

9.0 Cool Temperate Rainforest and Forest Management

9.1 Introduction

The issue of rainforest conservation has been the centre of intense debate for several decades. The escarpments of Mount Baw Baw contain several Rainforest Sites of Significance and these have been impacted by forestry operations, especially in the construction of the South Face Road. This chapter provides an overview of the issues and the impacts of forest management on rainforest sites throughout the Mount Baw Baw area in the following:

- By providing recognised definitions of Rainforest (Section 9.2)
- Listing Rainforest Sites of Significance around Mount Baw Baw (Section 9.3)
- Describing inconsistencies between scientific surveys and the Central Highlands Forest Management Plan listing Rainforest Sites of Significance (Section 9.4)
- Rainforest Sites of Significance and the Impacts of road construction and Logging (Section 9.5)
- The impacts of Logging Cool Temperate Mixed Rainforest (Section 9.6)

The construction of the South Face Road has resulted in the degradation of a Rainforest Site of State Significance through the permanent removal of a section of the stand. The infection of the fatal pathogen 'Myrtle Wilt' in the forest following the intrusion significantly furthered the degradation. In addition, the extensive clearfelling of Cool Temperate Mixed Rainforest has also changed the floristics' of the region. These rainforest communities provide important habitat and refuge for the Baw Baw Frog.

9.2 Definitions of Rainforest

In an attempt to clarify the ecological status of Rainforest Communities in Victoria, Cameron (1992) states the consensus made by ecologists and used by the Ecological Society of Australia:

The rainforests are defined ecologically as closed, broadleaved forest vegetation with a continuous tree canopy of variable height, and with a characteristic diversity of species and life forms. The ecological definition of rainforests includes transitional and seral communities with sclerophyll emergents that are of similar botanical composition to mature rainforests in which sclerophylls are absent.

In its subsequent overview of Victoria's Rainforests, Cameron (1992) states that the Department of Conservation Forests and Lands (DCFL) (Now Department of Sustainability and Environment) adopted, in part, the above definition, but with the explicit omission of any reference to the status of transitional and seral communities. The Central Highlands Forest Management Plan defines Rainforest as being:

Rainforest is defined ecologically as closed broadleaved forest vegetation with a more or less continuous rainforest tree canopy of variable height, and with a characteristic composition of species and life forms.

Rainforest canopy species are defined as shade tolerant tree species which are able to regenerate below an undisturbed canopy, or in small canopy gaps resulting from locally recurring minor disturbances, such as isolated windthrow or lightning strike, which are part of the rainforest ecosystem. Such species are not dependent on fire for their regeneration (DNRE 1998)

Cameron (1992) was critical of the DCFL's failure to acknowledge the current ecological thinking regarding rainforest definition and adopting a more structurally based and production-oriented perception of the forest environment. As pure stands of Cool Temperate Rainforest were to be

excluded from logging under the current Code of Forest Practices, the clearfell logging of Cool Temperate Mixed Rainforest and transitional communities had been permitted throughout the escarpments of Mount Baw Baw. With the revision of the Code of Forest Practices, the logging of Cool Temperate Mixed Rainforest is currently under review.

The Code of Forest Practices specifies that road planning and construction should minimise risks to environmental values, particularly soil and water quality and **avoid disturbance to streams, buffer strips, riparian vegetation and rainforest in areas not associated with approved crossings**. However, the planning and construction of the South Face Road through the Tyers River Catchment has compromised the integrity of a number of significant rainforest stands located there. The following sections reveal the inadequacy of current prescriptions to maintain values of rainforest significance in the region.



Figure 9.2.1 Cool Temperate Rainforest
Myrtle Beech, Tyers River West Branch



Figure 9.2.2 Cool Temperate Rainforest
Myrtle Beech, Tyers River West Branch

9.3 Rainforest Sites of Significance on Mount Baw Baw

The forests and sub-alpine woodlands of Mount Baw Baw contain a number of significant Cool Temperate Rainforest and Cool Temperate Mixed Rainforest Communities (Peel 1999). Table 9.3.1 below details three sample sites in the Tyers River Catchment, on the South Face of Mount Baw Baw.

Table 9.3.1 Evaluation of Sites of Significance for Rainforest on Mount Baw Baw

Category	Level of Assessment	Attribute	Tyers River East Branch	Middle Tyers River	Tyers River West Branch
Ecological Integrity and Viability	Landscape	Catchment Integrity	National	National	-
	Stand	Collective Stand Size, complexity	State	State (Edge of Range)	-
		Stand Integrity	National	National	-
Cultural	Stand	Scientific Value	Regional	Regional	-
		Education Value	State	-	-
Composition	Stand	Depletion	Regional	Regional	-
		EVC Richness	State	State	-
		FC Richness	State	Regional	-
		Character Richness	Regional	Regional	-
		Rarity of Type	National	National	-
		Significant Taxa	National	Regional	-
Biogeography	Stand	Taxa at National Edge of Range	State	Regional	-
		Disjunct taxa	State	Regional	-
Representation	Stand	Best of Type	National	-	-
		Representative of Type	Regional	-	-
Conclusion	Evaluation	Rating	State	State	Regional

Note – For definitions on ratings, refer to Appendix 11

Source – Peel (1999)

Sites of Regional Significance for Cool Temperate Rainforest around Mount Baw Baw include Myrrhee Creek, South Cascade Creek, Little Boys Creek, Bell Clear Creek and the Upper Thomson River (Peel 1999).

9.4 Inconsistencies within the Central Highlands FMP

Appendix A of the Central Highlands Forest Management Plan (FMP) details the zones throughout the Central Highlands of Victoria, including Mount Baw Baw. These include descriptions and coding of Special Protection Zones and Special Management Zones. Recognised Ecological Vegetation Classes such as Cool Temperate Rainforest are to fall within a SPZ and their significance detailed in Appendix A. With reference to Table 9.3.1 as sourced from Peel (1999), a number of inconsistencies were revealed when compared with the data in Appendix A. Table 9.4.1 is an extract from Appendix A describing the Eastern and Western Tyers Rivers.

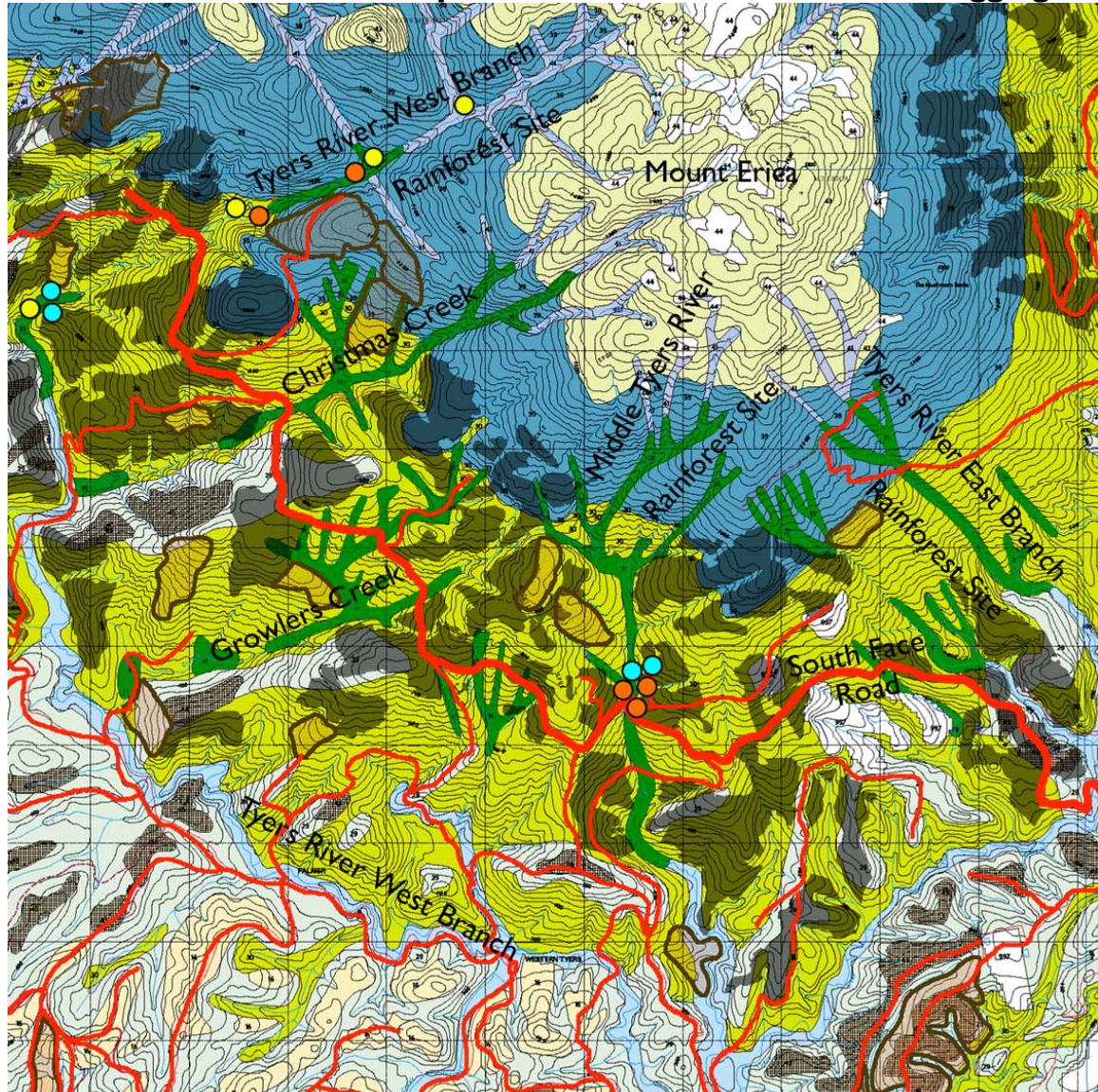
Table 9.4.1 Zoning Scheme Register of the Tyers River Catchment

Forest Block	Site Number	Zone	Area	Attributes
Eastern Tyers	482/01	SPZ	140ha	Sooty Owl habitat protection, Leadbeater's Possum Habitat 1a, Cool Temperate Forest RFSOS Regional Significance Priority Area
	482/02	SMZ	445ha	Landscape
	482/03	SPZ	65ha	Linear Reserve; Cool Temperate Rainforest
Western Tyers	483//01	SPZ	770ha	River Reserve, Leadbeater's Possum Habitat 1a, Cool Temperate Rainforest RFSOS Regional Significance Priority Area , Landscape, Growlers Creek Recreation Area
	483/02	SPZ	195ha	Linear Reserve, Leadbeater's Possum Habitat Zone 1a, Cool Temperate Rainforest
	483/03	SPZ	200ha	Sooty Owl habitat protection, Leadbeater's Possum Habitat Zone 1a, Cool Temperate Rainforest RFSOS Regional Significance Priority Area
	483/04	SPZ	315ha	Leadbeater's Possum Habitat 1a, Cool Temperate Rainforest, Old Growth (Cool Temperate Rainforest and Damp Forest)
	483/05	SMZ	355ha	Landscape
	483/06	SMZ	15ha	Landscape

Source – DNRE 1998

Appendix A describes the Eastern Tyers as a Rainforest Site of Regional Significance whereas the evaluations detailed by Peel (1999) recognise it as a Rainforest of State Significance. The Appendix does not detail the Middle Tyers River despite its Rainforest significance being recognised as 'State' by the evaluations detailed by Peel (1999). However, it is named under the 'Western Tyers' and its Rainforest Significance has been recognised as 'Regional'.




9.5 Rainforest and the Impacts of Road Construction and Logging



Ecological Vegetation Classes

	Cool Temperate Rainforest
	Montane Wet Forest
	Wet Forest
	Damp Forest
	Sub-alpine Woodland
	Montane Riparian Thicket
	Shrubby Foothill Forest
	Lowland Forest
	Riparian Forest
	Treeless Sub-alpine Complex

Logging Key

	Past Logging Coupe
	Proposed Logging Coupe
	Roads

Grid Spacing is 1000m

Source - Department of Sustainability and Environment 2003

Myrtle Health Class

	Current Myrtle Wilt
	Recent Myrtle Wilt
	Small Branchlets only

Source - Cameron and Turner 1996



Map 9.5.1 Map detailing Cool Temperate Rainforest, Ecological Vegetation Classes, Logging, Road locations and surveys of Myrtle Wilt

Logging and road construction have been identified as significant threatening processes for Cool Temperate Rainforest and Cool Temperate Mixed Rainforest Communities (Peel 1999). Studies have revealed a quantitative relationship between logging, roading and incidences of Myrtle Wilt, a fatal pathogen that results in the accelerated death on *Nothofagus cunninghamii* (Myrtle Beech) Trees

(Cameron and Turner 1996). Peel (1999), Cameron and Turner (1996) stated that Myrtle Wilt, in conjunction with Wildfire, posed the greatest threatening process for Cool Temperate Rainforest Community in the Central Highlands of Victoria. Stands of high or relative densities of *Nothofagus* trees, especially with trees of large diameter, are more susceptible to severe attack as noted by Cameron and Turner (1996):

1. Pure stands of *Nothofagus* will be highly susceptible to fungal infection and epidemic disease development
2. Mixed Stands of *Nothofagus* with *Atherosperma* and/or *Acacia melanoxylon* will be naturally buffered against disease development
3. Mature stands of *Nothofagus* will be highly susceptible to fungal attack and epidemic disease development
4. Young regenerating stands of *Nothofagus* will be less susceptible to fungal attack, although young trees can be readily infected if they are damaged by human action or natural means

The South Face Road penetrates through a number of Mature Rainforest Stands. Figure 9.5.1 shows the South Face Road through part of the Middle Tyers Rainforest Stand. The dead trees are what remain of the Cool Temperate Rainforest that once inhabited the site. Cameron and Turner (1996) note surveys carried out on the site and these are further explored below.



Figure 9.5.1 Myrtle Beech killed by Wilt along the South Face Road, Middle Tyers River area

As to describe how the pathogen is spread, Cameron and Turner (1996) described that the dispersal processes involved operate through:

1. Below ground spread through root grafts from an infected individual tree to its immediate neighbours or by water borne fungal spores infecting wounded roots
2. Air borne spread of fungal spores

Myrtle Wilt is thus a threatening process that can affect the local 'within stand' scale and potentially the wider 'landscape' scale.

Surveys detailed in Cameron and Turner (1996) described a site along the Middle Tyers River that had been recently roaded and contained several damaged roadside trees dying of wilt. The surveys also found undamaged trees 100 metres from the road that had also been infected by the pathogen. The survey found no obvious evidence of earlier infections. Map 9.5.1 details the sites of infection overlapping with a recognised Site of Biological Significance (Davies et al 1994), a Rainforest Site of

State Significance (Peel 1999), a Site of National Botanical Significance (DNRE 1998) and the route of the South Face Road. Figures 9.5.1, 9.5.2 and 9.5.3 reveal the state of this rainforest today and that the penetration of the South Face Road has caused the rainforest to retreat from the road in both directions. This has caused a large opening in the rainforest community extending beyond the roadline that will never be allowed to regenerate whilst the road remains in place.



Figure 9.5.2 Looking upslope of the Rainforest Rainforest



Figure 9.5.3 Looking down slope of the Rainforest Rainforest

The South Face Road has crossed several other Cool Temperate Rainforest Communities upon where similar impacts have resulted. **This demonstrates the inability of the Code of Forest Practices for Timber Production and the Central Highlands Forest Management Plan to adequately protect Rainforest Sites of Significance along the escarpments of Mount Baw Baw.**

9.6 Logging of Cool Temperate Mixed Rainforest

Mount Baw Baw and its associated escarpments contain areas of Cool Temperate Mixed Rainforest (Peel 1999). Cool Temperate Mixed Rainforest is structurally complex and floristically diverse, containing both elements of Cool Temperate Rainforest and Wet Forest and act as a buffer to pure stands of Cool Temperate Rainforest (Peel 1999). However, the current Code of Forest Practices and the Central Highlands Forest Management Plan do not provide any specific prescription for this vegetation community. It further states that the mapping of this vegetation community is incomplete and that assessment needs to be made of its status (DNRE 1998).



Figure 9.6.1 Cool Temperate Mixed Rainforest, Upper Thomson River

Peel (1999) stated that clearfell logging has already had a significant impact on this community. He described these impacts as twofold, where the clearfell logging method significantly disadvantaged re-sprouting and obligate seeding species. The species most vulnerable were the rainforest overstorey dominants, Myrtle Beech and Southern Sassafras, and the understorey dominant, Soft Tree-fern. Peel (1999) stated that, even if some of these species survive the initial mechanical disturbance of the logging operation, the high intensity regeneration burn applied to the coupe would kill these species. This would significantly alter the structure and floristics' of the Cool Temperate Mixed Rainforest community.

The shorter logging rotation turnovers of 80-120 years were seen to be insufficient to allow for the re-establishment of the Cool Temperate Mixed Rainforest Community given that it is reliant on a fire frequency of 250-400 years (Peel 1999). This is now causing a substantial loss of the Cool Mixed Temperate Rainforest community throughout the escarpments of Mount Baw Baw.



Figure 9.6.2 Cool Temperate Mixed Rainforest logged in the Upper Tanjil River East Branch area



Figure 9.6.3 Cool Temperate Mixed Rainforest logged in the Upper Tanjil River East Branch area showing remnants of the fire killed Myrtle Beech Trees



Figure 9.6.4 Cool Temperate Mixed Rainforest in Coupe 458-504-0007 with logging commencing. This coupe is now on hold due to the informal moratorium on Baw Baw Frog Logging Experiment



Figure 9.6.5 Cool Temperate Mixed Rainforest within and adjoining coupe 459-502-0009 showing a coupe boundary tag. This coupe is now on hold due to the informal moratorium on Baw Baw Frog Logging Experiment

Key References

Cameron, D. G. (1992) 'A portrait of Victorian rainforests: distribution, diversity and definition', In Victoria's rainforests: Perspectives on definition, classification and management. Ed. P. Gell and D. Mercer. Monash University.

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