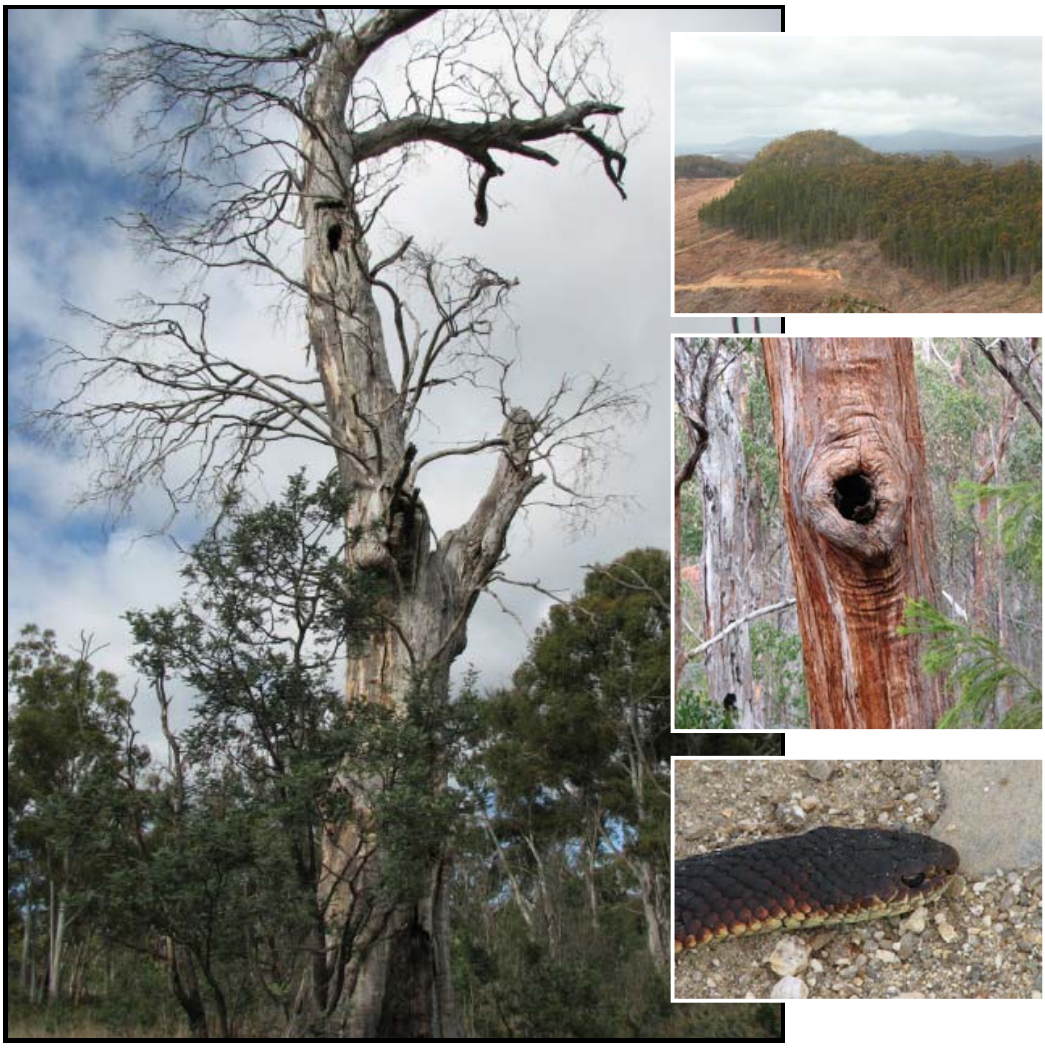
BACKGROUND DOCUMENT 3

Processes and Planning Tools to Meet Objectives and Requirements of the Biodiversity Provisions of Tasmania's Forest Practices System:

A Review of *Forest Practices Code* Provisions Relating to Management of Biodiversity at Different Spatial Scales, Implementation and Relationships between Biodiversity Provisions and Other Forest Management Provisions



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The document was commissioned by the Biodiversity Expert Review Panel (BERP), with the consultant's brief outlined as at Appendix A.

Disclaimers

The information presented is a broad overview of information considered relevant (by the authors) to the brief.

Analysis and discussion of information has been undertaken to different levels of detail.

Coverage of material related to all aspects of the brief may not be complete.

The opinions and interpretations of legislation and policy expressed in this document are made by the authors and do not necessarily reflect those of the BERP.

SUMMARY

A review of the biodiversity provisions of the *Forest Practices Code 2000* is presented.

The review addresses the management of biodiversity values under the forest practices system at different spatial scales, specifically the landscape (strategic) and local (operational "in-coupe") level. The introduction of this document explains the continuum between different scales, and explains in detail the different levels of landscape planning (e.g. whole of State vs. bioregional vs. species range scales).

The Code deals with numerous biodiversity management issues. Different issues are addressed in different ways to different levels of detail. There is a high level of inconsistency in how different values are dealt with under the Code.

Landscape level management provisions are not strongly emphasised in the Code. Some key biodiversity values poorly addressed by the Code include habitat fragmentation (including coupe dispersal and size, and plantation design and management), whole catchment planning (including management of aquatic habitats), strategic management planning for key biodiversity values (e.g. threatened species, coarse woody debris, tree hollows). Some broader issues that have an impact on biodiversity are not addressed by the Code e.g. climate change.

The Code has a strong emphasis on operational level management provisions. The provisions target native forest silviculture operations but are not strongly developed for other forms of forestry activities (e.g. plantation establishment) and are virtually absent for non-wood production activities (e.g. land clearing for agriculture, subdivisions, etc.).

The form of the review is highlighted as a key issue for the panel. A quite detailed analysis of the current Code provisions related to management of biodiversity values is presented. However, addressing areas of concern with these provisions is considered as a "cosmetic" approach to review. The panel is urged to review some of the key areas highlighted throughout the document in greater detail (e.g. research into hollow-dependent fauna, retained strips, class 4 stream management, etc.) and explore innovative ways for inclusion of new provisions in the Code (e.g. GIS technology, use of planning tools such as technical notes, etc.).

This review contains numerous recommendations for further consideration by the Biodiversity Expert Review Panel. These are highlighted throughout the document for ease of reference.

Introduction

This is the third background document prepared to provide BERP with background information relevant to the terms of reference of the review of the biodiversity provisions of the forest practices system. The first document provided information on the role of the forest practices system in the overall approach to the maintenance of biodiversity in the State, summarising the legislative and policy context. The second document delved deeper into the policy instruments and processes relating to the management of biodiversity values under the forest practices system.

This present document examines in greater detail the provisions of the current *Forest Practices Code* relating to biodiversity management at both the landscape (strategic) and local (operational "in-coupe") level, specifically how the provisions facilitate implementation and how they relate to other policy instruments.

This document specifically addresses items 2b, 2d and 2e of the terms of reference, which are stated as:

> 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:
>
> (b) Processes and planning tools to address current forest practices at both the landscape and stand level. Provisions to address plantation design and planning are a priority. Provisions for stream fauna are also a priority. In particular, consider the research undertaken to address issues raised in the last review of the Code, relating to the management of stream fauna, and translate outcomes into recommended actions.
>
> (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 Code (eg. provisions for other natural and cultural values, roading, burning etc.).

While the three subcategories of TOR 2 are listed above as separate items, this document does not distinguish between the three.

The present document should be read in conjunction with the first two background documents, although the relevant wording of some policy instruments is repeated in the present document such that it can be read in isolation.

The previous two background documents were:

> *Background Document 1: Legislative and Policy Context for Review of Biodiversity Provisions of Tasmania's Forest Practices System (finalised 25 May 2007).*
>
> *Background Document 2: Processes and Planning Tools to Meet Objectives and Requirements of the Biodiversity Provisions of Tasmania's Forest Practices System (finalised 29 July 2007).*

The main part of this document provides a broad overview of the way in which the Code currently facilitates implementation of biodiversity conservation via the forest practices system. It includes recommendations in relation to issues discussed. The recommendations are those of the authors only and do not necessarily reflect the views of BERP, the Forest Practices Authority or other agencies/individuals.

Appendix B provides a detailed analysis of the provisions of the Code that have some bearing on the management of biodiversity values. The comments made are those of the authors only and do not necessarily reflect the views of BERP, the Forest Practices Authority or other agencies/individuals. They have been provided to stimulate discussion and also to highlight for the BERP how such provisions are linked to other provisions in the Code and to other policy instruments.

Several other appendices are provided to further stimulate discussion within the BERP. These are listed below, together with a explanation of their relevance to the present background document.

- APPENDIX C: Draft Guidelines on the Size and Dispersal of Coupes

The text presented is copied from the original draft prepared by Graham Wilkinson 1/2/01.

- APPENDIX D: Forest Practices Authority policy statement: duty of care policy

This is included as it has not been included in full in previous background documents.

- APPENDIX E: Plantation Design and Fauna Conservation in Tasmania

A series of papers from *Tasforests* Volume 12 (2000) presented as a separate .pdf file.

- APPENDIX F: Minutes of Forest Practices Executive Review Team Meeting 2 25 July 2007

The FPET met and discussed various aspects of the biodiversity provisions of the Forest Practices Code, in part using an early draft of the present document (in particular Appendix B) to guide discussion. FPET has made some general and specific comments on various biodiversity provisions, even going so far as to provide suggested wording changes to the Code, some of which directly address matters raised in the present background document. Rather than include the recommendations of FPET (which are still preliminary because the group has not completed it review process) under each of the sections of the present document, we have simply attached the minutes of their meeting as an appendix. It is presumed that FPET will directly advise BERP at an appropriate time.

Implementation of biodiversity conservation via the current Forest Practices Code

The *Forest Practices Code 2000* is the primary planning tool to facilitate implementation of the management of biodiversity values under the forest practices system. Such a tool needs to deliver principles, management objectives, best practice management actions and guidelines on ways to ensure continual improvement. These need to cover biodiversity conservation and management at the landscape level as well as the local level.

The current Code recognises that the management of biodiversity values in the State occurs through two main mechanisms (as stated in the General Principles, page 51):

(1) "a systematic reserve system on public land and a voluntary private land reserve system";

(2) "management prescriptions in production forests".

Presently, the main provisions for biodiversity planning and operational prescriptions are included on section D of the Code (Conservation of Natural and Cultural Values). Numerous other provisions that have some bearing to the management of biodiversity values are located throughout other sections of the Code (Appendix B).

The Meaning of "Spatial Scale" in this Document

This background document looks at the management of biodiversity values under the forest practices system at different spatial scales. Conceptually, we consider there to be two ends to a continual spectrum, which we refer to as "landscape" (or "strategic") level planning and "operational" (or "in-coupe" or "local") level planning. In reality, there is of course many different levels of planning, many of which cross between the two ends of the spectrum.

Operational level planning is taken to mean those activities typically controlled by some form of operational document (most often a Forest Practices Plan, but may also be a fire management plan, a permit condition, a directive from a government officer, etc.). So the operational scale of planning covers things like how many wildlife habitat clumps a coupe will need, where a stream crossing will be placed, how big an eagle nest reserve will be, etc.

Landscape level planning is a more nebulous concept. At its broadest level, it means Statewide planning. For example, the CAR reserve system is an example of Statewide landscape level planning to meet the requirements of a particular policy instrument (e.g. the *Regional Forest Agreement*). However, and this is where the "crossover" begins, the provisions of many policy instruments are delivered at various scales. For example, there are requirements to manage threatened species. Some species are managed as using a whole of range approach (e.g. simsons stag beetle management plan on public land) combined with a more detailed operational approach (e.g. provisions of the *Threatened Fauna Adviser* at the coupe level and on private land).

Another example of the link between landscape and operational levels of planning is for the reservation and management of different vegetation types. The overall levels of reservation are determined at a Statewide level at a broad policy level (e.g. JANIS criteria used for the Regional Forest Agreement). But State policies (e.g. Permanent

Native Forest Estate Policy) also include bioregional thresholds. The actual management of different vegetation types can be implemented at various levels, depending on land tenure, the vegetation types involved, the proposes activities, etc. (e.g. Statewide, bioregional, whole of forest block, whole of property, etc. levels).

The concept of spatial scale, and which scale is used, is often issues based. For example, some threatened species are logically managed using the predicted range of the species (e.g. simsons stag beetle) while others need to be managed at a finer scale (e.g. swan galaxias can be managed at a catchment scale).

Biodiversity Values and Land-use Activities Covered by the Code

The Code currently emphasises "forest" biodiversity values as exemplified by the title of the document (*Forest Practices Code*) and various sections of the Code (e.g. B. Building Access to the Forest, E. Establishing and Maintaining Forests).

Table 1 provides a summary of important biodiversity values and the associated management mechanisms currently delivered via the current Code. The list of biodiversity values may not be complete but different management mechanisms applied at different spatial scales will be discussed

The recent amendments to the legislative framework of the forest practices system has resulted in an increased emphasis being placed on the management of non-forest values (e.g. native grasslands, wetlands) and non-wood values (e.g. values associated with developments not associated with traditional wood production such as residential subdivisions, mining sites, etc.).

The Code is also focussed on operational issues associated with accessing, harvesting and reforesting native forest sites. The Code was first released in 1987 when the emphasis of the forest industry was on native forest silviculture. The next edition of the Code (1993) still emphasised provisions for native forest silvicultural activities. The current edition of the Code (2000) recognised the broader scope of the forest industry, including several additional sections on the management of existing and new plantations. However, the emphasis in relation to the management of specific biodiversity values remained on native forest silviculture.

The other emphasis of the Code is on operational aspects of a particular event. For example, the issue of coupe size in relation to clearfell operations is addressed by a guideline (i.e. coupes should be less than 100 ha) but the guideline is "controlled" by a qualifier about fire management (i.e. coupes can be bigger if this means burning will be safer) rather than a qualifier about environmental outcomes. Such examples are throughout the Code in relation to several operational issues, many of which potentially have significant biodiversity implications.

Recommendations

- The structure of the Code should be examined to determine if it should be divided more logically into three documents: (1) a strategic planning document (essentially the "General Principles" of the current Code) outlining the legislative and policy framework of the forest practices system, (2) an operational planning and implementation document (essentially the "Basic Approach" provisions of the current Code) and (3) supporting planning tools providing advice on specific management issues and/or values (e.g. technical notes, databases, etc.).
- The scope of the Code (as it relates to the *Forest Practices Act 1985* and other legislation) should be clearly stated in Section A Introduction to ensure that

planners (at both the strategic and operational levels) are aware of (and can take account of) the limitations of the Code.

- The biodiversity provisions of the Code need to be expanded to recognise the potential impact of 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. [Some specific comments on each of these activities and issues are made below in different sections of the document and also in Appendix B].

Organisation of the Code

The Code is currently structured as a series of General Principles and Basic Approaches. The General Principles are basically the "why" or the "objective" of a particular set of provisions (e.g. we want to protect water quality). The Basic Approach sections are basically the "how" or the "methods" of achieving the "why" (e.g. we establish streamside reserves to protect water quality).

With respect to many of the biodiversity provisions (e.g. WHCs, WHSs), this organisation is lacking or obscured. For example, the sections on WHSs and WHCs (which are actually within a Basic Approach section) are detailed (to a point) as to implementation but their purpose (the "why") is not clearly stated.

Recommendations

- The key set of provisions related to management of biodiversity values (e.g. WHSs, WHCs, SSRs, threatened species, etc.) should be examined to see if they are organised as a set of objectives and operational procedures (i.e. clearly stated General Principles and Basic Approach provisions).
- Appendix B includes a listing of the biodiversity related provisions of the Code with comments on their implementation. This appendix represents "cosmetic surgery" (i.e. it is placing bandaids on wounds) rather than "reconstruction surgery". The former approach will result in minor changes to the Code and how biodiversity is managed while the latter will result in more appropriate changes at a much broader level.

Education and Training

Effective implementation of the biodiversity provisions of the Code (and therefore related policy instruments and supporting technical manuals) relies on a supporting education and training program to ensure that planners and operators at all levels are aware of and can implement the relevant provisions in a appropriate manner.

The Forest Practices Authority (and the forest industry in general) has a long history of recognising the need for training. However, whether the biodiversity aspects of the Code are adequately incorporated and therefore implemented at different levels of the industry has never been examined.

Recommendations

- The panel should seek internal advice (e.g. from the Biodiversity Program Manager) on the adequacy of education and training in relation to the biodiversity aspects of the Code. While such advice might not result in material changes to the Code, it may highlight sections of the Code that require more emphasis (e.g.

more provisions, more or different diagrams) or referral to other documents (e.g. manuals, databases, etc.).

Definitions of terms used in the Code

The Code contains an understandably brief Glossary. However, several definitions of terms used in the Code in relation to management of biodiversity values are missing and some are poorly (or loosely) defined. Appendix B provides some guidance on these "gaps".

The issue of different definitions of the same term by different agencies is also one that needs consideration. For example, background document 1 provided various legislative and policy definitions of "biodiversity", all of which were different. Another example is the definition of "habitat" and all its variations.

Recommendations

- Appendix B should be used to guide where new definitions may be required.
- The concept of habitat (e.g. EPBCA), potential habitat (e.g. FPC, TFA), critical habitat (TSPA), important habitat (AFS) and various other forms of the concept should be examined.

CAR Reserve System

The "systematic reserve system on public land" referred to in the Code is now more frequently referred to as the CAR reserve system (Comprehensive, Adequate and Representative) and the voluntary private land reserve system incorporates various conservation programs such as the Private Forest Reserves Program, Protected Areas on Private Land and Forest Conservation Fund (now all administered by the Department of Primary Industries and Water under one program).

The Code is not intended as the primary document prescribing how biodiversity values should be managed within reserves. There is a State-based Reserve Code of Practice and many individual reserves have specific management plans. However, activities prescribed by the Code have the potential to impact on the biodiversity values of a reserve. The current Code (and supporting documentation) do not provide planners (at either a strategic or an operational level of planning) to readily access information on what biodiversity values may be present in a particular reserve and/or how to appropriately manage such values, if known.

Recommendations

- The Glossary section of the Code should include a definition of reserve, as intended by the provisions of the Code.
- Each section of the Code should include a section about management of biodiversity values in reserves needing to be considered at both the strategic and operational levels of planning.
- Section D of the Code should have a statement recognising that effective biodiversity conservation relies upon two key approaches:

1. the establishment and management of a secure Comprehensive, Adequate and Representative protected area system; and
2. the ecologically sustainable management of natural resources across the broader landscape for areas that are not part of the protected area system.

- Section D of the Code should have a statement recognising that activities undertaken under the Code in areas adjacent to a reserve have the potential to impact on the biodiversity values of the reserve.
- The Code should indicate the importance of management of biodiversity values in reserves i.e. under the concept of "reasonable protection to the environment" does the forest operation or the reserve management requirements take priority, and if a balance is to be found, how is such a balance to be achieved?
- As with some other biodiversity values recognised in the Code (e.g. importance of relict rainforest, hollow-dependent fauna), a link to a separate planning document such as a technical note may be warranted. [It may be that a draft flora technical note is already in preparation on this subject, M. Wapstra pers. comm.].
- Administrative protocols should be modified to more adequately and efficiently address the management of biodiversity values in adjacent reserves. The existing flora and fauna evaluation sheets both have a section on recognising the presence of a reserve and attempting to identify the potential values. However, there is still no simple system for planners to access information (e.g. GIS LIST-type database).

"Off-reserve" Management - Management by Prescription

Landscape (Strategic) Level Planning

While the Code encourages various levels of broader planning (i.e. planning at a level higher than the in-coupe operational level such as a Forest Practices Plan), it does not provide any specific guidance on how this should be achieved, especially in relation to management of biodiversity values.

The Code recognises that "proper planning at both the strategic and operational level reduces environmental impact and operational costs" (*Section A3.1*). This section also recognises strategic planning processes such as the RFA, FFIS, Forest Management Plans, MDC on State forest, Private Timber Reserves and Three Year Plans (where applicable).

Section A3.1 of the Code does not indicate the potential negative outcomes on biodiversity values of poor strategic planning (except in a vague sense). Lack of strategic planning may result in significant long-term impacts on biodiversity (e.g. downstream impacts, habitat fragmentation, etc.).

The Code does not indicate any administrative protocols for implementation of strategic planning i.e. the Basic Approach section is absent from Section A3.1.

Broad environmental issues such as climate change (global warming) are not addressed by the Code, except in very broad terms (i.e. that the Code meets the objectives of various State and Commonwealth policies). It is clear that climate change has a significant impact on various biodiversity values covered by the Code. Some of these include dieback (remnant forest issue, paddock tree issue), vegetation changes (with consequent flow on effects to distributions of threatened flora and fauna and vegetation types e.g. native grasslands), hydrological effects (and potential flow on effects to aquatic and riparian biodiversity values) and potentially several other examples (e.g. proliferation of weeds, need to change chemical use practices, pest species effects, etc.).

Recommendations

- The types of strategic planning processes recognised should be expanded to include some that are specific to the direct or indirect management of biodiversity values such as whole catchment planning, water management plans, game management plans, vegetation management agreements, recovery plans, public authority management agreements and land management agreements for threatened species, etc.
- The link between the Code, and especially the strategic planning aspects of it, and "external" policies should be examined. For example, policies such as Forestry Tasmania's "rainforest policy" and "biodiversity spines policy"; DPIW's "weed management policy" and "PC management policy"; and FPA;s class 4 stream guidelines address certain biodiversity provisions of the Code but are not currently recognised in the Code, even in an informal sense. Strategic plans developed for threatened fauna species by the Fauna Strategic Planning Group could be mentioned.
- Some of the specific outcomes of good strategic planning should be highlighted (e.g. minimising habitat fragmentation, improving or maintaining downstream water quality, etc.).
- A Basic Approach section should be added to *Section A3.1 Strategic Planning* of the Code, recognising the importance of such planning to the appropriate management of many natural and cultural values.
- The potential impact of climate change needs to be addressed by examining current State and Commonwealth policy and ensuring the Code addresses these policy requirements (or addresses additional factors such as those outlined above).

Some Specific Landscape (Strategic) Level Planning Issues

The following list of issues is based on the authors' examination of the Code and experience with the machinations of the forest industry. There may be additional strategic issues that are not covered below that the panel will need to address, when identified.

Habitat Fragmentation

The concept of "habitat fragmentation" is not specifically mentioned in the Code but it is a concept widely recognised in the ecological/conservation management fraternity as of increasing importance in forest management (recognising that the Tasmanian forest practices system also deals extensively with non-forest issues).

Habitat fragmentation can occur at various levels and its effects depend on land use history, the nature of the fragmentation and the biological values present. For the purpose of this document, habitat fragmentation will be considered under the subheadings of Land Clearing, Plantation Design and Management, Coupe Dispersal and Size, Restoration, Remnants and Cross Tenure Management Integration.

Land Clearing

Land clearing for the purpose of agricultural development (or other forms of land use such as residential developments, mining, etc.) is a legal activity in certain vegetation types in Tasmania (i.e. non-threatened vegetation types). Land clearing is likely to have the most significant effects on biodiversity levels, especially at a

landscape scale (the local scale effects are obvious). There is a government policy to phase out land clearing by 2010 (*Community Forest Agreement*), land clearing is no permitted on public land except in certain circumstances and some forest companies have internal policies guiding the level of land clearing (e.g. Australian Forestry Standards).

Plantation Design and Management

In some ways, this management issue is a subset of the broader concept of habitat fragmentation but it is separated because of the existing separation of plantation management in the Code and other supporting tools (e.g. the *Threatened Fauna Adviser*).

In June 2000, a workshop on *Fauna Issues and Plantation Design* was convened by the FPA and CRC, which aimed to identify the issues and ways to adapt current plantation design and management of plantations for better fauna conservation outcomes. The focus of the workshop was on fauna issues but several of the issues raised (and subsequent recommendations) have a wider applicability.

The outcomes of the workshop were published in *Tasforests* Vol 12 (pp. 161-180) in a series of several short papers. These papers clearly identify the issues and also provided a set of principles and Recommendations.

A copy of the workshop publications is included with this document and it is not discussed in detail any further. Apart from some policy changes in Tasmania (e.g. cessation of conversion of native forest to plantation on public land and some private property), the principles and recommendations are still applicable (D. Lindenmayer pers. comm. 2007).

Recommendations

- The panel should review the *Fauna Issues and Plantation Design* publications and consider their incorporation of the recommended actions into the Code.

Coupe Dispersal and Size

Again, this management issue is a subset of the broader concept of habitat fragmentation.

The Code provides some guidance in relation to the maximum size of a coupe but only in relation to coupes to be subject to traditional clearfell, burn and sow silviculture. There is no specific guidance on coupe size in relation to coupes to be subject to other forms of native forest silviculture, areas of native forest (or native non-forest vegetation, or indeed pasture)to be converted to plantation or non-forest use.

A set of *Draft Guidelines on the Size and Dispersal of Coupes* was produced by the Chief Forest Practices Officer in February 2001. This document outlines how the Code addresses the issue of coupe size and dispersal, provides a rationale for the dispersal of coupes (including issues such as water yield, water quality, biodiversity and visual management), lists some of the operational constraints on dispersal and provides some guidelines for various situations (including existing plantations, new plantations on cleared land and new plantations on native forest sites). This document was tabled at meetings of the Forest Practices Advisory Council but there has not been a policy implemented as yet.

The document is included with this report at Appendix C, and is not discussed in greater detail at this stage. Appendix B should also be examined for comments on coupe size and dispersal issues.

Recommendations

- The panel should review the existing database information on coupe size available for the last several years to indicate a trend for various situations (e.g. CBS, selective logging, plantations in different situations) on different tenures. The panel should also undertake a review of GIS information (if available) for subsets of some parts of the State (eg. several whole State forest blocks, a large area of industrial freehold and a random area of mixed tenure). This information could be used to guide recommendations into coupe size and dispersal.
- The panel should review the *Draft Guidelines on the Size and Dispersal of Coupes* and determine their applicability to the current scenario i.e. cessation of conversion of native forest to plantation on State forest and some private property.
- The panel should review the hydrological implications of coupe dispersal in space and time on stream biodiversity values.

Restoration

The concept of "restoration of habitats" is raised several times in the Code but a definition is not provided in the Glossary. The concept of restoring habitats is an important one in light of the recent expansions of plantations on cleared land, especially on large properties where there has been a long history of clearing.

The concept of restoration is raised most prominently under Section D3 Basic Approach where it is stated: "In parts of the State where native forests occur mainly as remnants, consideratio 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".

This provision raises several issues. First, it highlights the Code's emphasis on high priority species and communities, rather than more generic biodiversity issues. Second, it raises the issues of restoration as a Basic Approach but provides no further guidance on how this is to be achieved and no links to supporting documents. Third, the provision relates to only those parts of the State where native forests (note, again the emphasis on forests) occur mainly as remnants. The problem with this is that the term "remnant" is not defined in the Glossary (see below).

Recommendations

- The Code should incorporate a separate section on Restoration, including both General Principles and Basic Approach sections.
- Other sections of the Code (e.g. sections on management of existing and new plantations) should refer to the new section and emphasise the importance of restoration.
- The Code should include a definition of restoration and this should be broad to cover forest and non-forest habitats.
- The concept of restoration should extend beyond high priority species and communities.
- The panel should review guidelines produced by DPIW on the rehabilitation of riparian areas.

Remnants

The Code does not provide a definition of "remnant" but refers to the concept in several provisions (mainly in Section D). The *Regional Forest Agreement* specifically considered the concept of remnants and used a definition that has not been referred to in any practical sense since. The *Forest Botany Manual* attempts to define remnants from a practical perspective with respect to flora values. The *Threatened Fauna Manual* includes remnants under the concept of "invertebrate data gaps" for areas that have been identified as important for "salvage sampling".

The Code considers remnants as forested areas only.

Recommendations

- The Code should incorporate a separate section on Remnants, including both General Principles and Basic Approach sections. Specific guidelines could be delivered via a technical note.
- Other sections of the Code (e.g. sections on management of existing and new plantations) should refer to the new section and emphasise the importance of remnants.
- The Code should include a definition of remnants and this should be broad to cover forest and non-forest habitats.
- The concept of remnants should extend beyond high priority species and communities.
- The panel should consider the recent outcomes of workshops on management oif remnants (Neil Davidson work).

Cross Tenure Management Integration

Cross-tenure management integration (e.g. whole catchment planning) is not specifically recognised in the Code. The concept is referred to very obliquely under concepts of how much of a town water supply catchment can be harvested in a particular period.

The concept is exemplified by some examples below.

(1) whole catchment planning

Management of several biodiversity values (e.g. threatened aquatic fauna) often has at its core the concept of minimising disturbance to a catchment. The Code has some provisions in relation to this for domestic and town water supply catchments (and refers to but provides no further guidance in relation to important catchments for aquatic fauna). 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 indicate how land managers should coordinate activities such that the actual area affected in any particular period is largely unknown.

Recommendations

- The panel should explore technological options for monitoring catchment effects, irrespective of tenure and determine if there is a practical way of administering such a system.

- The panel should review the key outcomes of projects such as CFEV to determine if the concept of "important catchments for aquatic fauna" can be expanded upon, in a similar manner to the Code having an appendix of recorded town water supply catchments and aquaculture facilities.

(2) threatened fauna management plans

The TSPA allows for the development of Public Authority Management Agreements (PAMAs) and Land Management Agreements (LMAs) for public and private land, respectively. The *Threatened Fauna Adviser* makes some recommendations in relation to strategic management of some species (e.g. spotted-tailed quoll, stag beetles, etc.). However, the current separation of public and private land processes means that cross-tenure management agreements are difficult to achieve. An example of this is the yet to be formally endorsed draft simsons stag beetle management plan that essentially refers only to State forest but the *Threatened Fauna Adviser* (and Code) attempts to deal with all tenures.

Recommendations

- The panel should explore policy options for cross-tenure strategic planning such as GIS-based planning maps linked to key questions in the Threatened Fauna Adviser for particular species.

Management of Genetic Resources

The Code has some generic provisions related to the importance of maintaining genetic resources. A specific mention is made of the issue of eucalypt hybrid events (p. 61, dot point 4) but only in the context of "consideration should be given to the protection (e.g. by buffering) of native forests, particularly reserves, from incursion by adjoining plantation species".

The issue of genetic swamping of native eucalypt species by exotic species is now well-established as a real situation (e.g. see publications of Barbour, Potts *et al*.). It relates mainly to forests and woodlands dominated by *Eucalyptus ovata* (threatened vegetation types under the *Nature Conservation Act 2002*) but also specifically relates to some threatened species with highly restricted distributions (e.g. *E. perriniana*).

This issue is subject to examination by a separate industry-specialist working group.

Recommendations

- The panel should approach the working group to obtain specialist advice on the issues related to eucalypt hybridisation.

Threatened Species

Threatened species are primarily catered for at the operational level (see section below). The current system in place for the forest industry does not require formal surveys for threatened flora and fauna for most situations, except where specifically stated by a planning tool such as the *Threatened Fauna Adviser* or by specialist advice (again, at the operational level in most circumstances).

Recognising the resource issue, formal surveys of every proposed coupe may not be possible. However, it may be possible to consider threatened species at a more

strategic level by prioritising the need to surveys at a broader level. Some examples of this type of prioritised survey leading to good strategic planning include the surveys for simsons stag beetle (led to draft management plan and recommendations through the *Threatened Fauna Adviser*), the surveys of class 4 streams for giant freshwater crayfish (leading to a better description of potential habitat) and the surveys for *Eucalyptus radiata* (leading to a Public Authority Management Agreement).

Recommendations

- This concept of strategic planning for threatened species management needs to be highlighted in the Code, and linked to other planning processes such as the 3-Year Plan process.

Operational (In-coupe) Level Planning

The Code is essentially an operations manual. Historically it has been a deliberately "simple" document designed to present a set of General Principles linked to a set of Basic Approaches on how to best achieve satisfactory environmental outcomes in the context of wood production activities. Over the years, the Code has been forced to expand to include numerous and more complex management issues and it has done this while still trying to be a slim operational manual. The Code is linked to several additional planing tools either directly (e.g. through a direct citation in the Code requiring the planner to use a certain manual) or indirectly (e.g. planners are required to take account of threatened species, the Code includes a brief summary of the "agreed procedures" and these are implemented through such tools as online databases, the *Forest Botany Manual* and the *Threatened Fauna Adviser*).

The Code has an emphasis on forest environments. It also has an emphasis on native forest silvicultural situations. Its consideration of some of the more recent management issues such as the rapid expansion of the plantation estate on both public and private land in native forest and on previously cleared land is less detailed, and the emphasis is squarely on soil and water values with a much lesser emphasis on the management of other values such as biodiversity.

The Code addresses several management issues at the operational level in relation to biodiversity, and these can be summarised under the following headings.

Aquatic habitats

The Code has sections dedicated to water quality and management, principally catered for through the application of various forms of streamside reserves (SSRs). While the primary focus of SSRs is on managing water quantity and quality, the benefit of managing aquatic and riparian habitats for biodiversity values is well recognised. For example, many of the Code provisions in relation to water quality refer to aquatic fauna (usually threatened species). In addition, the *Threatened Fauna Adviser* recognises the practicality of SSRs as a management tool (and not just for threatened aquatic fauna) and makes extensive use of SSRs. In addition, the WHS guidelines are closely linked to SSR management.

The Code does not recognise several changes to aquatic habitat management since its release in 2000. These are listed below

- Conservation of Freshwater Ecosystem Values (CFEV) project

- Draft Class 4 Guidelines (which arose from a broader review of steam management guidelines of the Code)
- The Integrated Class 4 Catchment Study (Ben Nevis) and associated workshop
- Forestry Tasmania led 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.

Recommendations

- The panel should review the information from the research and innovations mentioned above (amongst others) and consider incorporation of relevant information into the Code to enhance the management of stream habitats (particularly class 4) for biodiversity values.

Wildlife Habitat Strips

WHSs are an example of a management issue that should be considered at the landscape level but for various reasons are primarily managed at an operational level so are considered in this section of the report.

The Code provides a set of guidelines on implementing WHSs. Note that the Code provision is tenure neutral. Only Forestry Tasmania and Gunns Limited have implemented the concept of WHSs at a landscape (strategic) level because the WHS guidelines specify WHSs every 3-5 km so implementation has traditionally fell to managers of large land holdings. In more recent years WHSs have been recommended in specific situations (e.g. establishment of massive expanses of plantation, usually on previously cleared land, in situations exceeding the 3-5 km threshold). There has never been a review of whether the current configuration on WHSs meets current Code guidelines (most probably will because their implementation was undertaken by the Forestry Tasmania Districts in consultation with FPUs Senior Zoologist).

The presence of WHSs in the current forestry landscape are taken as a *fait accompli* and very little strategic implementation of the WHS guidelines is undertaken. However, occasional alterations to the position of WHSs are required, usually for operational reasons. Forestry Tasmania has an internal policy on the management of this aspect of WHSs (which is partly related to obligations under the *Regional Forest Agreement* because WHSs form part of the reserve system). This process formerly included referral to the Forest Practices Authority but this is no longer the case.

The concept of WHSs being permanent features of the landscape has led to the notion that they are “immune” from effects from adjacent operations. While it is obvious that there will be an impact on biodiversity if a retained WHS is burnt from an escaped regeneration burn, the potential effects of seemingly more benign activities (e.g. adjacent selective logging) are not well understood. These so-called “edge effects” still require quantification for many situations.

Recommendations

- The panel should consider if the Forest Practices Authority should have a role in the relocation of WHSs (for existing WHSs) or in the initial placement of WHSs (for new WHSs).
- The panel should review the recent research on the ecological functions and values of WHSs (mainly undertaken by Forestry Tasmania and Sue Baker) and determine if changes to the Code provisions and associated planning tools (e.g. technical notes) are needed.
- The panel should consider if a review of the current configuration of WHS on all tenures meets the Code guidelines.
- The panel should consider if a review of the literature on "edge effects" is needed in relation to the design of WHSs.

Operational issues associated with the management of WHSs are outlined in *Fauna Technical Note 8* because the Code itself does not provide specific guidance on how to manage WHSs. 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, roading through WHSs, etc.

Recommendations

- The Code should be updated to emphasise the specific management issues associated with WHSs within and adjacent to forestry activities i.e. create a General Principles and Basic Approach format for WHSs.
- The Code should be updated to indicate greater flexibility in the design and management of WHSs to cater for extensive plantation and fragmented agricultural land situations, to allow incorporation of non-forest vegetation and strips less than 100 m wide.

Wildlife Habitat Clumps

WHCs are almost wholly considered at the operational level. The only exception to this is the Code provision for adjacent CBS coupes where it is suggested that adjacent clumps be retained between rotations to create larger consolidated clumps.

Recommendations

- A method of "tracking" retained WHCs should be explored. This is important because WHCs fall within the definition of "vulnerable land" and as such there is a legislative imperative to know where they are in the landscape. There are many issues associated with this that have been raised by foresters over many years, foremost is the fact that WHCs were never intended to be a permanent features in the landscape.
- The intended degree of permanence of WHCs should be examined. WHCs retained as consolidated patches between CBS coupes are likely to warrant longer term retention (except if the site is destroyed by windthrow or wildfire – see next recommendation) than those retained in situations such as shelterwood operations.

- The long-term management of WHCs needs to be examined. For example, what happens to WHCs "destroyed" by stochastic events such as storms, fore, etc.? And what happens to WHCs damaged by malicious or unintentional damage e.g. firewood cutting? Do such sites still fall within the intended definition of "vulnerable land" and if so, is there a mechanism for administering such sites?

WHCs are implemented at the operational level through the Code provisions on pages 62-63. There are several issues that arise from this section of the Code. First, the Code recommends "patches of mature forest containing habitat trees with nesting hollows and other oldgrowth structural elements should be retained in coupes with few retained areas….". This is a biodiversity limiting statement because it is probably now widely recognised that retained habitat patches should include more than just "oldgrowth" trees and features but capture the range of habitats present in an area. In addition, the statement implies retention is not needed if there are other reserves in the area. This is not the case, which is clarified in supporting documentation.

The diagrams on page 63 remain virtually nonsensical from a operational perspective (top diagram is ambiguous and bottom diagram is unrealistic). The suggested rates of retention of WHCs have not been reviewed for several years and FPA has been undertaking research into both WHC implementation and hollow-use. Note that all operational issues related to WHCs mentioned in the Code assume native forest silviculture.

The *Threatened Fauna Adviser* makes extensive use of WHCs as a management tool to cater for threatened fauna. This is not mentioned in the Code.

Recommendations

- Recent research and monitoring information should be reviewed. It is suggested that the Hollows Working Group be directed to undertake this task and report directly to BERP.
- Issues that require additional consideration are: updating of diagrams, updating of reference citations, consideration of longer term management of WHCs with respect to different silvicultural regimes, how to include WHCs in non native forest silviculture situations (see next dot point).
- Include a consideration of WHCs (or some form of habitat retention) for non-native forest silviculture situations such as existing and new plantations, agricultural clearing, etc. Note: *Fauna Technical Note 7* attempts to deal with these situations but needs reviewing (see first two recommendations).
- The key provisions of *Fauna Conservation in Production Forests in Tasmania* with respect to WHCs placement could be included in the Code i.e. the "reserve and habitat clump zone" diagrams, which would clarify the dot points on pages 62-63.
- A "paddock tree" management policy should be developed.

Retention of Specialised Habitats

Both the flora and fauna provisions of the Code (and numerous other sections of the Code) refer to specialised habitats such as karst, rocky outcrops, relict rainforest, swamps and riparian areas. Several specialised habitats are not mentioned in the Code, including wetlands, paddock trees, coarse woody debris, etc.

The Code is differential in the treatment of such specialised habitats. For example, it could be argued that aquatic habitats receive special attention (whole sections of the Code are dedicated to protecting water quality), as do karst habitats, but other specialised habitats such as swamps receive all but perfunctory attention.

There are several supporting documents advising on the management of specialised habitats. For example, relict rainforest and *Sphagnum* peatlands have supporting *Flora Technical Notes*. A draft technical note is available on management of rocky outcrops.

It can be argued that the Code emphasises the "now" state of knowledge, providing some quite specific provisions related to some specialised habitats that have been long-recognised as potentially important for biodiversity values (e.g. see provisions for swamps and rocky knolls, which both include text and diagrams). However, the Code lacks the structure to allow new knowledge on such specialised habitats to be incorporated except at 5-yearly review intervals. An example of this is the current proposal for "fuelwood harvesting" in the Southern and Northwest forests to supply projects such as Southwood. The current Code provisions are not designed to cater for this sort of intensified event, and the linked documents (e.g. *Threatened Fauna Adviser*) might not be either (depending on the species involved).

Recommendations

- The Code should make direct reference to the FPAC endorsed technical notes (where they exist, even if the citation is in a generic manner).
- The panel should consider the need for additional technical notes on management of specialised habitats (e.g. swamps and wetlands, coarse woody debris, rocky outcrops, etc.).
- The panel should consider whether the Code has appropriate wording to cater for significant changes to the manner in which certain aspects of biodiversity management needs to occur between Code reviews.
- The panel should consider the outcomes of the recent workshop on management of coarse woody debris, and also specifically examine the recent work of Forestry Tasmania (including the review by Grove and Meggs) into this issue. This may be best achieved by seeking direct advice from a coarse woody debris specialist.

Threatened Species

The 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 Code, mainly related to aquatic species.

The "agreed procedures" are the primary provision for dealing with threatened flora and fauna. It should be noted that the agreed procedures deal with "wood production areas" and not non-forest and non-commercial situations.

One key area that requires attention is the definition of "habitat" versus "potential habitat" because neither are defined in Glossary or in supporting legislation or planning tools. The Code assumes that a forest planner understands this terminology. There may be some legal implications in the use of these terms. For example, the recent federal court decision in relation to the application of the EPBCA for forestry activities was based in part on the concepts of "potential habitat" and "potential impacts".

Recommendations

- The Code should include a definition of both habitat and potential habitat, as these terms relate to the intention of the Code and the machinations of the planning tools such as the *Threatened Fauna Adviser*.
- The panel should consider the adequacy and currency of the agreed procedures in light of non-forest and non-commercial activities.
- The panel should consider the draft *Habitat Retention Policy* for the management of "significant habitat" for threatened species currently being prepared by the FPA in association with DPIW.

Offsets

The Code does not make any reference to the concept of "offsets" although the *Forest Practices Act* does provide the Authority with strong discretionary powers (e.g. the "exceptional circumstances" clauses). In the context of the Code, management of biodiversity values often (always?) involves some level of compromise, which inherently implies the adoption of an offset.

The agreed procedures and the recommendations delivered through planning tools such as the *Forest Botany Manual* and *Threatened Fauna Adviser* adopt some form of offset principles. However, these documents also do not provide a definition or a set of guiding principles.

Recommendations

- The panel should consider if the inclusion of an offset policy in the Code is warranted.

Table 1. A summary of key biodiversity values, relevant Code provisions, associated planning tools, level of implementation and possible additional mechanisms to consider.

Biodiversity Value	Main Code provisions	Planning tool	Application / Implementation		Additional mechanisms to consider	
			Landscape (Strategic Planning)	In-coupe (Operation Planning)	Landscape (Strategic Planning)	In-coupe (Operational Planning)
Stream biota (including threatened species)	Provisions for Soil and Water (including the list below but also provisions such as Streamside Reserves Coupe Size Coupe Dispersal	Code *Threatened Fauna Adviser*	Some catchment level provisions in Code and TFA.	Yes but new research suggests Code class 4 guidelines need review.	CFEV Catchment management planning Streamflow management tools Threatened species strategic plans	Adapting draft class 4 stream guidelines for soil and water to take into account stream biota. Revision of TFA
Hollow dependent fauna (RFA priority group)	Wildlife Habitat Strips Wildlife Habitat Clumps Coupe Size Coupe Dispersal	Code *Fauna Technical Note 8* (WHSs) *Fauna Technical Note 7* (WHCs)	Some with Wildlife Habitat Strips.	Yes but new research indicates a need for revision.	Mainland guidelines and results of recent research on recruitment of hollow-bearing trees.	Paddock tree policy Safety aspects ("hazardous trees") Longevity of retained trees Revised Code provisions and new Tech Note. Revision of TFA
Karst species (RFA priority group)	Geomorphology provisions for karst management Streamside Reserves Coupe Size	Code *Sinkhole Manual* *Karst Atlas* *Threatened Fauna Adviser*	No (in relation to biodiversity itself but there is some in relation to geo-management).	Yes, for threatened species.		Revision of TFA
Threatened Species – All	Databases: Natural Values Atlas Conserve SPARQS Internal databases of specialists, companies,	Code Agreed Procedures Online *Threatened Fauna Manual* *Forest Botany Manual*	Coordination between systems poor.	TFM was effective for threatened fauna because it dealt with known sites and potential habitat and was always up-to-date.	Strategic inter-agency data exchange agreements	One-stop access point for all threatened flora and fauna sites.

Biodiversity Value	Main Code provisions	Planning tool	Application / Implementation		Additional mechanisms to consider	
			Landscape (Strategic Planning)	**In-coupe (Operation Planning)**	**Landscape (Strategic Planning)**	**In-coupe (Operational Planning)**
	etd.					
Threatened Species - Fauna	Threatened species provisions (section D3.3) Other Code provisions	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.)	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 refer to the unendorsed draft management plan for the species).	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.	Species strategic planning by Fauna Strategic Planning Group Recovery Plans Draft Habitat Retention Policy	Revision of TFA Technical Notes
Threatened Species - Flora	Threatened species provisions (section D3.3) Other Code provisions	Code Agreed Procedures *Forest Botany Manual*	Need for strategic planning recognised but no specific guidance. Some species (e.g. *Eucalyptus radiata*) covered by a PAMA.	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	Recovery Plans	Technical Notes Possible TFA equivalent

Biodiversity Value	Main Code provisions	Planning tool	Application / Implementation		Additional mechanisms to consider	
			Landscape (Strategic Planning)	**In-coupe (Operation Planning)**	**Landscape (Strategic Planning)**	**In-coupe (Operational Planning)**
				particular coupe.		
Remnant Vegetation	Remnant provision	Code *Forest Botany Manual*	No	Some	CRC remnant workshop outcomes	CRC remnant workshop outcomes Paddock tree policy
Relict Rainforest	Code provision	Code *Forest Botany Manual* Technical Note specific to relic rainforest management	On State forest, all know sites are on the MDC because of historical work on the issue by the commission).	Some	?	?
Special habitat features – swamps, rocky knolls, tree ferns	Code provisions	Code Flora Technical Notes on *Sphagnum* management, tree fern identification and management. Draft Flora Technical Note on management of rocky outcrops prepared in 2005.		Some	?	?
General biodiversity –Connectivity, fragmentation	Coupe Dispersal provisions Provisions for retention of forest structure across the landscape	Code	Some	Some	Plantation design recommendations	?
Weeds	Code provisions	Code *Forest Botany Manual*	Strategic planning by councils and some land managers including Forestry Tasmania.	Some in certain circumstances	FPA involvement on weed management working groups?	Technical Note?
Phytophthora cinnamomi	Code provisions	Code *Forest Botany Manual* *Flora Technical Note 8*	Strategic planning by Forestry Tasmania (e.g. PC Management Areas) Assessment of	Becoming fairly routine to have machinery hygiene protocols in FPPs		

Biodiversity Value	Main Code provisions	Planning tool	Application / Implementation		Additional mechanisms to consider	
			Landscape (Strategic Planning)	**In-coupe (Operation Planning)**	**Landscape (Strategic Planning)**	**In-coupe (Operational Planning)**
			quarry/gravel pits by FT			

Appendix A. Consultant Brief

Project

Review of processes for conservation of biodiversity under the Forest Practices Code (2000)

Tasks

- To revise the Background Document 2 relevant to TOR 2a,c (see below), taking into account the comments of the BERP (to be provided by Executive Officer).
- To review information relevant to the Terms of Reference (TOR) 2b,d and e (see below) and prepare Background Document (3), in collaboration with the Executive Officer, for consideration by the Biodiversity Expert Review Panel.
- To attend the Biodiversity Expert Review Panel meeting on the 31st July to present the information contained within the draft Background Document 3 for TOR 2b,d and e.

Timeframe

- July 18th – Provide first draft of Background Document 3 to Executive Office for comment.
- July 25th – Provide second draft of Background Document 3 to Executive Officer for comment.
- July 27th – Provide final draft of Background Document 3 to Executive Officer for circulation to BERP.
- July 27th – Revise Background Document 2 and send to the Executive Officer and Chair of BERP for circulation to BERP members.
- July 31st - Attend BERP meeting 5 to present summary of information contained in Background Document 3.

Terms of Reference

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. Provisions to address plantation design and planning are a priority. Provisions for stream fauna are also a priority. In particular, consider the research undertaken to address issues raised in the last review of the Code, relating to the management of stream fauna, and translate outcomes into recommended actions.
   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 Code (eg. provisions for other natural and cultural values, roading, burning etc.).
3. Review the monitoring (implementation and effectiveness) that underpins the biodiversity provisions of the Code. What are the mechanisms for delivery of adaptive management under the FP system? Is the Code sufficiently adaptive in its approach? Are there appropriate feedback mechanisms outlined in the Code?
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.

Appendix B. Current Forest Practices Code provisions related to biodiversity values.

This appendix lists specific clauses of the *Forest Practices Code 2000* (with the page number and location on page shown) that relate to some aspect of biodiversity management under the forest practices system. The Code provision is shown in smaller, green, justified text. Author commentary follows in larger, blue, unjustified text under each of the cited clauses. Not all clauses of the Code are included below.

The sections below (e.g. A. INTRODUCTION, B. BUILDING ACCESS TO THE FOREST, etc.) are the same sectional headings from the Code. This appendix should be read in conjunction with a current version of the Code to ensure complete and appropriate context of the statements (e.g. sometimes the preceding or following statements are relevant, diagrams and tables are sometimes references, etc.).

A. INTRODUCTION

No specific comments on the introductory sections (A1 and A2) because the first two background documents raised several issues, and many of the planning issues related to biodiversity values are raised elsewhere in Appendix B and the remainder of the present document.

****** THE FOLLOWING DISCUSSION (points as highlighted below as ***) ON STRATEGIC PLANNING IS HIGHLIGHTED AS A POINT REQUIRING SPECIAL DISCUSSION AND ATTENTION ******

***

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 GP 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.

***

Proper 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 Code to flag more strongly the need to strategic biodiversity planning (e.g. land management agreements, cross-tenure catchment planning, etc.)? Should the 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.

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)

There are interesting implications of this statement with respect to biodiversity values, and specifically some threatened fauna such as wedge-tailed eagles, spotted-tailed quolls, and aquatic species such as *Astacopsis*. A more detailed example is the road that was constructed in the northeast prior to an assessment for stag beetle and the road and subsequent coupes have now been delayed for over a decade. Numerous examples exist for complex management of wedge-tailed eagle nests because of poorly planned road location or plantation boundaries.

Basic Approach

All provisions within Forest Practices Plans will be consistent with safe working practices. Persons carrying out operations under a Plan will also comply with all 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) might be worth considering that provides a checklist of the sort of conflicts that might arise and some potential solutions.

B. BUILDING ACCESS TO THE FOREST

B1. Planning and Locating Roads

General Principles

Adopt the design standard that ensures the road will carry the anticipated traffic with safety. (P6,DP1)

Is there a need to emphasis environmental values as the primary concern rather than traffic levels and safety?

Fit the road to the topography so that a minimum of alterations to the natural features will occur. Use ridgetop roading where applicable. 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 roading 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 roading across numerous class 4s and drainage channels in steep country with threatened hydrobiid snails).

> 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 115);
>
> – 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.

> 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. (P6,DP4)

This is a very broad GP with good intent but its vagueness is a concern. Perhaps some examples of "significant other values" might be useful. Some obvious ones, from a biodiversity perspective, include karst areas, reserved oldgrowth 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 GP to say "Consider all alternatives and don't just choose the mos 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 just because of some tenure dispute (amazing how many roads on public land are immediately adjacent to a private road).

A GP 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.

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?

> 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 planing 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 Code provisions and the supporting documentation.

There also remains the issue of the definition of a "swamp" (see comments under Glossary).

> 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.

> 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 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.

> 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.

> Culverts draining roads should be located so that discharge filters through undisturbed forest vegetation. (P9,DP9)

There are situations where this prescription may conflict with threatened flora, threatened fauna or high priority vegetation type management.

> 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.).

> 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, 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.

> Hazardous trees which have a significant probability of falling onto the road surface should be removed during construction. Where a 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 lack of definition of "reserve" should be clarified (e.g. WHS vs WHC vs CAR reserve).

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. This policy has not been located by the authors.

> 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?

> In critical areas, such as 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.

> 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)

To the best of my knowledge, there is an old myrtle wilt management guideline document available (old Forestry Commission production) but it would be quite out-of-date. The *Forest Botany Manual* provides some additional guidance on management of myrtle wilt and perhaps, as in other sections of the 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 be subsequently 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 age-old matter 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.

> B3.2 Road Drainage
>
> Basic Approach
>
> Drainage will not be concentrated 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 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 a bit vague because there is no definition of "concentrate" – conflicts marginally with previous statements about roads avoiding sinkholes.

> 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 Code to allow for fish passage (also a requirement of the *Inland Fisheries Act*)?

> 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 Code to allow for fish passage (also a requirement of the *Inland Fisheries Act*)? Is the diagram adequate?

> 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* be made to emphasise the legal obligations? Should reference to a technical manual be provided?

> 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, should this provision not be expanded to account for at least the minimum recommendations of the *Threatened Fauna Adviser*?

> 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?

> 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 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.

This 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. WHCs) receiving far less detail. Does this sort of provision require less detail plus a supporting document?

> 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, plant communities with a priority for conservation, or visual skylines may require consideration (see Section D). (P19,DP1)

See previous comments regarding need to consider management of *Phytophthora cinnamomi*.

> B4. Upgrading Existing Roads and Access Tracks
>
> Basic Approach
>
> Substantial upgrading of roads is regarded as road construction for the purposes of this 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 Code and have potential to impact on many biodiversity values (e.g. aquatic ecosystems, swampy ground, threatened species sites, etc.) and have ongoing management issues (e.g. weeds and disease).

> Existing roads and access tracks that do not meet current Code specifications, and that are causing or likely to cause significant environmental damage to soil or water 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?

> 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.

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.

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. I presume that 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.).

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 Code require that such trees be assessed prior to removal. See previous comments.

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.

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).

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.).

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 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 should it also not focus (or at least mention) biodiversity values such as weeds?

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.).

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 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.

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 sensitive aquatic sites, including those important for threatened aquatic fauna or containing freshwater aquaculture facilities. (P25,DP4)

Appendix 2 of the 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 *Threatened Fauna Adviser*? This is an example perhaps of the usefulness of GIS technology that can be updated frequently and linked to other tools.

Is one particular type of catchment not identified in this Code provision i.e. high conservation significance catchments identified by projects such as CFEV (thinking of fairly pristine catchments/sub-catchments like the Boobyalla River)?

C. HARVESTING OF TIMBER

****** THE FOLLOWING DISCUSSION (points as highlighted below as ***) ON COUPE SIZE AND DISPERSAL IS HIGHLIGHTED AS A POINT REQUIRING SPECIAL DISCUSSION AND ATTENTION ******

***

C1.1 Dispersed Harvesting Design

General Principle

By dispersing harvesting in space and time any localised impact on natural and cultural values will 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.).

***

Basic Approach

In native forest to be harvested by clearfelling 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 are not harvested until the dominant height of

> the regeneration of any adjoining coupe is at least 5 m and an acceptable stocking standard is achieved. (P26,DP6)

The 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 ha. 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 ma be different and near future plans unknown).

> * * *
>
> Dispersed harvesting is desirable in non-clearfelling operations. (P27,DP1)

This provision is weak and is used to justify quite extensive areas of so-called "selective harvesting" silviculture (e.g. 10s of 100s of hectares of seed tree retention coupes in a single catchment) because 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 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 Code section on WHCs, assumes seed tree retention is a form of selective harvesting. This technical note will need updating if changes to the Code are made.

****** THE FOLLOWING DISCUSSION (points as highlighted below as ***) ON PLANTATION DESIGN AND MANAGEMENT IS HIGHLIGHTED AS A POINT REQUIRING SPECIAL DISCUSSION AND ATTENTION ******

> * * *
>
> 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 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 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).

The second phrase of the provision above is a general statement but there are no policies for implementation of the provision (e.g. properties such as Evercreech, Armitstead, Buckland, Runnymede, etc.).

> Clearfelling will not be permitted on areas with 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.

> 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, and how the coupe, once reforested, will be protected from invading fire. (P27,DP5)

There does not appear to be a general provision in the 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.

> 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. See Section E3.3 for burning in karst areas. (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 even 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.

> 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 Advise recommends a low intensity burn, this should be noted in the FPP.

> 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 a prior to a forestry operation. The operation itself might have minimal (or managed) risks to biodiversity values but the adjacent FRB 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.

> 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.

> 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 options 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 streamside vegetation adjoining Class 4 watercourses 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 seasonharvesting.
>
> Table 3. Wet or Dry Season Harvesting Criteria (P29,DP4 and Table 3)

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.

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. (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.)?

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.

C1.5 Felling

Basic Approach

Harvesting boundaries will be marked before falling commences unless they are clearly delineated by a change in vegetation, such as a forest/pasture boundary. 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, when are you in relict rainforest and in the buffer to relict rainforest, where does the rocky knoll begin and end?).

Control the manner in which trees are felled to facilitate extraction, remain clear of watercourses and streamside reserves, reduce damage to retained trees and improve recovery of useful products. 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.

Trees will not be felled outside boundaries designated for harvesting in a Forest Practices Plan. Felling of trees across boundaries into areas reserved from harvesting will be avoided 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.

In particular, damage to retained vegetation around the perimeter of the coupe should be avoided. 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 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.

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.)

The establishment of landings and major snig tracks during dry conditions with cording and matting, where practicable, will reduce the potential for soil damage. (P33,DP8)

This is one of the 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).

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.

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 GPs 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, WHSs, 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.

C3.1 Snig Tracks

Basic Approach

The design of the snig track system should be discussed with the harvesting contractor. This should improve the efficiency of extraction and reduce the subsequent cost of restoration works. (P35,DP1)

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.).

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?

> 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.).

> 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).

> 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.

> 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.

> 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.

> 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.).

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.

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 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 b 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).

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.

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 (e.g. long term management issue).

****** THE FOLLOWING DISCUSSION (points as highlighted below as ***) ON STREAMSIDE RESERVES IS HIGHLIGHTED AS A POINT REQUIRING SPECIAL DISCUSSION AND ATTENTION ******

* * *

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.).

* * *

Trees should be felled away from Class 4 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.)?

* * *

Trees within streamside reserves will only be fallen 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 fallen 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 Code, including those related to the management if natural and cultural values”)

* * *

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.).

****** THE FOLLOWING DISCUSSION (points as highlighted below as ***) ON PLANTATION STREAMSIDE RESERVES IS HIGHLIGHTED AS A POINT REQUIRING SPECIAL DISCUSSION AND ATTENTION ******

***

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)

Does this GP not need to state also some of the broader planning objectives such as concepts of whole catchment planning, existing biodiversity values present, downstream impacts, etc.?

***

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 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 include no mention of 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.?

C4.3 Swampy Ground and Surface Seepage Areas

Basic Approach

Machines will not be taken within 10 m of the border of any swamp or area with obvious surface seepage except at properly 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 Code includes a definition of "swamp". However, there have been several instances of the need to properly define a "swamp" in the ground and this has caused planning concerns. It may be worthwhile the panel exploring some "dictionary definitions" of swamp and see how

these compare to the intended operation of the Code. From the management of biodiversity values, this section of the 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.

> Seepage areas may require additional upslope protection to prevent sediment entering watercourses. (P48,DP5)

Similar definitional and operational issues.

> 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 Code refers only to water supply catchments.

> 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,DPs2/3)

Not necessarily specifically related to the biodiversity review but consideration of dams often involves constraints because of biodiversity values. The amended Act 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 DPIWE. This reference should be included in the References section (added to this document).

****** THE FOLLOWING DISCUSSION (points as highlighted below as ***) ON COUPE SIZE AND BURNING IN STEEP COUNTRY IS HIGHLIGHTED AS A POINT REQUIRING SPECIAL DISCUSSION AND ATTENTION ******

> ***
>
> C6. Steep Country Harvesting (Slopes 200and Above)
>
> 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, 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).

> * * *
>
> 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 some natural and cultural values not first be considered? 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, adjoining unharvested or regenerated forest has a dominant height of at least 5 m at an acceptable stocking standard. (P50,DP3)

Similar comments as before in relation to dispersal of clearfell coupes.

> * * *
>
> 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, page 31). (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 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.

> * * *
>
> 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.

D. CONSERVATION OF NATURAL AND CULTURAL VALUES

****** THE FOLLOWING DISCUSSION (points as highlighted below as ***) ON GENETIC RESOURCES AND RESERVE MANAGEMENT IS HIGHLIGHTED AS A POINT REQUIRING SPECIAL DISCUSSION AND ATTENTION ******

***

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 Code intend to mean the range of genetic variation of all species, GM eucalypts, or genetic mutations (e.g. hybrids)?

***

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, oldgrowth habitat, relict rainforest, etc.).

Also, 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?

Management of natural and cultural values should be integrated where possible. (P51,DP4)

Should this not state "…integrated where possible if such integration does not unacceptably compromise a particular value".

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?

Resource manuals 3, 8-17 and other available information on flora, fauna, threatened species, cultural heritage, geomorphology, landscape and soils will be consulted where appropriate. (P51,DP5)

Should this better reference the list of planning manuals listed at the back of the Code? Or is some more generic statement needed referring planners to a web site or a general planning manual AND recognise that some manuals are subject to ongoing review and updating?

Measures taken to conserve natural and cultural values will be consistent with effective fire management, silvicultural practices and safety requirements. (P51,DP7)

This is the point made under several comments for preceding sections of the 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?

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. (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?

> 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. (P51,DP9)

Given the legal interpretation of "should" and "will" statements (e.g. see introductory section of 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 WHCs, etc. Recent GIS advances may make implementation of this provision more feasible.

> Areas of high conservation significance may be designated as special management zones where there is agreement with the landowner. Forestry operations in special management 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 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.

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 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 vaguer and should be more specific (e.g. "...as indicated under current administrative procedures...").

This Code provision also highlights the issue of the definition of "forestry operation". The 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.

****** THE FOLLOWING DISCUSSION (points as highlighted below as ***) ON THE CONCEPTS OF SUSTAINABLE MANAGEMENT AND LINKS TO OTHERS POLICY INSTRUMENTS IS HIGHLIGHTED AS A POINT REQUIRING SPECIAL DISCUSSION AND ATTENTION ******

> ***
>
> The sustainable management of natural and cultural values within production forests under the forest practices system will be determined in accordance with:
>
> – relevant legislation, including the National Parks and Wildlife Act 1970, Threatened Species Protection Act 1995, Aboriginal Relics Act 1975, Forestry Act 1920, Commonwealth Environment Protection and Biodiversity Conservation Act 1999, and State Policies;
>
> – 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 Code has several issues that need to be discussed.

1. 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.
2. The fact that the provision specifically refers to pieces of legislation (as the 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.
3. 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).
4. Why does this Code provision also include mention of "policy mechanisms that relate to State forest" and why not include other mechanisms that relate to other tenures?
5. 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.
6. 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 an some examples on how it can be/has been implemented. The policy needs updating because of changes to the *Nature Conservation Act 2002*.

D1. Soils

General Principles

Basic Approach (P52)

Does this section of the Code need to highlight the often critical links between some soil types and some threatened vegetation types (e.g. coastal glob/vim forest on dune sands) and threatened fauna (e.g. threatened carabid beetles on gilgai clays in the Midlands)?

D2. Water Quality and Flow

General Principles

Management will be consistent with the State Policy on Water Quality Management. (P54,DP1)

Does the State Policy on Water Quality Management have a new title and are there relevant parts of this policy that have implications for biodiversity management in this section of the Code?

D2.1 Watercourse Protection

General Principles

All watercourses require protection during forest operations. The type of protection required depends on the nature of the catchment, size and permanence of the watercourse, the volume of water carried, and any natural and cultural values present. (P55,DP1)

Does this section of the Code need updating to include commentary from the "class 4 guidelines"?

Also, throughout the section on water, there is no mention of threatened vegetation types particular associated with riparian habitats (e.g. wetlands, *E. ovata* forest, wet *E. viminalis* forest, riparian scrub, etc.) or any mention of or cross-reference to swamps (which are also often associated with such environments.

> Water quality, catchment and channel stability, and biodiversity in aquatic ecosystems can be protected by minimising disturbance to watercourse channels and riparian (streamside) zones, and by reducing soil disturbance in and near watercourses. Potential downstream impacts also need to be considered. (P55,DP2)

What is "catchment stability"?

Impacts can also be minimised by the degree of whole catchment impact. This issue goes back to coupe dispersal and size.

> Basic Approach
>
> Native vegetation will be retained intact in Class 1, 2 and 3 streamside reserves as defined in Table 8 below, subject to other provisions in this Code permitting watercourse crossings and selective harvesting under certain conditions. (P55,DP3)

The concept of intact except for certain provisions is incomplete e.g. farm dams, fire dams, stock access points, pump sheds, etc. and all of these will impact on biodiversity.

> Diagram P55
>
> Streamside Reserve design

The diagram emphasises MEZs and not full SSRs on class 4 streams and there are increasing policies (e.g. class 4 guidelines, *Threatened Fauna Adviser* recommendations, etc.) that require full SSRs.

Also, diagram does not include the concept of "drainage lines".

> D2.2 Water Supply and other Significant Catchments
>
> General Principle
>
> In town water supply, domestic water supply and freshwater aquaculture facility catchments, and catchments important for threatened aquatic fauna, particular attention to soil and water care is needed. Planning will be directed to minimising as far as is practicable the percentage of the catchment harvested, roaded, or established to plantation in any one year. (P57,DP5)

There are no targets for percentage catchment impacts except for designated town water supply catchments. The *Threatened Fauna Adviser* has some recommendations for some aquatic species.

> Basic Approach
>
> Within 2 km upstream of a town water supply intake or freshwater aquaculture facility intake specific prescriptions will be placed in Forest Practices Plans, (and will be considered for catchments which are important for threatened aquatic fauna), regarding:
>
> – timing of harvesting, plantation establishment and roading;
>
> – use of chemicals;
>
> – wet weather limitations;
>
> – camps or living quarters;
>
> – methods of road construction, especially watercourse crossings (see Section B8);
>
> – management of fuel, grease and oils (see Section F). (P57,DP8)

The *Threatened Fauna Adviser* goes considerably further than "…will be considered for catchments which [should be that] are important for threatened aquatic fauna…", with some detailed recommendations for several species in relation to several of the dash points.

> Within 2 km upstream of known domestic water intakes measures in addition to the standard provisions of this Code may be prescribed in the Forest Practices Plan. In particular, measures may be required where a domestic water supply is derived wholly or predominantly from within an area of forestry operations. Consult with a specialist if disturbance is likely to significantly affect water quality. (P58,DP2)

If domestic water intakes (as opposed to town water supply catchments as listed in an appendix of the Code) get their own dot point, why not threatened aquatic fauna?

> D3. 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. (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 Code attempting to aid in species' recovery or just maintenance?

The concept of "genetic interchange" through "linking forest areas" is attempting to get into the concept of habitat fragmentation. Is this the idea? 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).

> 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 oldgrowth characteristics is preferable to retention of regrowth of the same forest type. (P58,DP4)

There are a lot of concepts wrapped up in this single GP. Should it not be separated? 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, its just that management tools such as WHSs can be used to target some of the older growth features.

> Basic Approach
>
> Planning for flora and fauna 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 should be developed to maintain species diversity, 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. (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 Code, with respect to biodiversity values.

> 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 oldgrowth characteristics;
>
> – other significant biological values (e.g. important research sites). (P59,DP1)

Given that this is a Basic Approach dot point, should there not be some statement about ongoing management of such retained patches being compatible with the values they were retained for?

> 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 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. (P59,DP2)

What does any of this dot point really mean? 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".

> D3.1 Flora Conservation
>
> General Principle
>
> The general requirements and guidelines for conservation of significant flora values are outlined in the Forest Botany Manuals 11. Other sources of information include vegetation maps, the flora databases held by Forestry Tasmania and DPIWE and advice from specialists. (P59,DP3)

Perhaps also mention planning manuals such as weed and disease manuals, FPA flora technical notes, etc.

> 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 (viz. planning for broad areas of forest….is awful wording). In addition, this clause seems to refer to forested areas, not extensive rural areas, plantation estates, etc.

> Site Management for Flora in Native Forests
>
> Disturbance to native vegetation in localised environments (such as rocky knolls, swamps, heaths, and streambanks) should be avoided or minimised. These environments are 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.

> 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 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 Code).

> 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 a tricky one 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).

> 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 has only secured perfunctory attention from the forest industry but is potentially one of the more significant biodiversity management issues.

> 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 concept of genetic swamping, hybridising, etc. is only just starting to get a foothold. 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 (e.g. Peter Volker, Fred Duncan).

> Disturbance to localised environments rich in epiphytic species should be avoided or minimised, particularly in drier parts of Tasmania. Such environments include relict

or oldgrowth 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 Code. These should be referenced.

D3.2. Fauna Conservation

General Principles

Fauna conservation will be considered in all stages of forest management. In particular, the requirements of threatened species and communities, aquatic fauna and cave fauna will be addressed. (P61,DP6)

An odd selection of "in particular"s – this is a General Principle so 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 Code's emphasis on finding "an acceptable balance between environmental values and wood production".

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?

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.

Site Management for Fauna in Native Forests

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 oldgrowth 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 oldgrowth

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.

Consult Fauna Conservation in Production Forests in Tasmania 15 or other sources for more details. (PP62-63, DPs1-5)

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 would be better being advised by 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 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.

D3.3 Threatened Species and Inadequately Reserved Plant Communities

Basic Approach

Management of threatened flora and fauna species and inadequately reserved plant communities are covered by legislation and processes that include the Commonwealth Environment Protection and Biodiversity Conservation Act 1999, the Tasmanian Threatened Species Protection Act 1995, the National Parks and Wildlife Act 1970, and the Tasmanian Regional Forest Agreement 1997. (P64,DP1)

Note: outdated legislation names – Code needs to either be more generic or have a introductory legal statement covering this matter.

What is an "inadequately reserves plant community"? Is it just those listed as threatened on Schedule 3 of the *Nature Conservation Act 2002*, priority A or B floristic communities as listed in the *Forest Botany Manual*, inadequately reserved communities but ones that don't make it to a formal list (e.g. lowland Poa grassland) or a combination of the above? The answer to this question has flow-on effects to any necessary revisions of the duty of care policy, the permanent native forest estate policy and the agreed procedures.

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 Manuals 11, the Threatened Fauna Manual for Production Forests in Tasmania 12, and the Threatened Fauna Adviser 13 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 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. (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.

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. (P64,DP3)

Note: outdated program name.

Issues about definition of inadequately reserved and flow-on policy changes as discussed above.

D6. Geomorphology

General Principles

Geological, landform, and soil sites are important for their intrinsic, scientific, recreational, inspirational values, other uses, and the role geodiversity plays in sustaining natural processes. (P72,DP7)

Certain geomorphological features are strongly associated with high priority biodiversity values (e.g. karst with threatened karst fauna; sandstone landforms with some threatened vegetation types, fauna and flora, etc.) – should this be highlighted in addition to the concept of "sustaining natural processes"? A similar statement could be made under Cultural Heritage principles.

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, CFA and Permanent Native Forest Estate policies should be emphasised for certain vegetation types.

> Pests 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.

> 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).

> E1.2 Site Preparation Techniques
>
> General Principle (P75 onwards)

Similar comments to above.

> 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").

> E1.5 Protection from Grazing and Browsing
>
> General Principles (P87)

Weed control (i.e. use of herbicides) and browsing control/management have the greatest potentia to impact on biodiversity values.

> E1.6 Fire Breaks and Access Tracks
>
> Basic Approach (P88)

See previous comments on fire breaks and access tracks.

> Fire dams and water storage areas should be planned 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 DPIWE. (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.).

> 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 an 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.).

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).

G. GLOSSARY

Some terms are potentially missing from the glossary, e.g. biodiversity (note: geodiversity is defined).

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.

Is this really a good definition of conservation or is this really "conservation management in the context of an industry"?

• 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".

• 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.

• 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"?

• Streamside reserve – All land within a minimum distance specified in the Code from the banks of a Class 1, 2 or 3 watercourse, lake, artificial storage or tidal water (see also Table 8, page 56).

Concept of a SSR on a class 4 stream entirely absent.

• 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. 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.

• Threatened species – A species listed on current schedules of the Threatened Species Protection Act 1995.

Also the EPBC, RFA priority species, etc. Make more generic?

• 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.

H. REFERENCES

11. Forest Botany Manuals. Forest Practices Board (various), Forest Practices Board, Hobart.

NEED TO UPDATE TO OFFICIAL CITATION

12. Threatened Fauna Manual for Production Forests in Tasmania (revised ed.). Forest Practices Board (1998), Forest Practices Board, Hobart.

NOW WEB BASED, CITATION NEEDS CHANGING

13. Threatened Fauna Adviser. Forest Practices Board (1999), Forest Practices Board, Hobart.

14. Fauna Technical Note Series. Forest Practices Board(various), Forest Practices Board, Hobart.

ALSO ADD FLORA TECHNICAL NOTE SERIES – STILL THINK THESE ARE BETTER AS "BIODIVERSITY TECHNICAL NOTE SERIES"

15. Fauna Conservation in Production Forests in Tasmania. Taylor, R. J., (1991), Forest Practices Unit, Forestry Commission Tasmania, Hobart.

TIME TO DELETE THIS ANTIQUATED REFERENCE?

35. Using Low Intensity Fire in Land Management. Forestry Tasmania (2000),

104 Forest Practices Code 2000

I. SELECTED BIBLIOGRAPHY

CONSERVATION OF NATURAL AND CULTURAL VALUES

Aboriginal Relics Act 1975 Printing Authority Of Tasmania

Historic Cultural Heritage Act 1995 Printing Authority Of Tasmania

National Parks and Wildlife Act 1970 Printing Authority Of Tasmania

Threatened Species Protection Act 1995 Printing Authority Of Tasmania

Forest Practices Fauna Manual Forestry Commission Tasmania 1990

UPDATE NAMES AND ADD NATURE CONSERVATION ACT 2002, EPBC

ADD Askey-Doran and Glazik (2004) Tasmanian Streambank Plants – a guide to common plants along streams – RELEVANT TO RESTORATION WORKS

— PESTS, DISEASES, WEED CONTROL

Phytophthora cinnamomi Root Rot Leaflet No. 6, Forestry Tasmania

Identifying Pests in Tasmania's Forests Info. Sheets 1-7, Forestry Tasmania

Weed Control in Tasmanian Forests Info. Sheets 1-6. Forestry Tasmania

REPLACE WITH NEW PC AND WEED DOCUMENTATION ISSUED BY DPIW, FT AND FPA (see previous background documents for full list).

APPENDIX 1
PROTOCOL FOR FORESTRY FIELD MARKING COLOURS

As a general rule, it is good that there is a protocol for consistent use of field marking colours but there remains some inconsistent use of colours around the State (especially on different tenures).

- High visibility colour versions of flagging tapes should be used where available. Biodegradable tape should only be used for situations where high visibility and longevity is not critical. Striped tape is prone to fading and therefore it is recommended only for relatively short term uses.

There are substantial management issues associated with the use of environmentally friendly tape but it is a genuine environmental concern, and should be considered as part of the present review.

A related issue is the use of hip-chain cotton. When left in the field for long periods, it has been known to snare (and usually kill slowly) large birds such as currawongs, kookaburras, owls, frogmouths, etc.

The yellow/white tape designated for “natural and cultural values” is very hard to see from anywhere but very close (even if you’re the one that marked the value).

Appendix C. *Draft Guidelines on the Size and Dispersal of Coupes*

The text below is copied from the original draft prepared by Graham Wilkinson 1/2/01. Note that some formatting changes have been made to fit the text to the format of the current document but the order and content has not been altered.

Draft Guidelines on the Size and Dispersal of Coupes

1. Preamble

The Forest Practices Code (2000) covers the issue of coupe size and dispersal as follows.

Section C1.1 Dispersed Harvesting Design

General Principle- By dispersing harvesting in space and time any localised impact on natural and cultural values will be reduced.

Basic Approach-

- In native forest to be harvested by clearfelling 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 100ha but the requirement for a safe burning boundary may over-ride this limit;
    - the cutting sequence of regeneration units should where practicable be planned so that adjacent areas of native forest are not harvested until the dominant height of the regeneration of any adjoining coupe is at least 5m and an acceptable stocking is achieved.
- Dispersed harvesting is desirable in non-clearfelling operations.
- 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.

Section C4.4 Water Supply Catchments

- No more than 5% of a town water supply catchment should be felled annually.

Section C6. Steep Country Harvesting (Slopes 20^o and above)

- Clearfell coupes with more than 50% of their area on slopes greater than 20^o will be no greater than 50ha in area unless approved by the Chief Forest Practices Officer in order to achieve safe burning boundaries or other specific reforestation requirements.
- Clearfell coupes will be dispersed by ensuring that, at the time of harvesting, adjoining unharvested or regenerated forest has a dominant height of at least 5m at an acceptable stocking standard.

Section D3. Flora and Fauna

- Dispersed coupes should be considered.

Section D4 Landscape

- Coupes should be dispersed in time and space throughout the forest or viewshed to minimise the level of visual change from any viewpoint, particularly sensitive views from highways, lookouts, walking trails and townships.
- Avoid large areas [of plantations] being harvested in the same year.

2. Rationale for dispersal

Water Yield- water yield increases after clearfelling and then reduces as a result of the active growth of a young forest. Impacts on water yield are directly related to the age class distribution within a catchment, hence large aggregates will have a more profound effect on water yield than small coupes that are dispersed over time. Large fluctuations in water yield may have adverse downstream effects on the use of water for domestic and farming purposes and on the habitat characteristics of riparian species.

Water Quality- exposure of soil through logging disturbance and cultivation etc increases the risk of erosion and soil movement into streams. This risk will be increased in pre-Code plantations and on cleared land where there are no streamside reserves. Large aggregates within individual catchments will obviously represent a higher risk than small, dispersed coupes, especially for operations that involve soil cultivation and the application of herbicides. Impaired water quality may impact on domestic users and on riparian species.

Biodiversity – small, dispersed coupes help to maintain a pattern of structural diversity across the forest at the landscape level. A mosaic of forest at different stages of growth and development is preferable to large areas of uniform age and habitat.

Visual landscape – large, aggregated coupes have far more visual impact than smaller coupes in most situations.

3. Operational constraints on dispersal

A number of factors may impose constraints on the degree to which coupes may be dispersed.

- Limited roading access
- Availability of suitable land for plantations
- Financial maturity of existing plantations that are already located within large aggregates
- Scheduling of existing plantation aggregates to achieve uniform products for processing purposes.

4. Guidelines for coupe size and dispersal

- Guidelines for areas to be managed as native forest are adequately covered by the Forest Practices Code.
- Additional guidelines for the harvesting and establishment of plantations are as follows.

4.1Existing plantations

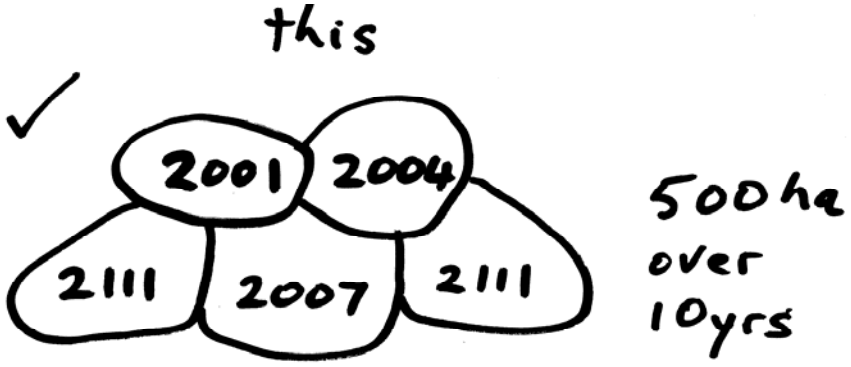
- Plan to improve dispersal over time where possible. Small, dispersed coupes within individual catchments should be considered to reduce potential impacts in areas where there are likely to be special issues with respect to water, threatened species or visual landscape. Seek advice from relevant specialists on a case by case basis through the FPP notification process.

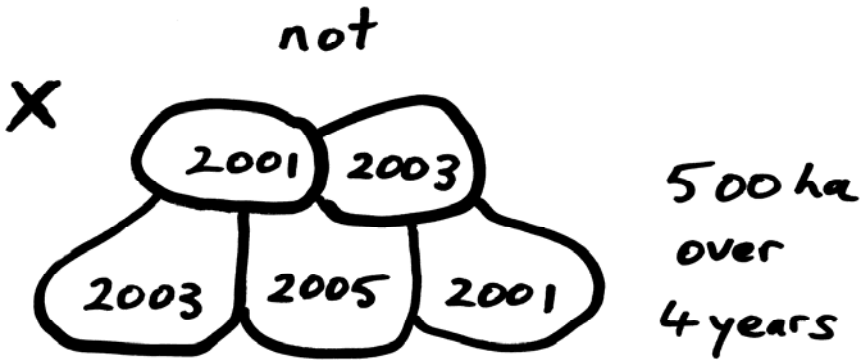
4.2New plantations on cleared land

- Where possible, try to stagger the establishment period or management regime to minimise the likelihood of locking future management into large, aggregated coupes.

4.3New plantations on native forest sites

- Where possible, coupes should be no larger than 100ha and adjoining coupes should be separated in time by at least 2-3 years. Aggregates of more than 3 coupes should be dispersed over at least a 10 year period.





[Draft prepared by Graham Wilkinson 1/2/01]

Appendix D. *Forest Practices Authority policy statement: duty of care policy*

The text below is a copy (minor formatting only, no wording changes) of a policy statement document released by the Forest Practices Authority to explain the concept and workings of the "duty of care" policy.

POLICY STATEMENT BY THE FOREST PRACTICES BOARD 16/10/97

Conservation of values under the forest practices system

Preamble: The purpose of this document is to set out the policy applied by the Forest Practices Board, to give effect to the statutory obligation in the Forest Practices Act to *achieve sustainable management of Crown and private forests with due care for the environment*, with particular reference to the nature and extent of the duty of care to be discharged by private forest holders.

The Forest Practices Board is required under s.4B of the Forest Practices Act 1985 to:

act in all matters in a manner that-

(a) best advances the objective of the State's forest practices system; and

(b) fosters a co-operative approach toward policy development and management in forest practices matters.

The objective of the forest practices system is defined in Schedule 7 of the Act as: *to achieve sustainable management of Crown and private forests with due care for the environment.*

The Board acknowledges that the objective of the forest practices system will be achieved through a combination of statutory and policy mechanisms, including the Forest Practices Act and other relevant legislation, the Forest Practices Code and mechanisms such as the Regional Forest Agreement.

The application of the Forest Practices Code places certain obligations on private forest holders, which must be discharged by those forest holders. In this policy, the Board considers that the sustainable management of forests with due care for the environment should be addressed by forest holders in the context of a duty of care to be discharged by them. Thus for the purposes of this policy, duty of care is defined as the fundamental contribution of a land holder to sustainable forest management. Costs incurred or revenue foregone through the exercise of duty of care should not be subject to compensation mechanisms.

1. Soil and Water Values

The protection of soil and water values is fundamental to the sustainable management of forests. Measures to protect soil and water values are detailed in the Forest Practices Code. The Board believes that the protection of soil and water values is part of a land holder's duty of care.

2. Botanical Values

The Board believes that the legal and policy framework for the conservation of significant values under the forest practices system will be determined by the following.

2.1 Relevant legislation, including the National Parks and Wildlife Act 1970, Threatened Species Protection Act 1995 and the Forestry Act 1920.

The RFA (including the provisions for the CAR reserve system) and policy mechanisms which relate to State forest.

2.2 The duty of care of land holders under the provisions of the Forest Practices Code. The Board considers that in the absence of any specific legislative provisions, it should apply the following principles under the duty of care in order to achieve a balance between the land owner's property rights and the broader community benefit achieved by the conservation of botanical values.

2.3.1 the conservation of significant botanical values up to a reasonable threshold should be regarded as part of the land holder's duty of care;

2.3.2 beyond this threshold, the conservation of values is deemed to be for the community benefit and this should be achieved on a voluntary basis or through compensation mechanisms where available;

2.3.3 a reasonable threshold should be based on a proportion of the gross area of the forested portion (or the proposed forested portion in the case of the reforestation of cleared land) of a land holder's property;

2.3.4 the threshold is additional to any provisions for duty of care in relation to soil and water values under item 1;

2.3.5 the threshold should be 5%, where the conservation of a significant value would require the total exclusion of forest practices, or 10% where the conservation of a significant value could be achieved with some constraints (e.g. selective logging in lieu of clearfelling);

2.3.6 reservation of land up to this threshold should not be subject to compensation unless otherwise agreed by relevant parties.

3. Other Values

The Board believes that other significant values related to fauna, landscape, geoheritage, historic and cultural heritage should also be included for potential conservation within the overall 5/10% threshold defined in 2.3 above.

4. Implementation of this policy

The Board will implement this policy by:

1. an immediate administrative instruction to all Forest Practices Officers; and
2. initiating and supporting amendments to the Forest Practices Code.

Appendix E. *Plantation Design and Fauna Conservation in Tasmania*

A series of papers from *Tasforests* Volume 12 (2000) presented as a separate .pdf file. Note that as mentioned in the main text of this background document, the issues and recommendations discussed in this series of papers are still relevant.

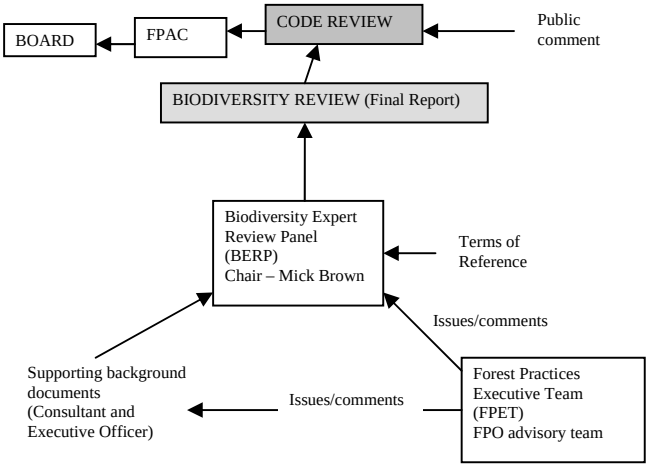
Appendix F. *Minutes of Forest Practices Executive Review Team Meeting 2 25 July 2007*

The FPET met and discussed various aspects of the biodiversity provisions of the Forest Practices Code, in part using an early draft of the present document (in particular Appendix B) to guide discussion. FPET has made some general and specific comments on various biodiversity provisions, even going so far as to provide suggested wording changes to the Code, some of which directly address matters raised in the present background document. Rather than include the recommendations of FPET (which are still preliminary because the group has not completed it review process) under each of the sections of the present document, we have simply attached the minutes of their meeting as an appendix. It is presumed that FPET will directly advise BERP at an appropriate time.

Minutes for Forest Practices Executive Review Team Meeting 2
25 July 2007 (9 – 11.30am)

Present:
Fred Duncan (Chair), Karen Richards, Vanessa Thompson, Sandra Hethrington, Chris Mitchell, Greg Hickey, Bruce Hay, Nina Roberts (minute taker).

1. **Sarah Munks** was present for first few minutes to give the group an overview of the structure and process of the biodiversity review. Illustrated with a diagram on the whiteboard.



In summary, the role of FPET is to get the views of people working regularly with the Code and associated planning tools - the group will bring practical perspectives and 'reality checks' to the review process. Sarah also emphasised the importance of the FPET

discussing areas where there are conflicting views within the group. The outcomes of FPET meetings (recommendations and identification of issues etc) will be reported to the Biodiversity Expert Review Panel (BERP).

The input of people not in the FPET group was raised and it was agreed that such input should be encouraged - possible avenues include current FPET raising awareness of the biodiversity review in their organisation and then representing the views of others at meetings, or inviting people outside of the group to attend relevant meetings.

Karen discuss with Peter MacIntosh those aspects of the review where there is overlap between stream provisions for fauna and for soils and water. Peter may come to future meetings where such issues are to be discussed.

The importance of integration of different specialist areas in the provisions of the Code was agreed upon by the group. Chris pointed out that the structure of the code is currently under review by FPAC and that it may end up being split into a planning section and operational section. We'll have to work with current structure for now, as FPAC process is concurrent with biodiversity review and the timelines not yet known. The suggestion was made that the review, the role of FPET and also the possible restructuring of the Code could be publicised by an article in FPNews in the interests of encouraging input from FPOs. All agreed to this. Fred will follow up.

2. Comments on Minutes of last meeting

No comments on minutes. Karen, who wasn't present at first meeting, noted her agreement with the minutes.

3. Comments on relevant Code provisions

The Terms of reference for this FPET meeting relate to the provisions in the Code that are relevant to biodiversity. The intention was to seek comments and discussion on all relevant provisions, however this was unrealistic in the time available. It was decided that the group would work through as much of section D of the Code as possible, using the comments made on these in the consultants report as a starting point.

3.1 Comments and recommended changes applying to all provisions discussed, or the Code in general:

- All mentions of 'production forests' and 'forest operations' in the Code need to be checked in light of changes to regulations (i.e. in some cases wording may need to be changed to include non-production forests and clearing of non-forest vegetation).
- The term 'genetic diversity' is preferred to 'genetic resources' (e.g. P51, DP2).
- Review use of 'should' versus 'will' throughout the code.
- Writing style: should use verbs rather than nouns where possible – usually more economical on words, and also avoids passive wording, where the subject of the sentence can be obscure.

3.2 Specific comments on provisions in Section D of the Code

Original wording from Code = *green text, italics*

Comments noted in consultant's report (as discussion triggers) = blue text, yellow highlighting

FPET comments = **red text, bold, bullets**

FPET's suggested changes to wording in the code are made in track changes (deleted text in the margin)

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)

COMMENT
What is meant by "genetic resources"? Does the Code intend to mean the range of genetic variation of all species, GM eucalypts, or genetic mutations (e.g. hybrids)?

- **Discussion of term 'genetic resources' – is it covered by the term 'biodiversity'?**
- **FD explained ecological concept of alpha, beta and gamma diversity (genetic diversity at the population level is gamma diversity). E.g.s of important intraspecific genetic variation include KI *Euc glob*, and *E. gunnii* pop at Miena. The concept of conserving gamma diversity is applied when developing prescriptions for threatened plant species. Group agreed this explanation was helpful in understanding the term and it should therefore be included somewhere in the Code. Also agreement that the 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 – see general comments (3.1 of minutes).**

Natural and cultural values in adjacent formal reserves (including private reserves) should be considered during the planning and conducting of forest operations. (P51,DP3)

COMMENT
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, oldgrowth habitat, relict rainforest, etc.). Also, 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?

- **Contra above comments, 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, PC etc.**
- **Need to clarify 'what is a reserve'. Consider either broadening definition of reserve or making the definition more specific.**
- **Important point to convey here is to "assess the impact" (ie. 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 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 fairly new. NVA or other GIS tool is needed to help with identification of reserves and special values.**

> *Management of natural and cultural values should be integrated where this is compatible with maintaining these values.. (P51,DP4)*

COMMENT
Should this not 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?

> *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)*

COMMENT
Should this better reference the list of planning manuals listed at the back of the Code? Or is some more generic statement needed referring planners to a web site or a general planing manual AND recognise that some manuals are subject to ongoing review and updating?

- **It needs to be clear that the 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 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 code – list of refs 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 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 Code to ensure uses are aware of it.**

Measures taken to conserve natural and cultural values will be consistent with effective fire management, silvicultural practices and safety requirements. (P51,DP7)

COMMENT
This is the point made under several comments for preceding sections of the 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 assessed at the strategic or property level, and will be evaluated during the preparation of Forest Practices Plans. (P51,DP8)

COMMENT
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'?**

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)

COMMENT
Given the legal interpretation of "should" and "will" statements (e.g. see introductory section of 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 WHCs, 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 (KD noted we need to discuss this at upcoming FPA GIS meeting)**
- **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.**
- **There may be an issue with info on aboriginal sites.**

> *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)*

COMMENT

The term "special management zone" has a defined meaning under FT's Management Decision Classification system. The previous versions of the 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 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 vaguer and should be more specific (e.g. "…as indicated under current administrative procedures…").
This Code provision also highlights the issue of the definition of "forestry operation". The 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.

- **Re: final of above comments - fair comment. Needs review of FPP system**
- **At FT, SMZs 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 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:
– relevant legislation, including the National Parks and Wildlife Act 1970, Threatened Species Protection Act 1995, Aboriginal Relics Act 1975, Forestry Act 1920, Commonwealth Environment Protection and Biodiversity Conservation Act 1999, and State Policies;
– 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)

COMMENT
This broad provision of the Code has several issues that need to be discussed.

7. 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 consistant with other government documents.

8. The fact that the provision specifically refers to pieces of legislation (as the 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.
9. 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).
10. Why does this 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.

11. 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.
12. 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 an some examples on how it can be/has been implemented. The policy needs updating because of changes to the *Nature Conservation Act 2002*.

All of above comments were considered to be fair.
There was some doubt raised as to whether this provision is needed at all.

Regarding 'Duty of Care':

- **The term need 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 - this will be distributed to the FPET group (policy statement 16/10/97 "Conservation of values under the forest practices system").**

D1. Soils
General Principles
Basic Approach (P52)

COMMENT
Does this section of the Code need to highlight the often critical links between some soil types and some threatened vegetation types (e.g. Coastal glob/vim 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 code that addresses integration of values.**

Note – In the interests of efficiency the section D.1 and D.2 were not discussed during the meeting. Karen will discuss soil and water provisions included in Section D of the Code with Peter MacIntosh, and will circulate comments she and Peter come up with to the rest of the group.

D3. Flora and Fauna
General Principles
Conservation of flora and fauna is assisted by maintaining and restoring habitat, enhancing opportunities for recolonisation of disturbed areas, and linking natural habitats to allow genetic interchange. (P58,DP3)

COMMENT

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 Code attempting to aid in species' recovery or just maintenance?
Yes – 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. Is this the idea? 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).
See suggested wording changes.

> *Biodiversity at the community, species and genetic levels can be matained 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 oldgrowth characteristics is preferable to retention of regrowth of the same forest type. (P58,DP4)*

COMMENT
There are a lot of concepts wrapped up in this single GP. Should it not be separated? 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, its just that management tools such as WHSs can be used to target some of the older growth features.

Agreement with above point - Old Growth needs to be separated out as a separate point, and importance of a range of ages needs to be stated. Fred will attempt to come up with wording that gives consideration to different ages and imp of OG without over emphasis.

> *Basic Approach*
> *Planning for flora and fauna 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)

COMMENT
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 Code, with respect to biodiversity values.

- **Above comments agreed with and wording changes suggested in response (see above)**
- **Reference to DPIW deleted, as agreements may no longer involve them.**
- **CM mentioned that there is a working document on coupe dispersal (prepared by Graham Wilkinson in 2001.) (This document will be distributed to the group with these minutes**
- **Re: large scale catchment management - need to involve Peter MacIntosh to establish practical catchment planning. Fred and Karen will follow up.**

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 oldgrowth characteristics;
– other significant biological values (e.g. important research sites). (P59,DP1)

COMMENT
Given that this is a Basic Approach dot point, should there not be some statement about ongoing management of such retained patches being compatible with the values they were retained for?

- **All agree with above comment.**
- **Add point about ongoing management of such retained patches.**
- **(see Fred for further suggested word changes?**

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)

COMMENT
What does any of this dot point really mean? 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 Code, but can also support this with a Tech Note. FPA will probably also run a training day on remnants. Preparation of Tech note will help to address wording issues here.**
- **CM will also look out for definition of remnants in Codes from other states.**