid steep slopes into watercourses which may result in damage to retained vegetation, unnecessary earthworks, and inaccessibility for vehicles. (P28,DP1)

- Fire trails and constructed firebreaks are potentially high impact features of a forest operation on various biodiversity values (e.g. debris pushed into relict rainforest, destruction of threatened plant sites, disturbance to adjacent wedge-tailed eagle nests, unnecessary removal of hazardous trees specifically retained for some natural value, etc.).
- The diagrams on page 28 are interesting from a biodiversity perspective. The top set of diagrams indicates a good coupe design from a fire management perspective (LHS) and a poor one (RHS) because of wibbly-wobbly edges—biodiversity impact opposite. Similarly, the lower set of diagrams indicates a coupe cleared from bottom of slope to top is better for fire management than a coupe that only partially clears a slope—again, biodiversity impact is less on the not so good fire management scenario.
- There is unavoidable creative tension between fire design and biodiversity design—the planners have to create a plan that considers both.
- Demonstrates the need for a flexible approach to meeting the biodiversity and other objectives of forest management.

In steep country (slopes 20° and above):
- high intensity fires should be used only where essential for good regeneration (e.g. wet forest types and plantation establishment); however, the no burning option should only be used where it is possible to provide fire protection under a written fire management plan, and where identified in advance of harvesting;
- low intensity fires should be the preferred option in dry forests;
- harvesting should not proceed unless successful regeneration of eucalypts and other scrub or vegetative cover can reasonably be assured within three years of completion of harvesting or burning;
- burning of streamside reserves and other retained vegetation should be avoided wherever practicable. (P28, DP2)

- The last dash point is a concern from the management of aquatic fauna, especially in situations where the Threatened Fauna Adviser provides recommendations requiring the retention of ‘undisturbed’ streamside reserves.
- The last dash point could equally apply to a number of other biodiversity features such as retained rocky knolls (with sensitive non-vascular flora), relict rainforest buffers, wedge-tailed eagle nest sites, etc.
C1.3 Wet and Dry Season Site Selection
The following criteria should be considered when selecting areas for wet or dry season harvesting.

<table>
<thead>
<tr>
<th>Table 3. Wet or Dry Season Harvesting Criteria (P29,DP4 and table 3)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Table 3 includes ‘sensitivity of site’ as one aspect to be considered for wet or dry season harvesting. It indicates ‘karst areas’ and ‘threatened species habitat’ as least suitable for wet season harvesting. In addition, it should note management of root-rot fungus in some parts of the state because Flora Technical Note 8 indicates operating in dry conditions is better from a PC management perspective.</td>
</tr>
<tr>
<td>• Include ‘Phytophthora-susceptible environment’ and ‘threatened species habitat and requirements’ in table of criteria to consider.</td>
</tr>
<tr>
<td>• Panel agree but need to flag that other biodiversity values also need to be included.</td>
</tr>
</tbody>
</table>

C 1.4 Extraction Equipment and Soil Protection
General principles
Harvesting machinery and techniques should be matched to forest conditions to limit the impact of harvesting on soils and other environmental objectives. (P30,DP1)

| The need to limit the impact of harvesting on soils is noted but should this provision also refer to biodiversity values (e.g. decayed log resource, sensitive understorey vegetation, etc.)? |
| Happy with provision with minor wording change (to account for below point being moved/changed). |
| Panel agree |

The general level of training and skill of harvesting machinery operators should be progressively improved to assist in achieving environmental objectives. (P30,DP2)

| Should the industry not also be recognising the need to move to harvesting equipment that has the least impact on the environment? An example, the cording technique used in the southern forests, the excavator heaping of debris in the central north, etc. |
| No need to mention specific techniques or equipment. |
| Instead of having this provision regarding improvement and training, it might be better in the Forest Practices Code to have a statement that machinery operators should have |
‘adequate accreditation and training’—this kind of statement should occur early on in the code, and should include all levels of forest works (FPOs, contractors etc)—So suggestion is to move this provision to section A and broaden it, rather than have it here.

- Panel agree

**C1.5 Felling**

**Basic Approach**

*Harvesting boundaries will be marked before falling commences unless they are clearly delineated on the ground and identified in the Forest Practices Plan. The responsibility for boundary marking will be stated in the Forest Practices Plan.*  
(P32,DP1)

- Is a guideline/protocol needed for who can be responsible for marking particular types of boundaries? For example, while marking a standard SSR can be done by anyone appropriately trained, the marking of a braided stream or a particular habitat feature might be more difficult (e.g. where does a stream become suitable habitat for a grey goshawk or giant freshwater crayfish, how to define relict rainforest and their buffers on the ground, where does the rocky knoll begin and end?).

- Clear delineation by change in vegetation has been an issue—inexperienced people have trouble distinguishing. See suggested words.

- Panel have suggested distinguishing words.

*Control the manner in which trees are felled to:*

- facilitate extraction and improve recovery of useful products,
- avoid damage to watercourses retained vegetation and special values. See also Section C4, page 45. (P32, DP2)

- This provision has two concepts wrapped up in it i.e. maximise recovery of useful products and minimising environmental harm. They need to be separated. Also, the examples provide are aquatic-oriented and some additional more generally based biodiversity examples could be provided.

- See suggested wording change and separation of points.

- Panel agree with suggested wording

*Trees will not be felled outside boundaries designated for harvesting in a Forest Practices Plan. Trees will not be felled across boundaries into areas reserved from harvesting unless unavoidable where possible.* (P33,DP1)

- The ‘avoided where possible’ is potentially in conflict with several biodiversity provisions such as those included in the Threatened Fauna Adviser for species such as
the wedge-tailed eagle, and in the *Forest Botany Manual* for management of habitats such as rocky knolls and relict rainforest.

- Okay as-is. ‘Where possible’ is to allow for unavoidable felling error (wind change etc)
- Panel has suggested wording change. Need to develop definition for ‘unless unavoidable’.

> In particular, there will be no damage to retained vegetation around the perimeter of the coupe unless unavoidable. Any debris which falls outside the marked boundary should be carefully pulled back inside the harvesting boundary if it constitutes a fire hazard. (P33,DP2)

- The fauna evaluation sheet includes some more detailed and specific wording regarding the management of trees accidentally felled into a WHS, based on the relative risk of damage to the understorey vegetation and fire hazard. These words could be transferred to the *Forest Practices Code* at this point. Note that these provisions are also applicable to a number of other situations (e.g. retained features within a coupe such as WHCs, SSRs, rocky knolls, threatened flora sites, etc.). The *Threatened Fauna Adviser* also has similar (but more detailed) provisions for some species.
- Okay as-is
- Panel have suggested wording change.

**C2. Wet Weather Limitations**

*General principles (P33)*

The GPS do not include mention of *Phytophthora cinnamomi* as a general concern for operating in wet conditions. Also, potential impacts on biodiversity are not flagged (e.g. altered drainage into native grasslands etc.)

> Where practicable landings and major snig tracks will be established during dry conditions with cording and matting to reduce the potential for soil damage. (P33, DP8)

- This is one of the *Forest Practices Code* provisions that suggests pre-emptive activities (in this case, establishing landings and major snig tracks during dry conditions). The operational imperatives are understood but there are potential conflicts with biodiversity values (e.g. undertaking such work adjacent to an active eagle nest in spring/summer ready for work in the wetter autumn).
- These provisions are appropriate here because special values are taken into account in section D. Section C is really about operational considerations.
- Panel agree and have edited.
C3. Snig Tracks and Landings

General principles

The area covered by snig tracks and landings should be minimised. Planned snig track and landing locations will result in less of the coupe being heavily disturbed, reduced snig track grade and shorter average snig distances. Careful attention will be paid to the location, construction and post harvesting treatment of snig tracks and landings to:

- minimise erosion, compaction, soil puddling and mixing and excessive runoff;
- avoid damage to natural and cultural values (section D)

The amount of soil movement will be minimised. This can be facilitated by cording of snig tracks and landings prior to use where materials are available.

Bark mixing with soil should be minimised as severe nutritional deficiency can result. (P35, DP1-5 under C3)

- Note that the General Principles for snig tracks and landings make no reference to biodiversity values. The placement and operation of snig tracks and landings has the potential to impact on various biodiversity values (e.g. introduction of PC and weeds, disturbance of sensitive vegetation and sites, disturbance of habitat features for threatened fauna such as decayed logs, disturbance of adjacent features such as sensitive swamps, karst habitat, sensitive stream habitats, relict rainforest, WHS, eagle nests, etc.). The Forest Botany Manual (through technical notes on relict rainforest and PC and via specialist advice) and the Threatened Fauna Adviser provide several detailed recommendations on snig tracks and landings.

- Provisions should stay as they are, although could perhaps include suggested wording change. If so, is will be the only place in this section where special values need to be mentioned.

- Panel agree.

C3.1 Snig Tracks

Basic Approach

The design of the snig track system should improve the efficiency of extraction, protect natural and cultural values and reduce the subsequent cost of restoration works. This should be discussed with the harvesting contractor and liaison with FPA specialists should be undertaken if natural or cultural values could be adversely affected.

- This provision should also include a clause to discuss any other particular management/operation issues such as identified biodiversity values (e.g. order of snig track use with respect to management of PC, need to avoid certain areas, etc.).

- OK as is.

- Panel has made word changes.
Snig tracks will not cross a Class 1 or 2 watercourse except that the Chief Forest Practices Officer may authorise forwarders to use a culverted or bridge crossing provided measures to avoid sediment entering the watercourse are implemented. (P35, DP2)

- Should this consideration by the CFPO also consider the specific requirements of threatened fauna and flora?
  - OK as is.

The number of crossings of Class 3 and 4 watercourses will be minimised and restricted to clearly marked crossing points (but see Thinning Operations, page 38). Crossing points on any watercourse should be at least 100 m apart. Crossings will not be used while water is flowing over them. (P36,DP1)

- The Threatened Fauna Adviser provides quite firm guidelines for the establishment and management of crossing points in relation to several aquatic species. The concept of ‘water flowing’ is very operational-centric and does not necessarily reflect potential impacts on biodiversity values (e.g. sensitive riparian vegetation, burrowing crayfish, platypus, etc.).
  - OK as is.

Dry class 4 watercourses may be crossed without log crossings or culverts provided:
  - soils are dry and in low to moderate soil erodibility classes;
  - banks into the watercourse are gently sloping (0-11°);
  - the number of crossings are minimised (but see Thinning Operations, page 38). (P36,DP2)

- This provision would allow crossing of several stream situations that may support threatened fauna (such as burrowing crayfish, platypus, etc.) or create situations in which downstream impacts are exacerbated when conditions change (e.g. floods over previously dry crossings).
  - OK as is.

Snigging will not be conducted along drainage depressions in native forests. However, snigging along drainage depressions in plantations may be authorised by a Forest Practices Officer provided:
  - soils are dry, and less soil disturbance will result than if an alternative route were used;
  - soils are in the low to moderate-high erodibility classes;
  - slopes along the drainage depression are no greater than 6°;
  - the snig track is matted prior to snigging. (P36,DP7)
• Should this provision also refer to some biodiversity values? For example, snigging along drainage depressions in pine plantations in several parts of the northeast will result in substantial disturbance to threatened burrowing crayfish.

• OK as is.

Snig tracks should be located and constructed so they can be effectively drained.

Major snig tracks should be located on high ground so that they can drain naturally.

(P37, DPs2/3)

• 

Phytophthora cinnamomi management issues need to be considered during the placement of snig tracks.

• OK as is.

Uphill snigging will be maximised on very high erodibility class soils (see Appendix 3). In other areas:
– an uphill or contour snigging pattern is recommended generally;
– where uphill snigging is not feasible or would cause excessive wheel spinning and rutting, pulling may be downhill but major snig tracks should be on spurs and ridges.

(P37, DP5)

• 

The use of snig tracks on spurs and ridges has similar issues as discussed for ridgetop roading with respect to management of PC.

• OK as is.

Existing stabilised tracks within 10 m of a Class 4 watercourse may be used for snigging along, provided:
– snigging is undertaken in dry conditions and streambanks are not damaged;
– no reasonable alternative exists;
– use is specified in the Forest Practices Plan. (P38, DP2 under Thinning Operations)

• Should this provision also refer to some biodiversity values? For example, some tracks close to a watercourse may be stabilised but use may exacerbate risk to aquatic fauna (e.g. chemical spills, etc.).

• OK as is.

In outrow or similar thinning of plantations, non-ground skidding equipment (e.g. forwarders, feller bunchers, processors) can cross Class 4 watercourses where the outrow intersects the watercourse provided:
– the watercourse is dry;
– harvesting conditions are dry;
– damage to banks is avoided;
– no or minimal earthworks are required;
– slash is placed on the outrow crossing during harvesting, and removed after harvesting. (P39, DP1)

• Should this provision also refer to some biodiversity values? For example, crossing of class 4 watercourses, whether dry or otherwise, in pine plantations in several parts of the northeast will result in substantial disturbance to threatened burrowing crayfish.
• OK as is.

C3.2 Snig Track Restoration and Control
Complete restoration should be undertaken on completion of a section of a coupe provided conditions are dry enough to allow restoration works to be effective. If not dry enough, restoration should be done within a specified time. (P39, DP4 under section C3.2 Snig Track Restoration and Control)

• Provisions in the Forest Practices Code such as these need to refer to biodiversity values that may be affected by delayed compliance For example, if the restoration cannot be undertaken for quite legitimate reasons and needs to be completed at a later date, other values might be affected (e.g. continued sediment input into a stream inhabited by threatened fauna, or a need to return to a coupe mid wedge-tailed eagle breeding season).
• There are conflicting interests even within special values.
• In practice, at least partial restoration would be undertaken, even if conditions were not dry enough for full restoration.
• The ‘specified time’ will take into account the effects on particular special values that are relevant.
• Suggestion for extra sentence at the end of this point (although probably unnecessary): ‘Liaison with FPA specialists should be undertaken if natural or cultural values could be adversely affected by delay in reforestation.’
• Panel agree and extra sentence dealt with above.

Basic Approach
Where machine clearing for plantations or agriculture is specified in the Forest Practices Plan, or complete restoration prior to coupe clearance would not be effective due to unforeseen circumstances (e.g. sudden onset of a wet spell), then:
– partial restoration, to minimise erosion and ensure turbid water does not enter watercourses, will be undertaken;
– complete restoration will be undertaken at time of machine clearing or when conditions are dry enough to effectively restore the tracks, but in any case before the next burning season. (P39, DP7)

• See previous comment.
• Why does this provision specifically address plantations and agriculture?
• The issues that might be associated with this point are not biodiversity related.
• Panel note these are not Biodiversity points and are covered elsewhere.

C3.3 Landings
Basic Approach (P41)

• The Basic Approach provisions for landings do not make any reference to the management of various biodiversity values including threatened fauna (except obliquely through reference to karst systems), threatened flora, need to consider habitat trees (‘hazardous trees’), PC, weeds (i.e. long term management issue).
• Panel recommend a sentence included to take into account biodiversity.

• Suggested change to structure for section C4—have overarching Basic Approach for streamside reserves that applies to both native forest and plantation, and then only a few specific points under these sub-sections. An overarching Basic Approach is also recommended for the snig track and landing section (C3).
• Panel agree strongly and wholeheartedly endorse this approach as is noted above.
• Add dot points to C4 Basic Approach:
  • Catchment attributes should be considered in forest management planning at landscape, coupe and property levels
  • ‘Many natural and cultural values are associated with watercourses and streamside reserves. Consideration of these values (see Section D), and development of appropriate prescriptions is an essential part of forest practices planning.’
• Panel agree, need to add other spatial levels (Bioregional, PCU and CCU).

C4.1 Native Forest Streamside Reserves
Basic Approach
Trees should not be felled into a streamside reserve. Where this accidentally occurs the head should be pulled clear unless unacceptable damage to the reserve is likely to occur. Damage to vegetation, in particular mature myrtles, should be avoided. (P45,DP5)

• Need to reconcile the wording between the roading section and the fauna evaluation sheets with respect to guidelines for when to remove a tree or not (e.g. fire risk, damage to understorey, natural values present such as relict rainforest, etc.).
• Fauna evaluation sheets will be revised when code is reviewed (or before)
• Panel agree

Where felling is permitted in class 4 watercourses, trees should be felled away from the watercourses and damage to understorey vegetation should be minimised. (P45, DP6)
• Should this statement not also refer to the fact that in many situations felling of trees from within a class 4 zone will not be permitted (e.g. class 4 guidelines, Threatened Fauna Adviser provisions, etc.)?
• Suggested wording change accounts for the new Class 4 stream guidelines.
• Panel agree.

Trees within streamside reserves will only be felled where authorised in a Forest Practices Plan for road construction (see Section B3.1, page 12), snig track crossings of Class 3 watercourses, or for selective harvesting as described below:
– the trees to be felled will be marked by a Forest Practices Officer;
– harvesting will take place in dry conditions;
– the trees can be felled without falling into the watercourse, or significantly damaging retained trees;
– no harvesting machine enters the streamside reserve for the purposes of the selective harvesting operation;
– not more than 30% of the canopy will be removed;
– trees will not be felled in the 10 m adjacent to a Class 1 or 2 watercourse;
– the selective harvesting is not within 2 km upstream of a town water supply intake;
– damage to mature myrtles will be avoided;
– such harvesting is not likely to result in unacceptable substantial windthrow. (P46, DP1)

• Does this list of conditions where selective harvesting of a streamside reserve need strengthening with respect to some biodiversity values (e.g. where the SSR is or forms part of the buffer to relict rainforest, where the Threatened Fauna Adviser recommends no harvesting of a SSR, even if such statements are made in a generic sense such as ‘such harvesting is in accordance with other provisions of the Forest Practices Code, including those related to the management if natural and cultural values’)
• The suggested additional dot point about special values associated with streamside reserves (under ‘Basic Approach’ of this section) addresses the above concerns.
• Felling within streamside reserves is generally considered not worth the effort by planners, and it probably only happens (rarely) on private land. There is merit in the idea of excluding felling altogether from streamside reserves.
• Panel agree
Class 4 machinery exclusion zone boundaries should be marked where there is dense undergrowth and/or where the watercourse is difficult to define. They will be marked where excavator type feller bunchers are permitted to enter to within 5 m of a streambank. Responsibility for such marking will be stated in the Forest Practices Plan. (P46, DP3)

- Another situation where specific marking of a class 4 MEZ may be required is where there is some particularly high biodiversity value (e.g. threatened burrowing crayfish, MEZ being used as habitat retention strategy, etc.).
- Provision OK as is. If there is any confusion with class 4 exclusion zones then they are generally marked out. If, in some cases, the first point needs to be a ‘will’ statement this can be expressed in the FPP.

C4.2 Plantation Streamside Reserves

General Principle

Watercourse protection measures will need to be carefully considered in Forest Practices Plans, taking account of past plantation establishment practices and the limitations applying to the future harvesting of plantations. (P47, DP1)

- This General Principle needs to state also some of the broader planning objectives such as concepts of whole catchment planning, existing biodiversity values present, downstream impacts, etc.?
- Above point is addressed by suggested additional broad ‘Basic Approach’ point under section C4.
- Panel agree

Basic Approach

(This section applies to harvesting of plantations where land has been planted within streamside reserves and Class 4 machinery exclusion zones.)

On low to moderate-high erodibility class soils, plantations may be harvested in streamside reserves and within 10 m of Class 4 watercourses subject to the following conditions:

- no trees are to be harvested within 10 m of a Class 1, 2 or 3 watercourse for plantations established after the commencement of this edition of the Forest Practices Code;
- in other situations:
  - excavator type feller bunchers (i.e. C3 machinery—see table 4, page 30) may enter to within 5 m of a streambank provided slopes are less than 20°;
  - harvesting will only be carried out when soils are dry, or provided measures are taken to minimise soil disturbance;
  - trees will, wherever practicable, be felled away from watercourses;
  - the machine will move in and out of the machinery exclusion zone by the same path without slewing the machine’s tracks;
· remnant native vegetation will be retained;
· stems will be removed for processing to a site at least 10 m from the streambank;
· other harvesting machinery will not enter within 10 m of the streambank except at designated crossing points or to remove substantial harvesting debris;
· where this approach is used the 10 m machinery exclusion zone will be marked, and responsibility for marking stated in the Forest Practices Plan;
· outrow thinning across Class 4 watercourses may be carried out in accordance with Section C3.1 (see page 39). (P47, DP2)

- These provisions do not mention biodiversity values (e.g. threatened aquatic fauna). There is no definition of ‘remnant native vegetation’—does it mean a mappable patch (e.g. 1 ha), just one tree, undergrowth (with or without eucalypt regrowth), etc.?
- There is a need for definition of ‘remnant vegetation’ in glossary (this was raised in discussion of section D).
- Panel agree and have developed an objective dealing with remnants

C4.3 Swampy Ground and Surface Seepage Areas

Basic Approach

Swamps and seepage areas vary greatly in their geomorphology, vegetation and drainage. A conservative approach should be adopted in forest practices planning, and specialist advice sought if needed.

With the exception of production swamp forests, machines will not be taken within 10 m of the border of any swamp or area with obvious surface seepage except at properly marked and corded crossing points. Where swamp or surface seepage areas are ill-defined, the edges should be marked prior to the commencement of operations. (P48, DP4)

- The Forest Practices Code includes a definition of ‘swamp’. However, there have been several instances of the need to properly define a ‘swamp’ on the ground and this has caused planning concerns. It may be worthwhile for the panel to explore some ‘dictionary definitions’ of swamp and see how these compare to the intended operation of the Forest Practices Code. From the management of biodiversity values, this section of the Forest Practices Code is brief and concerning (e.g. it allows crossing of swamps without further consideration of biodiversity values—often swamps support threatened plants, burrowing crayfish, Sphagnum bogs, etc.). It seems that a technical note is warranted.
- A pedantic point (but perhaps one that causes some of the planning headaches) is that section C4.3 is headed ‘Swampy ground and surface seepage areas’ but the provision refers specifically to a ‘swamp’, as does the glossary.
- Note: there is a draft technical note on Sphagnum management that should be examined.
- Is 10 m appropriate buffer? There may be different classes of swamp to consider. The adequacy of 10 m depends on how the water drains into the swamp and how deep it is.
The main consideration should be the watertable and topography. In many cases the break of slope should be the inner edge of the buffer. In other cases there is no obvious break of slope so vegetation transition is taken as marker.

- See suggested word changes.
- Panel agree with word changes.

- Seepage areas and springs may require additional protection to prevent sediment entering watercourses. (P48, DP5)
- Similar definitional and operational issues.
- The provision ‘seepage areas require additional protection’ does not provide sufficient guidance to practitioners. Need to talk to the Soil and Water Scientist about this point and about development of a Technical Note about swampy ground and seepage areas.
- The issue of swamps is one that could be worth reviewing.
- Panel agree that a Technical Note dealing with swamps, seepages and springs needs to be developed.

C4.4 Water Supply Catchments
Basic Approach (P48)

- The Threatened Fauna Adviser recommends annual felling limits for various aquatic fauna but this section of the Forest Practices Code refers only to water supply catchments.
- No recommended changes.
- Panel agree

C5. Salvage Operations
General Principle
Special conditions will relate to salvage operations such as harvesting of proposed lake storage areas and farm dams, willow removal from streamside reserves, and harvesting associated with severe windthrow or fire damage.

Basic Approach
The operation will be considered in two sections:
- for that part of the operation outside the salvage area the Forest Practices Code will apply;
- for that part of the operation within the salvage area the Chief Forest Practices Officer may exempt operations from the provisions of the Forest Practices Code, but will prescribe alternative provisions in the Forest Practices Plan.

Forest Practices Officers will require confirmation that dam planning and construction approvals have been obtained from DPIWE (where required) before certifying salvage operations within storage areas for new dams. (P49, DP5s/3)
Not necessarily specifically related to the biodiversity review but consideration of dams often involves constraints because of biodiversity values. The amended Forest Practices Act 1985 and regulations now places management of dams (but not other salvage type operations) under the Water Management Act.

Plans for salvage operations should include requirements for revegetation. See References 7 for approaches to restoring riparian vegetation. (P49,DP4)

There is a relatively new guideline book for revegetation of riparian habitats issued by DPIW. This reference should be included in the References section (added to this document).

Panel recommend that Forest Practices Code review refer to DPIW guidelines.

C6. Steep Country Harvesting (Slopes 200 and above)

The panel notes that much repetition needs to be dealt with throughout Forest Practices Code. Only prescriptions that are specific to steep country harvesting should be dealt with here.

General principles
Cable harvesting generally results in less soil disturbance and impact than ground based snigging in similar conditions.
Under certain soil conditions (e.g. wet low load bearing soils, highly erodible soils) and where clearfelling is not constrained for other reasons, including natural and cultural values, cable harvesting should be the preferred harvesting technique. (P49, DPs5/6)

Should the ‘…other reasons…’ phrasing above be qualified with example reasons (e.g. where a high intensity regeneration burn may be required but is likely to be compromised by an unacceptable risk to an adjacent reserve or a threatened species).

OK as is. Possibly add to first dot point ‘However, there is generally less flexibility to exclude areas from the operation’.

Panel has made word changes

Basic Approach
General
Clearfell coupes with more than 50% of their area on slopes greater than 20° will be no greater than 50 ha in area unless approved by the Chief Forest Practices Officer in order to achieve safe burning boundaries or other specific reforestation requirements. (P50,DP2)
Operational issues appear to be the guiding force behind coupe design and size. Should
natural and cultural values be considered first? This is an example of the potential use of
the 3-year plan process in strategic management of biodiversity values.

Clearfell coupes will be dispersed by ensuring that, at the time of harvesting, the
adjoining forest is unharvested or, if regenerated, has an estimated average dominant
tree height of at least 5 m at an acceptable stocking standard. (P50,DP3)

- Similar comments as before in relation to dispersal of clearfell coupes.
- Panel has made word changes

Logs will not be pulled through native forest streamside reserve vegetation of Class 1,
2 or 3 watercourses. Cables may be pulled through this streamside vegetation but will
not be dragged laterally across if unacceptable damage to the streamside reserve
vegetation will result (see diagram C5, and appropriate FPA Technical Notes).
(P50,DP4)

- There are specific conditions imposed on some cable operations because of threatened
species (e.g. hydrobiid snails, giant freshwater crayfish), flora values (e.g. relict
rainforest, myrtle wilt areas, old growth vegetation reserves) or other biodiversity
provisions of the Forest Practices Code (e.g. retained WHSs, WHCs, etc.) that
contradict or specify additional provisions in relation to the management of cables in
adjacent forest areas (e.g. no dragging cables laterally, avoiding certain areas, etc.).
Fauna Technical Note 8 (WHSs) and some internal Forestry Tasmania policies provide
more guidelines. FT should be approached for access to these documents to allow the
panel to consider incorporation into the review process.
- Panel recommend that FT internal guidelines are reviewed and incorporated into Forest
Practices Code where appropriate.

Where practicable understorey vegetation should be retained and disturbance
minimised adjoining Class 4 watercourses and seepage areas. All trees to be harvested
should, where practicable, be felled away from Class 4 watercourses. (P50,DP5)

- Similar comments to above with respect to provisions for management of threatened
fauna delivered by the Threatened Fauna Adviser, Flora Technical Note for relict
rainforest management, etc.
- Panel agree but this point needs to be made at a higher level.
Other points arising:

- It was noted that there needs to be further consideration given to the longevity of habitat trees and habitat clumps, as they are now being treated as features of the coupe that need to be managed over multiple rotations. The place do deal with this is in the biodiversity values section of the Forest Practices Code (section D).
- Panel agree. A practical approach needs to be taken to achieve marking and monitoring of patches retained for maintenance of hollow-bearing trees.