



Management **D**ecision **C**lassification

User Manual

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Preface

Welcome to revision 3.1.2 (August 2001) of Forestry Tasmania's Management Decision Classification manual.

This manual is prepared as a technical guide for the use of Forestry Tasmania planners involved in the application and use of MDC Zoning. It is also made available to the wider community to assist in general understanding of the MDC system and to facilitate public comment regarding MDC zoning decisions.

Forestry Tasmania's MDC system is in the midst of a process of substantial change. These changes, previewed at the end of this manual (appendix 5, page 24), will be implemented during 2001/02. This manual will correspondingly be revised. This document will be kept up to date as changes are made, with a live version being available on Forestry Tasmania's Forest Management intranet site.

Any queries regarding this manual or the MDC system can be directed towards

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Introduction

What is MDC Zoning

The Management Decision Classification (MDC) system is the way in which Forestry Tasmania zones the land it manages in order to optimise its management and balance the competing demands on the forest estate. Zoning enables areas with particular values to be identified and appropriate management prescriptions put in place to ensure protection, maintenance and enhancement of these values.

In short, all areas are zoned within a Production, Conditional and Protection Primary Zone that indicates their overall availability for wood production. One or more of twenty- two Special Management Zones can then also apply to document the choice of Primary Zone and reflect additional management requirements. MDC is thus a system to record decisions, made by forest planners, based on the best available information. It is not a database for the inventory underlying that decision.

A general overview of MDC and the background to its development is available in Orr, S. and Gerrard, A.M. (1998). Management Decision Classification: A system for zoning land managed by Forestry Tasmania. In *Tasforests* Vol 10, December 1998, p 1-14.

MDC coverage

MDC zoning is applied to all land that Forestry Tasmania manages, including State forest, joint ventures and leases on private land, and some areas of non-allocated crown land.

The purpose of MDC Zoning

MDC seeks to achieve three core requirements of forest management planning:

Systemisation

- The RFA sets out reservation requirements in the form of Informal and Formal Reserves. MDC is used to incorporate these requirements within planning processes.
- Decisions regarding special values identified through the Forest Practices system are recorded in a systematic manner using MDC.
- Forestry Tasmania is currently working towards implementing an Environmental Management System consistent with ISO 14001 standards. The MDC system will assist with achieving this goal.
- MDC zones provide preliminary information necessary to delineate planned coupes and to undertake sustainable yield calculations and is used to assist with strategic planning tasks.
- The MDC system allows for land use zoning for any specific location to be rapidly accessed, analysed and mapped.
- MDC is integral to the production of Forest Management Plans.

Consistency

- MDC provides a framework for land management decisions and assists in maintaining Statewide consistency of decision making.
- By providing a repository of corporate expertise and knowledge, MDC also facilitates decision making consistency over time.

Transparency

- MDC allows the management intent for Forestry Tasmania managed lands to be more readily communicated to the public, and to other stakeholders such as State and Commonwealth agencies and local government.
- The MDC system facilitates public input into the Forest Management Planning process.

MDC in context of other planning systems

MDC zoning needs to be viewed in the context of a suite of legislation, policies, standards and datasets that each influence aspects of forest management (see Figure 1).

The *Forestry Act 1920* sets out the broad purposes for which State forest is managed.

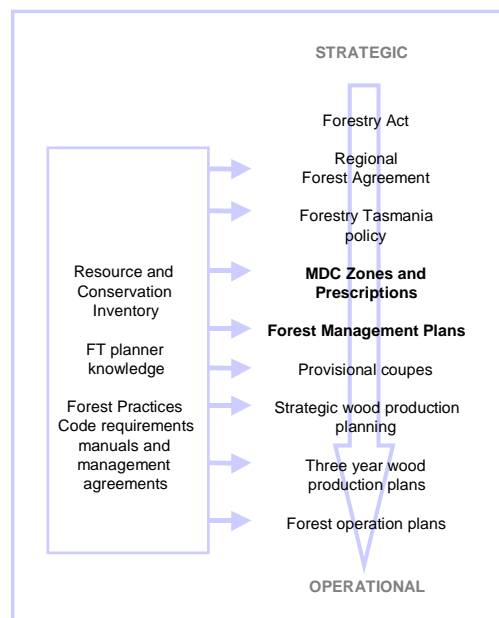
The *Forest Practices Act 1985* and *Forest Practices Code* addresses the protection of water quality, soils and forest productivity and minimum standards for forest operations. The Code includes safeguards for the conservation of flora, fauna, cultural heritage, landscape and geomorphology values.

The *Tasmanian Regional Forest Agreement (RFA)* also deals with issues such as the identification of

vegetation communities that are to be protected as they are encountered within production forests. It sets out a range of agreed measures for protecting other forest values. MDC zoning is an integral part of the implementation of the *Forest Practices Code* and the *RFA* but also deals with additional broader forest management objectives and hence can place additional constraints on forest operations.

Forest Management Plans are produced for each District for a nominal period of 10 years. These directly relate MDC zones into broad management prescriptions. *Strategic planning* in relation to harvesting and plantation establishment in a regional context, ensures, among other objectives, that biodiversity and catchment management objectives are addressed. A *Three Year Wood Production Plan* is produced each year by Forestry Tasmania. This identifies coupes planned for harvest in the coming three years and sets out how they shall be harvested and regenerated. *Forest Practices Plans* (Timber Harvesting Plans) are prepared prior to harvesting operations. These set out prescriptions over and above what is generally required by the *Forest Practices Code*. The MDC system can only include information on known values. The absence of a recorded special value is not necessarily evidence it is not present in a particular location. Pre-harvest coupe surveys regularly identify additional special values that lead to amendments to MDC zones.

Figure 1. MDC in context of other planning systems



The history of MDC Zoning

The MDC system was first developed in 1990-91. The first MDC manual was released in 1991 and dealt with the compiling of initial Statewide MDC mapping, and with protocols to assist with the subsequent digitising of these boundaries. By mid 1993, all land that Forestry Tasmania managed, had been mapped. An updated manual was released in 1996 with a similar emphasis to the first version.

By 1997, recognition was growing of limitations in the structure of the MDC system. In particular, it did not have the capacity to store any background or explanation to zoning decisions. Corporate knowledge was becoming at risk of being lost or over-looked, as the planner responsible for particular zoning decisions moved on or simply forgot the basis for decisions made in years past. The *Tasmanian Regional Forest Agreement*, signed in 1997 also sets out requirements in relation to the content and documentation of MDC. Now in 2001, work is underway to redevelop the MDC system. This updated third version of the manual has been released in the interim, although it should be understood that it is a working document that will continue to be updated to represent the developing MDC system. The focus of the manual is now the update and use of MDC data.

MDC Structure

The Management Decision Classification system identifies two levels of zoning. At the first level, land is allocated to a single Primary Zone that defines whether the land will primarily be managed for Production or Protection, or as Conditional land. At the second level, Special Management Zones overlie Primary Zones to indicate where particular emphasis will be placed on management for special values.

Primary Zones

Protection Zone

The Protection Zone incorporates land from which wood production is excluded in order to protect special values. It includes areas of forest and non-forest where maintenance of identified special values is incompatible with wood production or other forest works. The inclusion of land in the Protection Zone does not preclude the removal of small quantities of timber under special circumstances such as approved research or salvage operations, provided this can be done without significantly affecting the special values being protected. Salvage may include, for example, the removal of trees felled during the construction of roads or visitor facilities but does not include harvest of trees following wildfires. Inclusion in this Zone also does not, in itself, preclude mineral exploration and mining.

Land in the Protection Zone includes almost all Forest Reserves (the exceptions being plantation forests within Oldina, Hollybank, Springfield and Dalgarth Forest Reserves) and other areas with special values such as the habitats of certain endangered species. Wildlife habitat strips are also included.

Areas within the Protection Zone should have the appropriate Special Management Zone code(s) ascribed to them that assists in identifying why the area is being protected.

Areas of Protection Zone outside of Forest Reserves constitute the Informal Reserve system on State forest. Areas may only be removed from Informal Reserves under specific and limited conditions (see page 9).

Conditional Zone

The Conditional Zone comprises small areas of forest otherwise in the Production Zone for which there is considered to be a potential operational problem associated with harvesting or regeneration that currently precludes such activities.

Ultimately, all land in this category will be reallocated to either the Protection or Production Zone. Timber harvesting is not permitted in the Conditional Zone (except for approved salvage or research reasons) pending review and reallocation. Some Districts no longer have any areas within the Conditional Zone.

Production Zone

The Production Zone includes native forest and plantation areas available for wood production. It includes areas within planned future coupes, and other areas that are less important or unsuitable for wood production for reasons including inaccessibility and the absence of merchantable trees (eg buttongrass plains), where these areas do not have specific conservation values warranting zoning within the Protection Zone.

The Forest Practices Code continues to apply to the Production Zone (as it does to all forests) and will further constrain harvesting operations or exclude them from some areas. One or more of the Special Management Zones described below may apply to an area within the Production Zone. Any modified harvest practices required to maintain and protect identified special values within the Production Zone are in part embodied within the planned coupe database and further detailed in the Forest Practices Plan prepared for that operation.

Special Management Zones

SMZ Codes

Special Management Zones (SMZs) form the second tier of the MDC system. These identify where particular emphasis beyond that given by the Primary Zones is to be placed on management for particular special values.

Twenty-two categories of SMZ are currently in use. These are described below, with their standard abbreviation in *italics* and their map code given in brackets. Further detail regarding the derivation of each of these SMZs is given in appendix 1, page 15.

<i>Agricultural activity</i> (Ag):	Land on which the grazing of domestic stock or other agricultural cropping is a priority for management.
<i>Apiary</i> (Ap):	Native forest areas identified to have high value for nectar production and selected to be managed for maintenance of the nectar supply.
<i>Biodiversity</i> (Bd)	Production forest identified to be maintained as native forest in the long term for biodiversity purposes eg native forest corridors and biodiversity spines.
<i>Cultural heritage</i> (Cu):	Aboriginal and historic sites that require recognition and protection additional to normal management practices.
<i>Forest health</i> (He):	Land requiring special management due to either the known presence of particular forest diseases or the presence of flora values considered particularly susceptible to these.
<i>Fauna</i> (Fa):	Areas for which the management of fauna values is of particular importance.
<i>Flora</i> (Fl):	Areas for which the management of flora values is of particular importance.
<i>Fuel management</i> (Fu):	Land managed primarily for strategic fire protection purposes.
<i>Geomorphic hazard</i> (Hz):	Land that poses a specific geomorphic hazard such as a high level of susceptibility to landslip, soil erosion, cave-ins, flood or accentuated drought stress and on which the priority for management is to protect against such events.
<i>Geoconservation feature</i> (Ge):	Landform features of significance that require recognition and protection above that afforded by normal management practices.
<i>Landscape</i> (Ls):	Land for which detailed landscape planning may be required in recognition of identified landscape values.
<i>Recreation/education</i> (Rc):	Land for which recreation or education activities are identified or planned as a priority use.
<i>Research</i> (Rs):	Areas where research trials or projects (but not routine forest inventory plots) are located and in which the Primary Zone does not already provide the management they require.
<i>Simsons Stag Beetle</i> (Sb):	Areas identified as requiring specific management for Simsons Stag Beetle.

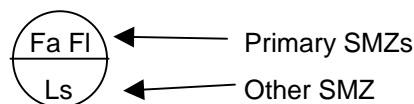
<i>Utility (Ut):</i>	Land set aside as easements for utilities or quarries.
<i>Water supply (Wa):</i>	Areas for which measures, additional to those of the Forest Practices Code are implemented to protect a stream, water storage or water intake or supply facilities.
Harvest <i>deferred</i> (Hd):	Areas for which harvest has been deferred for policy or operational reasons.
<i>Tallest Trees</i> (Tt):	Areas given special protection due to the presence of ultra tall trees (>85m tall).
In addition to the above SMZs, there are several others that are specific to the Production Zone:	
<i>Plantation</i> (PI):	Land currently managed as an indigenous or introduced species plantation.
<i>Intensive silviculture</i> (In):	Native forest managed intensively to accelerate timber production.
<i>Long rotation wood production</i> (Lo):	Native forests set aside for wood production on a nominal rotation length greater than 110 years.
<i>Special timbers production areas</i> (St):	Native forest areas having high proportions of special species timbers (non-eucalypt native species) where a decision has been made to manage for high quality timber production from these species.

Additional categories of SMZ will be implemented and categories removed from use as needed in the future.

SMZ structure

At present, a maximum of four SMZs can apply to any area. Two of these are identified as 'Primary' Special Management Zones (PSMZs) and two as 'Other' Special Management Zones (OSMZ). The distinction is not indicative of the inherent importance of the respective special values, but rather their relative management significance. For example, a value that is highly significant, but does not require any particular management would be classed as an OSMZ. If the management requirements of one special value are embodied as some of the management requirements for a second special value, then that special value would become a PSMZ and the first value an OSMZ.

SMZ codes are hence displayed graphically:



SMZs also currently do not overlap in the sense that a separate polygon is used to delineate the intersection between two Special Management Zones.

Proposed enhancements to SMZ categories are discussed in appendix 5 (page 24). These include introducing a number of SMZ subcategories, removing the PSMZ/OSMZ hierarchy, and enabling overlapping SMZs.

Determination of Zones

Zone boundaries

General principles to be considered in the identification of MDC zones and selection of manageable boundaries are listed in appendix 4 (page 21). Given the great diversity of situations encountered when undertaking zoning, it is not possible to be totally prescriptive with a methodology for deriving MDC zones; subjective judgments will inevitably be required in some instances. The following methodology seeks to make this process as systematic, consistent and transparent as possible.

Sequence of determining MDC zoning

1. With the exception of areas of plantation within four Forest Reserves (page 6), Forest Reserves must be in the Protection Zone.
2. The *RFA* identifies additional specific areas requiring reservation that (usually because they are too small or dispersed to be included in formal gazetted reserves) are included in Informal Reserves. These are included in the Protection Zone.
3. Where priority forest communities (page 20), are identified within the Production or Conditional Zone, there is a *RFA* requirement that wherever prudent and feasible, they be protected. This is normally achieved by their inclusion in the Protection Zone (see Appendix 1).
4. The *RFA* also allows for areas outside Formal Reserves to be removed from the Protection Zone under specific, limited conditions and subject to a formal assessment and approval process (page 12).
5. Special Management Zones are identified in accordance with the guidelines in Appendix 1.
6. Additional areas of Protection Zone will be established where required to protect special values identified in step 6 for which protection of identified values is inconsistent with wood production. All areas of Informal Reserve should have an SMZ documenting the reason(s) for their existence.
7. Areas of commercial forest within the Production Zone for which regeneration or conversion to Plantation can not be reliably achieved will be placed in the Conditional Zone until such time that further research provides suitable regeneration techniques or the area is zoned in the Protection Zone. Areas may also be placed in the Conditional Zone should they contain special values for which it is unclear whether harvesting would cause unacceptable impacts.
8. Wildlife habitat strips are located in accordance with Taylor (1991) and included within the Protection Zone. The location of wildlife habitat strips may be amended, in accordance with point 4 above.
9. Approvals for MDC changes are required in accordance with the process described on page 12. Approvals should be sought prior to editing the corporate digital datasets.
10. Approved changes are digitised and checked for errors.

Editing and viewing of MDC coverages

District MDC Arc/Info coverages are stored in Hobart and are accessible Statewide. Only specific accredited District staff have write access to these. Editing is carried out at the ArcEdit prompt or with one of two Arc Macro Language user interface menus: the 'DIGIT' module of 'Xmenus', or its replacement, the 'SIMS' module of GIFT (Geographic Information for Forestry Tasmania).

Annotations and Prescriptions

Annotations

The presence of a basic SMZ code (eg 'Fa') says little regarding the specific value(s) present and how it or they should be managed. To date, this has been dealt with by attaching descriptive paper notes to copies of 'master' MDC map-sheets in each District. Forthcoming upgrades to the functionality of MDC will allow annotations or 'notes' to be recorded against SMZs. These annotations can include references to files, explanatory notes and other comments that will contribute to the transparency of the system. Prescriptions relating to individual SMZs will also be able to be stored in this way.

Prescriptions

Management objectives associated with the management of special management zones are included in Appendix 1 (page 15). For each of these SMZ categories, a set of generic prescriptions are normally applicable. These are often available from one or several primary sources (also Appendix 1).

The *Threatened Fauna Adviser*, an expert system developed by and available from the Forest Practices Board is also a key source of prescriptions for fauna species. There are also many surveys, studies and other reference sources that can also be relevant (Appendix 6, page 26).

Threatened species recovery plans will progressively be released that include prescriptions relevant to specific species or areas. Management Agreements are also developed for some species to formalise approaches to their management in the context of forestry operations. Planning Branch will also make available other policies and prescriptions applicable to particular conservation values.

The application of prescriptions from source documents will require some degree of interpretation in instances where:

- compatible or conflicting prescriptions for multiple special values are compounded into a single consistent set of prescriptions;
- a selection is made of prescriptions relevant to a specific situation from a wider list; or
- generic prescriptions are reworded to reflect the characteristics of a specific site.

Specific management strategies will continue to be developed for particular sites through discussions between the District, Planning Branch, the Forest Practices Board, and the Parks and Wildlife Service.

Steps to be taken by District planners in the development of prescriptions can thus be summarised as follows:

1. Standard prescription and policy documents will be used in the updating of MDC zoning and in operational planning.
2. The Forest Practices specialists will be notified of special values and contacted for advice in accordance with the Forest Practices system.
3. Planning Branch staff or other relevant Forestry Tasmania staff will be contacted where additional expert advice is required, or a broader policy decision is needed.
4. Prescriptions developed for specific SMZs that are of ongoing relevance should be recorded on notes attached to MDC maps or in another suitable locations for future transfer to the new MDC system.

Responsibilities and update procedures

Responsibilities and authorities

The broad responsibilities and authorities of the Districts and Planning Branch in relation to the MDC system are set out below.

		Responsibilities
Districts	Operational staff	To ensure that consideration has been given to MDC zoning prior to any operational activities that may impact on special values.
	Planning staff	To incorporate MDC data into District planning processes (eg provcoupe, THPs). To identify and implement required changes to MDC zones, including the progression of the approval process. To manage and maintain quality control for the process of entering MDC data into the District dataset. To identify the need for and progress surveys or other research needed in order to make informed decisions regarding the need for new or amended MDC zones.
	District Manager	Overarching responsibility to ensure the correct administration of MDC in the District. To review and sign off on any proposed amendments to MDC Zones.
Planning Branch	Planning staff	To ensure the correct administration and use of MDC Statewide. To progress, with District approval, required improvements to the MDC system. To process and respond to proposed MDC amendments requiring Manager Planning approval. To monitor the referral of MDC changes to the Forest Practices specialists. To maintain a register of MDC Protection Zone changes for use in the 5 yearly RFA review.
	Manager Planning	To review and sign off on any proposed amendments that involve areas being removed from the Protection or Conditional Zone. Overarching responsibility to maintain MDC standards and quality.
Forest Practices Board specialists		It is Forestry Tasmania practice that the specialists should be consulted regarding changes to MDC with significant implications for special values. The intent is to direct to them any amendment about which they would wish to be informed (including the removal of any area from the Protection Zone) and to take any resulting advice into consideration.

Update procedures

Ongoing amendments

Amendments should be made to District MDC coverages on a regularly as new information becomes available.

Annual review

A broader annual review should also be undertaken in each District, normally in November-December. Any strategic MDC issues that have arisen over the past year should be considered at this time. It is also an opportunity to resolve any backlog of required changes in preparation for three year planning early in the following year and to review the retention of areas in the Conditional Zone. In the case of a District that regularly updates MDC throughout the year, the review may be a nominal task.

Implementation of structural changes to MDC

Proposed upgrades to MDC (Appendix 6) will involve additional update responsibilities for Districts in 2001/02.

Approval procedures

Responsibilities for review and signoff are as listed in the previous section. Documentation (Appendix 5 – Standard Form) for such sign-offs must identify the specific area(s) concerned, give a brief explanation for the change and be signed by the District Forester and Manager Planning (or their nominated delegates).

Specific requirements for changes to the Protection Zone

Areas of Protection Zone outside of Forest Reserves constitute the Informal Reserve system on State forest. Any change to Informal Reserves must, in accordance with the RFA, maintain the level of protection within the State of identified values for which the Informal Reserve system was established. Any such changes must also be documented (as set out below) for independent review as part of the five yearly reviews of the *Regional Forest Agreement*. In practice, changes to the Protection Zone are infrequent, and usually relate to the re-alignment of wildlife habitat strips boundaries and result in no net loss of protected area.

The criteria applied to assess any proposed changes to Informal Reserves consist of the following:

Table 2. Criteria applied to proposed changes to Informal Reserves

	Identified conservation value	Minimum level of protection from changes to informal reserves.
1	Priority <i>Regional Forest Agreement</i> vegetation communities (oldgrowth and other forest communities)	No loss from Protection Zone of actual values (mapped values verified as not being present may be removed)
2a	Threatened flora and fauna known sites	None removed from Protection Zone
2b	Threatened flora and fauna habitat	In accordance with prescriptions in Forest Practices Code, and threatened species manuals
3	Other CAR values (non priority communities, wilderness, oldgrowth)	Level of protection of identified values not decreased within the State, and preferably not diminished within the IBRA region.
4	Identified National Estate values.	Changes to be in accordance with Attachment 1 of the <i>Regional Forest Agreement</i>

The following steps are thus required for changes impacting on the Protection Zone:

1. The District planner is to map and document the proposed changes on the Standard Form (Appendix 5) and identify any impacts on significant conservation values (as above).
2. The relevant FPU specialist should be notified of significant proposed changes, and their comments or suggestions taken into consideration. This should be documented.
3. Proposed changes are to be reviewed and signed off by the District Forester.
4. The proposed changes and associated documentation are to be forwarded to the Senior Forest Planner. Planning Branch will then check the proposed change against the above criteria.
5. The Manager (Planning) shall provide a memo formally giving approval for the change. A reason shall be provided should the proposed change be amended or rejected.
6. As a courtesy, the District should notify the Forest Practices specialist if the outcome is different to their recommendation.
7. A copy of the changes should be documented in both the District filing systems and in the Head Office file F61730.
8. Planning Branch will record the changes in a register of MDC Protection Zone amendments for use in each 5 yearly RFA review.

Specific requirements for changes to the Conditional Zone

If it is established that sustainable wood production cannot be achieved within an area in the Conditional Zone, then that area should be zoned in the Protection Zone. If research findings establish that the area can be reliably regenerated, it should be rezoned as production forest. This latter rezoning requires the approval of the Manager Planning. The inclusion of new areas in the Conditional Zone should be considered where systematic regeneration or slow growth problems are identified within particular forest types. This should only occur following discussions with the Division of Forest Research and Development.

Data formats and products

MDC data

MDC data is stored in four main formats:

- *District Arc/Info coverages*
This is the source MDC data, available for editing by specific approved staff within respective Districts and available for viewing by other staff.
- *Statewide Arc/Info coverages*
At regular intervals, District MDC coverages are compiled into a Statewide cover for general mapping and access by the GIFT query and mapping system. These Statewide coverages are not edited, but are important as 'snapshots' of MDC at specific dates, for the generation of statistics.
- *District map libraries*
Districts retain paper sets of 1:25,000 MDC maps for reference purposes. Annotations are frequently made on individual map-sheets or are recorded on sheets attached to these maps.
- *District and head office files*
Information relevant to MDC decisions is frequently recorded on District and Head Office files. Relevant Head office files are F58945 (general MDC administrative file) and F61730 (documentation of changes to Protection Zones and associated approvals).

Standard MDC products

Routine access and viewing of MDC data is through the GIFT menu. A manual for the use of GIFT is available separately. Specific map products available through GIFT allow for the generation of Forest Practices Plan maps and customised mapping that utilises MDC.

Other standard MDC map products are listed below.

Forestry Tasmania will work from a basis of making MDC information available for public comment and consultation, subject to the safeguarding of sensitive values such as Aboriginal heritage sites and rare fauna species. Forestry Tasmania will normally seek to recover the direct costs involved in providing that information and may charge commercial rates for information used for commercial purposes. Any provision of source digital data will be subject to a data exchange agreement specifying how the data may be used. Forestry Tasmania will seek to ensure that out of date copies of digital or hard copy MDC data do not remain in circulation.

Table 3. Standard mapping products and their availability.

<i>Standard Map Products</i>	<i>Availability</i>
Statewide maps showing Primary Zones and simplified SMZ zones (1:500,000)	Available as digital images. Posters available at moderate cost
District maps showing Primary Zones and simplified SMZ zones (1:100,000-1:200,000 scale)	Available for viewing in District offices. Available as digital images. Posters available at moderate cost
Standard MDC maps 1:25,000	Available for viewing in District offices. Available to the Forest Practices Board
Detailed A4 plots of specific study areas (1:10,000 scale)	Available for purchase at moderate cost.
Historical comparison of MDC Primary Zones as at the start of the RFA, compared with Informal Reserves as subsequently updated .	Available for viewing when generated as part of each five-yearly review of the RFA.
Other map requests	Evaluated on a case by case basis

<i>Digital Products</i>	<i>Availability</i>
Digital data for a specific study area (nominally < 20000 ha)	Available for purchase at moderate cost by customers with a demonstrated legitimate need for the data. Subject to data exchange agreement
Digital data for State or District including Primary and Secondary Zones	Available to Government agencies. Data exchange agreement usually makes provision for regular update (monthly, three monthly, annual)
Other data requests	Evaluated on a case by case basis

Appendices

Appendix 1 Delineation of Special Management Zones

SMZ Code	SMZ Category	Classification criteria	Management objectives/actions	Primary source documents for prescriptions
Ag	Agricultural	Boundaries correspond to those of grazing or other agricultural cropping leases	Monitoring of grazing/cropping impacts and action to prevent or ameliorate these where required	Internal Forestry Tasmania policy
Ap	Apiary	Areas for which the production of honey is of particular significance. (especially M- rainforest containing leatherwood). These SMZs should be identified in consultation with the Tasmanian Beekeepers Association	Exclusion of (normally) leatherwood stands from harvesting and their protection from fire. Consultation with apiarists regarding management issues.	Forestry Tasmania (1994b). Guidelines to facilitate apiculture on State forest.
Bd	Biodiversity	Production forest identified to be maintained as native forest in the long term for biodiversity purposes eg native forest corridors and biodiversity spines. Plantation development specifically excluded.	Long-term management as native forest. Extensive forest management permitted. Plantation development not permitted. Other intensive forest management not desirable.	Relevant threatened species management agreements and internal FT policy
Cu	Historical Aboriginal	Delineates cultural sites or areas that warrant specific management or protection. Boundaries to be established through consultation with the Forest Practices Board and the Parks and Wildlife Service.	Protection of cultural sites from detrimental disturbance from forest operations and wildfire. Consultation with traditional users regarding management issues. Proactive management where required to protect values.	McConnell (1990). Forest archaeology manual. McConnell (1995). Archaeological potential zoning: Part 1-3. Specific site references
Fa	Threatened / rare fauna	Boundaries to be established in accordance with: (i) Threatened Species Recovery Plans (ii) Threatened Fauna Adviser (Forest Practices Board) (iii) Management Agreements (iv) standards as set out in other agreed reference documents. (v) outcomes of discussions with Forest Practices specialists.	Protection of specific fauna species or habitat from detrimental disturbance from forest operations and wildfire. Specific focus of threatened species recovery plans. Other proactive management where required to protect specific fauna values. Consultation with FPU Zoologist.	Jackson and Munks (1998). Threatened fauna manual for production forests in Tasmania. Specific species references
	Wildlife habitat strip	Established and amended in accordance with Appendix 2.	Exclusion of harvesting operations and minimisation of impacts of adjacent forest operations.	Taylor (1991). Fauna conservation in production forests in Tasmania.
Fl	Threatened / rare flora	Boundaries to be established in accordance with: (i) Threatened Species Recovery Plans (ii) Botany manuals (Forest Practices Board) (iii) outcomes of discussions with Forest Practices specialists.	Protection of specific flora species from detrimental disturbance from forest operations and wildfire. Specific focus of threatened species recovery plans. Other pro-active management where required to protect specific flora values. Consultation with FPU botanist	Specific species references <i>Tasmanian Regional Forest Agreement</i>

	RFA priority communities	Manageable areas of RFA priority communities confirmed to be present outside of formal reserves.	To be protected from harvesting where prudent and feasible. All protected areas should be included in an SMZ. Most such areas, excluding those that are small or disjointed, should also be included in the Protection Zone	<i>Tasmanian Regional Forest Agreement</i>
	Regional flora issue	Eg (I) Biodiversity corridors – plantation suitable land as specifically excluded from plantation establishment for biodiversity purposes.	Management as native forest Management as appropriate to type of site.	<i>Tasmanian Regional Forest Agreement</i>
	Special environments	Rocky knolls, swampy areas, native grasslands, serpentinite geology, and other sites of significance for flora conservation to be identified with SMZs as considered necessary to protect their special values.	Exclusion or restriction to harvesting in accordance with botany manuals.	Forest Botany Manual Series (for each nature conservation region). Written by F.Duncan with other authors.
	Relict rainforest / glacial refugia	Relict rainforest areas to be identified and buffered in accordance with Neyland (1991).	Exclusion of forest operations Protection from fire (high priority).	Neyland (1991). Relict rainforest in eastern Tasmania. Tasmanian NRCP Technical Report No. 6.
Fu	Fuel reduction	Areas for which frequent fuel reduction burning is a management requirement. Generally this includes strips of land adjacent to towns, plantations and other high-value assets. Buttongrass plains near to wood production forests may also be included.	Fuel reduction burning in accordance with District Fire Management Plan	District Fire Management Plan
Ge	Geoconservation	Boundaries established in response to specific studies of geoconservation values.	Protection from detrimental disturbance from forest operations (protection required varies with sensitivity of values)	Kiernan (1990). Geomorphology manual. Kiernan (1995). An atlas of Tasmania's karst. <i>Tasmanian Regional Forest Agreement</i> Background report part H National Estate report.
Hz	Geomorphic hazard	Boundaries established in response to guidelines set out in key references. Damage agents considered include landslips, erosion cave-in, flood and accentuated drought stress.	Avoidance of disturbance from forest operations that would lead to an unacceptable risk of subsequent landslip, erosion or other damage	Kiernan (1990). Geomorphology manual. Brown and Laffan (1993). Forest soil conservation manual.
He	Disease containment area	Quarries and gravel pits infected with <i>Phytophthora cinnamomi</i> .	Gravel not to be used in areas potentially free of the disease.	Parks and Wildlife Service (1993). <i>Phytophthora cinnamomi</i> hygiene manual. Wardlaw (1990). Pests and Diseases Management Plan for State Forests in Tasmania.
	Disease exclusion area	Areas from which <i>Phytophthora cinnamomi</i> is to be excluded. (as per Barker 1994).	Prevention of infection with Phytophthora through hygiene measures including the closing of roads.	Barker (1994). <i>Phytophthora cinnamomi</i> : the susceptibility and management of selected Tasmanian rare species.
Ls	Landscape management	Generally includes areas assigned an Inevitable Landscape Management Objective using the Visual Management System. Can be difficult SMZs to delineate given the subjectivity that can be involved in the assessment.	Exclusion or modification of forest operations. Consultation with FPU landscape planner	Chetwynd (1997). Visual planning process for State forest. Forestry Commission (1990a). A manual for forest landscape management.

Rc	Recreation site / route	Applies to areas with recreational facilities and tracks and specific areas for which horse or motorbike riding is a primary use	Maintenance of recreation/education assets and values by exclusion or modification of forest operations.	Forestry Tasmania (1995). Tourism policy for Tasmania's State forests Inter-agency Working Party (1997). Tasmanian walking tracks strategy and marketing plan.
	Education sites	Also applies to areas with specific educational roles where these are not encompassed by a research SMZ.	Other specific management as required to maintain and improve sites.	
Rs	Field trial / research site	Areas where research trials or projects (but not routine forest inventory plots) are located and in which the Primary Zone or another SMZ do not already provide the management they require. Established by negotiation with the researchers involved.	Protection of research activities by consultation with relevant researchers prior to forest operations and exclusion or modification of forest operations where required. Protection from wildfire.	Internal FT policy Published and unpublished research reports
	Benchmark /natural history area	(i) Areas with a general natural history interest and research, teaching and benchmark indicative areas as identified during the RFA. (ii) Flora and fauna type localities to be coded as SMZs in accordance with attachment 1 of the <i>Regional Forest Agreement</i> .	Management as appropriate to type of site Consultation with Senior Conservation Planner	<i>Tasmanian Regional Forest Agreement</i>
Sb	Simsons Stag Beetle	Areas identified as requiring specific management for Simsons Stag Beetle.	Management in accord with established guidelines for Simsons Stag Beetle.	Threatened fauna advisor; Threatened fauna manual; Species specific references and management agreements.
Ut	Utilities	(i) Land set aside as easements for power, water, telecommunications, railways and for major public roads. (ii) Areas set aside for gravel pits greater than 0.1 ha, mines, quarries, rubbish tips and other similar impact activities are also included.	Avoid disruption to utility operation through (1) consultation with utility operators regarding management issues and (2) restriction of adjacent forest operations where appropriate	Internal FT policy.
Wa	Dams	Areas leased on State forest for the establishment of agricultural dams.	Adjacent forest operations to avoid disturbance to dam.	Internal FT policy.
	Water intakes or streams	Water intakes or other stream segments considered to require particular management beyond that provided by the Forest Practices Code	Particular care to monitor potential impacts on water quality from forest operations and pre-emptive action to prevent these where required.	Internal FT policy.
St	Special timbers management	Includes areas designated as Special Timber Management Units Other incidental special species timber supply areas (excluding blackwood and silver wattle) may also be included.	Management for special timbers production Selective harvesting Protection from fire and disease.	Internal FT policy Forestry Tasmania (1998) Rainforest Silviculture. Native Forest Silviculture Tech. Bulletin No. 9,
In	Intensive Management	Derived from separate operational planning processes, the results of which are currently generalised onto MDC.	Progression of thinning operations Protection from fire	Brown (1996). Thinning in regrowth eucalypts. Forestry Tasmania (1998). Thinning regrowth eucalypts. Tech Bulletin No. 13.
Pl	Plantation	Derived from separate operational planning processes, the results of which are currently generalised onto MDC.	Management as Plantation Protection from fire	Neilsen (ed.) (1990). Plantation handbook. Internal FT policy
Lo	Long rotation native forest	Used to delineate Tall Tree Management Zones as identified in a 1990 planning exercise. Can also be used to record slow growing areas (E4 type regeneration) requiring longer than standard rotation lengths to regenerate.	Management over long rotations (nominally 200 years for Tall Tree Management Zones)	FT policy (Including unpublished guidelines for management of Tall Tree Management Zones).

Tt	Tallest Trees	Protection zones to protect measured trees >85m tall. Areas to be managed in accord with Tallest Trees Policy.	Protection of trees within coupes which are > 85m tall. When trees senesce to <=85m they can be removed from protection. All trees measured >85m to be included on the Tallest Trees Register maintained by Resources.	FT Tallest Trees Policy (2000)
Hd	Savage River pipeline area	Areas along the Savage River pipeline track for which harvest has been deferred in accordance with in clause 54 and 55 of the RFA.	Management in accordance with clause 54, 55 of the RFA	<i>Tasmanian Regional Forest Agreement</i>

Appendix 2: Wildlife habitat strips

Wildlife habitat strips are strips of uncut forest distributed through production forests to assist in the maintenance of the original species richness of the forest at a local level. They are established to meet a range of fauna conservation objectives that can be summarised thus:

1. To cater for invertebrate species with restricted distributions.
2. To provide valuable old growth forest habitat in the complete range of environments present within production forests.
3. To act as sources of individuals to recolonise regenerating areas as they become suitable. .
4. To ensure populations in the larger reserves do not become isolated..
5. To provide sheltering and nesting areas for those species which can utilise regrowth for feeding but only if mature forest or nest sites are nearby..

The following principles should be applied to the location of Wildlife habitat strips:

1. Wildlife habitat strips should ideally link areas reserved from harvesting (i.e., stream-side reserves, informal and formal reserves, non-commercial or non-production forests). Decisions on the location of strips are hence best made after assessing the location of other areas that will not be harvested.
2. Older stands of forest should be retained in the strip rather than regrowth. However, if an area is mainly regrowth then strips should still be planned and the retained forest maintained beyond the age of harvesting.
3. Retained strips should capture the range of abiotic and biotic factors found in a region (i.e., geology, elevation, slope, aspect, drainage and vegetation).
4. Strips may be primarily located in gullies but must also include areas on slopes and ridges and they should be joined so that they form a continuous network of unlogged forest.
5. Strips should be provided every 3-5 km through wood production zones.
6. The width of the strip should be maximised whenever possible. Strips should be a minimum 100m. In some areas, natural vegetation boundaries can be used to delineate strip boundaries.
7. Forests with high faunal values (ie., important to threatened or priority species) should be over-represented compared with other forest types.
8. A class 1 or 2 watercourse should not run through a strip. Strips should be placed on one side of these large watercourses to ensure an effective width is retained.
9. A smaller watercourse (ie., class 3 and 4) may run through a strip.
10. Strips should not be placed over existing roads. If strips are placed alongside an existing road then consideration should be given to widening the strip. This will ensure the effective functioning of the strip as a habitat reserve and reduce edge effects.
11. The location of strips should be considered permanent.

Wildlife habitat strips are detailed in Taylor, R.J. (1991). Fauna conservation in production forests in Tasmania. Forest Practices Unit, Hobart. Diagrams demonstrating the application of the strips are included in that document

Appendix 3: Priority Forest Communities

In accordance with the RFA, the following forest communities, where they occur outside existing and new Formal and Informal Reserves, will be protected on State forest, wherever prudent and feasible, to protect those values at a regional level:

E. risdonii forest
Shrubby *E. ovata* forest
E. viminalis wet forest
Notelaea ligustrina / *Pomaderris apetela* forest
Banksia serrata woodland
Furneaux *E. viminalis* forest
inland *E. amygdalina* forest
grassy *E. globulus* forest
grassy *E. viminalis* forest
E. viminalis / *E. globulus* coastal forest
E. tenuiramis inland forest
E. rodwayi forest
E. brookeriana wet forest
King Island *E. globulus* / *E. brookeriana* / *E. viminalis* forest
Callitris rhomboidea forest
Melaleuca ericifolia coastal swamp forest
old growth *E. pauciflora* forest on dolerite
old growth *E. sieberi* forest on granite
old growth *E. sieberi* forest on other substrates
old growth *E. viminalis* / *E. ovata* / *E. amygdalina* / *E. obliqua* damp sclerophyll forest

Appendix 4: General Zoning Principles

Inventory and Land Information used in MDC zoning

The determination of MDC zones begins with the assemblage of relevant datasets and other information. Some of the key sources include:

Conservation data

- Rare and threatened flora
- Rare and threatened fauna
- Geoconservation
- Aboriginal sites
- Historical sites
- *Phytophthora cinnamomi* (Root rot disease) site locations.
- RFA forest communities
- Relict rainforests
- National Estate
- Oldgrowth
- Wilderness

Other Inventory

- Research site records
- Apiary sites
- Plantations
- Leases
- Utilities (power lines etc)
- Water intakes
- Landscape mapping
- Forest structure (Photo Interpretation mapping)

Land information

- Elevation, topography and stream locations
- Administrative boundaries (Forest Districts, mapsheets, tenure)

Other sources

- District information - File notes etc
- District planner personal knowledge
- Planning Branch, Hobart
- Forest Practices Specialist personal knowledge and specialist manuals
- Published surveys and other studies
- Community (eg recreation sites)

Assessing significance and sensitivity

Central to the task of zoning is the judgment of what represents a sufficiently significant natural or cultural feature to warrant protection or conservation management, and what represents adequate protection. Numerous research papers, journal articles and other publications deal with non-wood inventory and the significance and management of non-wood values. These provide a basis upon which such judgments can be based. Some of the key references are listed in appendix 1 (page 15). A more detailed list is also available in Appendix 7.

Studies, including those contributing to the *Regional Forest Agreement*, allow the conservation status of many values to be assessed with reasonable confidence. In the case of flora and fauna, schedules of species considered threatened or endangered form part of relevant State and Federal legislation. These are also listed in the *Regional Forest Agreement*, along with gaps in current knowledge, or priority areas for research.

Special values need to be evaluated and prioritised, not simply on their importance but also on their

sensitivity to various forms of disturbance. For example, a threatened plant species that responds positively to disturbance (such as *Helichrysum lycopodioides*) may not attract the protection afforded a similarly listed but less robust species.

Assessments of significance are generally provided by the relevant manual(s) as indicated in appendix 1 (page 15). Aboriginal cultural heritage involves particular issues, given that the Tasmanian Aboriginal community rejects attempts to apply assessments of significance to Aboriginal sites. In part, this stems from a view that not enough is yet known to make informed judgements.

The forest practices specialists can be consulted with respect to assessing significance and sensitivity and to assist in the formulation of prescriptions. Other external specialists may also be consulted if the relevant area of expertise is not held within Forestry Tasmania or the Forest Practices Board.

Achieving manageable boundaries

MDC zones need to be manageable units that represent management decisions. Usually they should not simply record the exact location of special values. For example, a Special Management Zone for a relict rainforest patch needs to include the appropriate buffer zone, as well as the extent of the rainforest itself. Principles to consider in deciding SMZ and Protection Zone boundaries include:

1. Be clear on the purpose of the SMZ and the boundary requirements imposed by this purpose.
2. Choose boundaries that can, where possible, be readily located on the ground.
3. Preferentially reuse existing natural or administrative boundaries, or other existing MDC lines rather than creating new lines in new but similar positions. (Not doing this can lead to excessively 'busy' and confusing mapping).
4. Consider the constraints that operational activities such as cable harvesting and regeneration burning place on coupe shapes and seek Production Zone boundaries that are consistent with these constraints. Also consider likely future road locations, and where possible, reduce the need to road through the Protection Zone.
5. Consider adjoining land tenures, and where appropriate, seek continuity of management zoning across these.

The need to rationalise the boundaries of management zones does not imply that they cannot be small or oddly shaped.

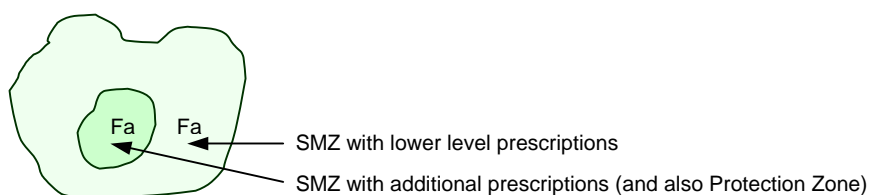
Determining practical boundaries must be done on a case by case basis and often will involve an element of subjectivity. In some cases, there is no one right solution, but rather multiple 'right' solutions of variable merit.

SMZs with spatially variable management.

Some special values have specific management requirements that vary spatially. There may be a core area to which particular prescriptions apply, and a surrounding buffer area with lower level prescriptions. This could be the case with a wedge tailed eagle site for example.

Nested SMZs can be used to represent such situation, as shown in figure 3.

Figure 2. Multiple SMZs to represent values with variable management.



Preferentially meet multiple objectives

An important principle in planning RFA reserves was to preferentially protect areas that meet multiple conservation objectives. For example, where there was a requirement to reserve a proportion of a vegetation type, then areas that also have other values requiring protection would preferentially be selected to meet this target. This principle also applies to MDC in some instances.

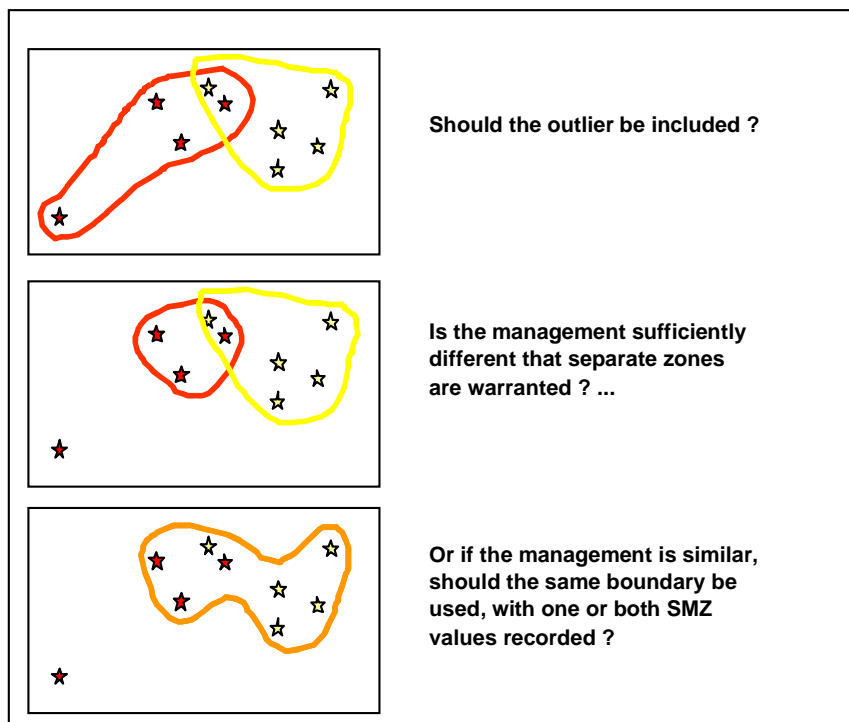
Zoning discontinuous and indeterminate boundaries

A further issue facing the forest planner is how to zone values that may be discontinuous or have indeterminate boundaries. For example, the endangered swift parrot relies on blue gum (*Eucalyptus globulus*) as a food source. Typically, scattered patches of forest with high densities of this eucalypt species can be surrounded by forest with increasing proportions of other eucalypts.

The width of buffers required to protect various special values also needs to be considered. For example, a potentially subjective aspect of cultural heritage management is deciding the extent of an area that needs to be specially managed to protect the significant values of a place.

In instances such as these, recommendations of the Forest Practices Board should be given substantial weight. The ultimate decision lies with the District Forester as the manager of that area and is based on the balance of all values: environmental, social and economic.

Figure 3. One location - multiple SMZ solutions



APPENDIX 5

STANDARD FORM FOR APPROVAL OF CHANGES TO MDC

A4 MAP patch ID ¹	MAP NAME	MAP NO.	CHANGES TO BE MADE	COMMENTS	Special value code	SPECIALIST SIGNATURE
1	Apslawn	5835	PRT-PRD- edge match to Henry - JWB coupling up + edgematch Snow/Cranbrook	Done - Also coded incorrect 'Hs' to have SMZ of 'Fa'	Fa	Example only
2	Beaumaris	6041	See C. Sharples Report - 'Ge'	Done - Buffered 100 & Digitized on MDC	Ge ²	Example only
3 etc.						etc.

Approved: District Forester

Manager Planning

Date:

Date:

Mapping / GIS library details

Checked & entered in GISLIB by:

File name+location eg: /whome/eastiers_mdc7_97

Date:

¹ Where significant changes are made an A4 photocopy of the relevant area of the MDC map should be attached showing changes and patch number to match the table above (1,2,3 etc).

²

Appendix 6: Forthcoming enhancements to MDC

Just as this manual has changed, the MDC system is also undergoing a process of substantial change. These changes, previewed briefly here, are planned for implementation during 2001 and early 2002. The main changes are:

- A set of enhanced Special Management Zone categories allowing an additional level of information to be recorded regarding special values.
- The capacity to store notes and file references in the MDC database, rather than on paper sheets attached to maps.
- A more efficient verification and approval process for amendments of the Protection Zone.
- Technical enhancements including seamless Statewide data and faster performance.
- The removal of limits on the number of Special Management Zones and possibly the removal of the differentiation between Primary SMZs and other SMZs.
- Likely changes in the process of delineating Special Management Zones such that they can overlap and intersection polygons are not required.

Appendix 7: References Applicable to Special Values

The following list of references has been derived from District Forest Management Plan bibliographies. It is by no means comprehensive and suggestions for relevant additions are welcomed.

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