

PRACTICAL ECOLOGY PTY LTD

Contracting and Consulting in Environmental Planning and Ecological Restoration

PO Box 228, Preston VIC 3072

Tel: (03) 9484 1555 Fax: (03) 9484 9133

Assessment of two Rainforest Sites within the Royston River Catchment, Central Forest Management Area



August 2005

Andrew Picone

Assessment of two Rainforest Sites within the Royston River Catchment, Central Forest Management Area

Final Version: August 2005

PRACTICAL ECOLOGY Pty Ltd

ACN: 082 911 377 ABN: 88 082 911 377

PO Box 228 Preston VIC 3072

(2B Stott Street Preston Vic 3072)

P: 8320 3288 f: 8320 3280

www.practicalecology.com.au

Report by Andrew Picone.

Report prepared by Practical Ecology Pty Ltd on behalf of The Central Highlands Alliance.

Cover photo: Cool Temperate Rainforest within the study area. Royston River Catchment.

Acknowledgments:

The Central Highlands Alliance

Sarah Rees

Practical Ecology Pty Ltd

Christine Connelly

Lincoln Kern

Contents

1.	<u>INTRODUCTION</u>	4
1.1	Project Background & Scope	4
1.2	Study Site	4
2.	<u>METHODS</u>	5
2.1	Taxonomy	5
2.2	Vegetation Sampling	5
2.3	Ecological Vegetation Class	5
2.4	Limitations	6
3.	<u>RESULTS</u>	7
3.1	Flora	7
3.2	Ecological Vegetation Classes	7
3.2.1	Cool Temperate Rainforest	7
4.	<u>RELEVANT POLICY AND LEGISLATION</u>	9
4.1	Flora and Fauna Guarantee Act 1988	9
4.1.1	Threatened Communities of Flora and Fauna	9
4.1.2	Potentially Threatening Processes	9
4.2	Code of Forest Practices for Timber Production	10
5.	<u>DISCUSSION</u>	11
6.	<u>RECOMMENDATIONS</u>	12
7.	<u>REFERENCES</u>	13
	<u>APPENDIX 1. FLORA OBSERVED WITHIN SITES 1 AND 2 BY PRACTICAL ECOLOGY IN JULY 2005 14</u>	
	<u>APPENDIX 2. QUADRAT DATA RECORDED FROM THE SITES 1 & 2 WITHIN THE ROYSTON RIVER CATCHMENT.</u>	15

LIST OF TABLES

Table 1. Quadrat cover abundance methodology	5
--	---

1. INTRODUCTION

Practical Ecology Pty Ltd was commissioned by The Central Highlands Alliance (TCHA) to determine the occurrence of rainforest within a specified area of the Royston River Catchment.

This report provides information on the botanical composition of two rainforest stands within two small sub-catchments in State Forest currently scheduled for logging.

1.1 Project Background & Scope

Practical Ecology Pty Ltd received confirmation from TCHA to proceed with an assessment of the identified rainforest sites on 28 June 2005.

The scope of works proposed by Practical Ecology Pty Ltd and agreed to by TCHA included:

- Assessment of the rainforest site against the relevant Ecological Vegetation Class (EVC) benchmark,
- Vegetation analysis using the quadrat methodology,
- Mapping of the estimated extent of rainforest at the two sites, and
- Discuss the findings with regard to relevant policy and legislation.

1.2 Study Site

The study site is located within the Central Forest Management Area and falls within the Victorian Alps Bioregion. The two rainforest stands identified by TCHA and assessed in this report are located on two small, adjacent and unnamed tributaries of the Royston River in the Rubicon State Forest. The sites are in the Royston Forest Block on the south west slope of Mount Bullfight north east of Lake Mountain.

2. METHODS

Two rainforest sites within the study area, previously identified by TCHA, were assessed to determine their consistency with relevant EVC benchmarks and other rainforest definitions.

2.1 Taxonomy

Plant taxonomy used in this report follows Ross and Walsh (2003) for scientific names and Cross *et al.* (2001) for common names.

2.2 Vegetation Sampling

Fieldwork took place on 3 June 2005. A defined area species list was created using a life form checklist most commonly used during habitat hectare assessments. In addition two 20 x 20m quadrats were sampled to provide quantifiable data on the floristic composition of the two rainforest stands. One quadrat was surveyed in each site using regionally adapted Flora Information Recoding (FIS) sheets.

Cover abundance assessments were made using a modified example of the Braun–Blanquet scale based on Walker and Tunstall (1981) (Table 1).

Table 1. Quadrat cover abundance methodology

Cover value	Cover of foliage/branch	Number of individuals
+	<5%	Few
1	<5%	Many
2	5 - 25%	Any number
3	25 - 50%	Any number
4	50 - 75%	Any number
5	75 - 100%	Any number

2.3 Ecological Vegetation Class

An EVC is a unit of consistent vegetation displaying broadly similar botanical characteristics reflecting consistent environmental conditions (Oates and Taranto 2001). EVCs have been mapped across the state to establish conservation priorities throughout Victoria and represent the highest level in the vegetation typology hierarchy (Oates and Taranto 2001).

Benchmarks have been published online by DSE for almost all EVCs across all of Victoria's 28 Bioregions. EVC benchmarks are utilised throughout each Bioregion to assess the type and quality of native vegetation. Each benchmark is based upon consistent characteristics for each EVC found across a particular bioregion (DSE 2004b, Parkes *et al.* 2004) and provide an objective measure of a site's vegetation quality. They have been primarily created as a tool for the habitat hectare methodology as part of the Native Vegetation Management Framework's Net Gain policy (DNRE 2002).

EVCs are a systematic classification system defining plant communities into common types occurring in similar environmental conditions. Prior to fieldwork a review of relevant literature was undertaken including Peel (1999), DCE (1992), DSE (2004a) and DSE (2005),. EVC mapping published by DSE (2003) was also reviewed.

EVCs were determined in the field according to observable attributes including dominant and characteristic species and foliage cover. Other attributes such as soil and elevation are consistent with the various descriptions provided in the above mentioned studies.

2.4 Limitations

Non vascular plants were not sampled. Mosses often make significant contributions to the overall vegetation cover in many EVCs and in particular rainforest. It is highly likely that the majority of plant diversity within the vegetation sampled at the study site is comprised of non vascular species. No attempt was made to document non vascular life forms due to project time and budget constraints.

Surveys were carried out in a single day of fieldwork. Time constraints combined with undertaking the survey in winter may have resulted in some species being overlooked. This assessment is not considered to provide thorough botanical documentation of the site. It is merely to quantify the existence of rainforest based on certain ecological and botanical parameters.

3. RESULTS

Vegetation assessed within the study site meets relevant criteria for classification as Cool Temperate Rainforest. The species composition and EVC description are provided below.

3.1 Flora

A total of 26 vascular species of plants were observed within the study site's rainforests or rainforest margins and are listed in Appendix 1. Of these, the majority are characteristic of the Cool Temperate Rainforest EVC.

Quadrat data is presented in Appendix 2.

3.2 Ecological Vegetation Classes

Two stands of Cool Temperate Rainforest were observed within the study site. These stands are identified on the accompanying map as Site 1 and Site 2. Site 1 was approximately 0.8ha while Site 2 was approximately 0.4ha. Secondary Cool Temperate Rainforest and Montane Wet Forest were adjacent to each of the two rainforest sites.

Cool Temperate Rainforest is listed in the Victorian Alps Bioregion as rare (DSE 2005 [online]).

3.2.1 Cool Temperate Rainforest

The study site's Cool Temperate Rainforest is consistent in species composition with the Victorian Alps Bioregion Benchmark, the description provided in the Central FMP, and Peel's (1999) key to the *Central Highlands Montane Riparian* Cool Temperate Rainforest floristic community.

The tallest strata present at the two rainforest sites were mature to senescent examples of Alpine Ash (*Eucalyptus delegatensis*) with some individuals with girths over 10m. This species occurred overhanging the rainforest stands and, as quadrat data indicates, contributes a negligible amount to the projective foliage cover and does not diminish the site's status as rainforest. Alpine Ash is identified by Peel (1999) as a characteristic species in *Central Highlands Montane Riparian* Cool Temperate Rainforest.

Myrtle Beech (*Nothofagus cunninghamii*) is the dominant canopy species of Sites 1 and 2. The projective foliage cover of Myrtle Beech was estimated at 70%. Within both quadrats and the broader area of rainforest locally this species is present as both mature and semi-mature individuals with numerous trees exceeding 70cm diameter at breast height (dbh). The Cool Temperate Rainforest benchmark for large old trees is 70cm dbh. One individual

in Site 1 measured 110cm dbh. Southern Sassafras (*Atherosperma moschatum*), is present in both Sites 1 and 2 but reaches its best development in Site 2.

Frosted Wattle (*Acacia frigescens*) and Silver Wattle (*A. dealbata*) are present on the rainforest margins. Both species are considered characteristic of Cool Temperate Rainforest within the Central FMA and Victorian Alps Bioregion (DCE 1992, Peel 1999, DSE 2004a).

Shrubs are virtually absent from the rainforest within Sites 1 and 2 and those that were present are characteristic of the surrounding Montane Wet Forest. Soft Tree-fern (*Dicksonia antarctica*) is present in both sites but is best developed in Site 2. Ground ferns include the Lance, Fishbone and Alpine Water-ferns (*Blechnum chambersii*, *B. nudum* and *B. pennamarina* respectively). Mother Shield-fern (*Polystichum proliferum*) is also present. Common Finger-fern (*Grammitis billardierei*) was the only epiphytic fern observed.

Other species present include Tasman Flax-lily (*Dianella tasmanica*), Pretty Grass-flag (*Libertia pulchella*) and numerous herbs including Bidgee-widgee (*Acaena novae-zelandiae*), Shade Nettle (*Australina pusilla* ssp. *muelleri*) and Stinking Pennywort (*Hydrocotyle laxiflora*).

Generally both rainforest sites are similar. However, Site 1 is larger while Site two is structurally more diverse. Site 1 supports larger and older Myrtle Beech with numerous large old trees consistent with benchmark criteria. Upstream of each rainforest site are areas of secondary rainforest. Secondary rainforest is determined by the higher occurrence of Acacia species, gaps in the canopy some of which are dominated by Soft Tree-ferns and the presence of Alpine Ash.

These secondary rainforest stands do not meet the rainforest definition currently applied by DSE (CFL no date) but are consistent with EVC benchmark criteria (DSE 2004a) and the key to floristic communities and species frequency lists by Peel (1999).

Illustrated on the map provided are both the core and secondary rainforest stands.

4. RELEVANT POLICY AND LEGISLATION

4.1 Flora and Fauna Guarantee Act 1988

The Flora and Fauna Guarantee Act 1988 (FFG Act) was legislated to ensure the continued survival of all Victorian species of flora and fauna and all Victorian communities of plants and animals. A key component of the FFG Act is to ensure the sustainable use of flora and fauna resources whether they are threatened or not.

The FFG Act lists:

- Threatened species of flora and fauna;
- Threatened communities of flora and fauna;
- Protected flora; and
- Potentially threatening processes.

Cool Temperate Rainforest is listed as threatened under the FFG Act 1988.

4.1.1 Threatened Communities of Flora and Fauna

Cool Temperate Rainforest is listed under schedule 2 of the FFG Act as a threatened community. This rainforest community fulfils criteria established under the FFG Act 1988 which was considered by the Scientific Advisory Committee (SAC) when nominating the community for listing.

Cool Temperate Rainforest satisfies the following criteria:

- Criterion 2.1: *The community is in a demonstrable state of decline which is likely to result in extinction.*
- Criterion 2.2: *The community is significantly prone to future threats which are likely to result in extinction.*

4.1.2 Potentially Threatening Processes

Schedule three of the FFG Act lists numerous Potentially Threatening Processes. These processes have been identified as a threat to the survival of one or more species of flora or fauna or a community. A number of threatening processes operate across Victoria and across all land tenures while some are specific to a defined locality.

Potentially Threatening Processes that are occurring or could occur within the study site include:

- Degradation of native riparian vegetation along Victorian rivers and streams;
- Habitat fragmentation as a threatening process in Victoria;
- Human activity which results in artificially elevated or epidemic levels of Myrtle Wilt within *Nothofagus* dominated Cool Temperate Rainforest;
- Increase in sediment input into Victorian rivers and streams due to human activities;
- Spread of *Pittosporum undulatum* in areas outside its natural range;
- The invasion of native vegetation by environmental weeds;
- Use of Phytophthora-infected gravel in construction of roads, bridges and reservoirs.

4.2 Code of Forest Practices for Timber Production

Under the Code of Forest Practices the study site's two rainforest sites would require the following:

- A buffer of 60m (or 40m with and additional 40m modified harvesting zone),
- Must be shown on coupe plans and identified in the field, and
- Buffers must be protected logging operations.

If harvesting of the surrounding Montane Wet Forest was to occur it is expected that roads would not need to intrude into either of the two rainforest sites based on the topography of the area.

5. DISCUSSION

A draft Flora and Fauna Guarantee Action Statement for Rainforests and Cool Temperate Mixed Forests was recently released for public comment. Rainforests are a high profile EVC with strong public interest. The Draft Action Statement summarises existing government policy and conservation mechanisms. The degradation or loss of rainforest at the study site as a result of proposed logging would seem to conflict with current government policy, community expectations and aims of ecologically sustainable forest management.

The rainforests identified in the is study are easily identifiable in the field, have sharp contrasting boundaries between the surrounding Montane Wet Forest and are easily accessible. It would be expected that the management authority administering forestry operations within the Central FMA would correctly interpret and apply the Code of Forest Practices with regard to rainforest conservation.

The rainforests sites discussed in this report are part of the Royston Site of Significance for Rainforest (SOSRF). This SOSRF is of regional significance according to Peel (1999). However, little is known about the rainforest site which has been inadequately studied. No data has been systematically collected and the rainforests attributes remain largely unknown.

6. RECOMMENDATIONS

The following recommendations are made in the context of rainforest conservation and meeting policy and legislative requirements. Essentially the two following actions need to occur:

- Ensure that all current policy and legislative requirements including the FFG Act 1988 and the Code of Forest Practices for Timber Production are applied correctly and consistently across the Central FMA to ensure there are no losses of Cool Temperate Rainforest as a result of any forestry operation.
- Undertake a flora and fauna assessment of the Royston River SOSRF to fill gaps in data and develop an adequate inventory of values and site attributes to allow an accurate assessment of significance.

7. REFERENCES

DSE (2003a) *Victoria's Native Vegetation Management - A Framework for Action (CD Rom Version)*. Department of Natural Resources and Environment, Melbourne.

Oates, A. and Taranto, M (2001) *Vegetation Mapping of the Port Phillip and Westernport Region*. Arthur Rylah Institute for Environmental Research.

Ross JH and Walsh NG. (2003), *A Census of the Vascular Plants of Victoria, National Herbarium of Victoria*, Royal Botanic Gardens Melbourne.

Walker J and Tunstall BR, (1981), Field estimation of foliage cover in Australian Woody vegetation, Technical Memorandum 81/91. CSIRO Institute of Biological Resources Canberra.

APPENDIX 1. Flora observed within Sites 1 and 2 by Practical Ecology in July 2005

Spno	Scientific Name	Common Name	Family	Div
0025	<i>Acacia dealbata</i>	Silver Wattle	Mimosaceae	Dic
0037	<i>Acacia frutescens</i>	Frosted Wattle	Mimosaceae	Dic
0105	<i>Acaena novae-zelandiae</i>	Bidgee-widgee	Rosaceae	Dic
0311	<i>Atherosperma moschatum</i>	Southern Sassafras	Monimiaceae	Dic
0337	<i>Australina pusilla</i> subsp. <i>muelleri</i>	Shade Nettle	Urticaceae	Dic
0405	<i>Blechnum chambersii</i>	Lance Water-fern	Blechnaceae	Fer
0408	<i>Blechnum nudum</i>	Fishbone Water-fern	Blechnaceae	Fer
0410	<i>Blechnum penna-marina</i>	Alpine Water-fern	Blechnaceae	Fer
0413	<i>Blechnum wattsii</i>	Hard Water-fern	Blechnaceae	Fer
8191	<i>Cardamine</i> spp.	Bitter Cress	Brassicaceae	Dic
8194	<i>Carex</i> spp.	Sedge	Cyperaceae	Mon
0819	<i>Coprosma nitida</i>	Shining Coprosma	Rubiaceae	Dic
1030	<i>Dianella tasmanica</i>	Tasman Flax-lily	Phormiaceae	Mon
1039	<i>Dicksonia antarctica</i>	Soft Tree-fern	Dicksoniaceae	Fer
1270	<i>Eucalyptus delegatensis</i> subsp. <i>delegatensis</i>	Alpine Ash	Myrtaceae	Dic
1519	<i>Grammitis billardierei</i>	Common Finger-fern	Grammitidaceae	Fer
8495	<i>Gratiola</i> spp.	Brooklime	Scrophulariaceae	Dic
1723	<i>Hydrocotyle laxiflora</i>	Stinking Pennywort	Apiaceae	Dic
8634	<i>Lagenophora</i> spp.	Bottle Daisy	Asteraceae	Dic
2268	<i>Leptostigma reptans</i>	Dwarf Nertera	Rubiaceae	Dic
2001	<i>Libertia pulchella</i>	Pretty Grass-flag	Iridaceae	Mon
2283	<i>Nothofagus cunninghamii</i>	Myrtle Beech	Fagaceae	Dic
2319	<i>Olearia phlogopappa</i>	Dusty Daisy-bush	Asteraceae	Dic
1224	<i>Philotheca myoporoides</i>	Long-leaf Wax-flower	Rutaceae	Dic
2645	<i>Polystichum proliferum</i>	Mother Shield-fern	Dryopteridaceae	Fer
2904	<i>Ranunculus plebeius</i> s.l.	Forest/Hairy Buttercup	Ranunculaceae	Dic

APPENDIX 2. Quadrat Data recorded from the Sites 1 & 2 within the Royston River Catchment.

Quadrat 1 (O00051) 20 x 20 m				
Date: 2/07/05 Location: Lat. 37 27.17522, Long. 145 54.38327 (accuracy 30m) Altitude: ~1000 m Collector: APP Vegetation: Cool Temperate Rainforest				
Cover	Species No.	Status	Scientific Name	Common Name
2	0037		<i>Acacia frigescens</i>	Frosted Wattle
1	0405		<i>Blechnum chambersii</i>	Lance Water-fern
1	0410		<i>Blechnum penna-marina</i> subsp. <i>alpina</i>	Alpine Water-fern
2	0413		<i>Blechnum wattsii</i>	Hard Water-fern
+	0819		<i>Coprosma nitida</i>	Shining Coprosma
2	1039		<i>Dicksonia antarctica</i>	Soft Tree-fern
+	1270		<i>Eucalyptus delegatensis</i> subsp. <i>delegatensis</i>	Alpine Ash
1	1519		<i>Grammitis billardierei</i>	Common Finger-fern
1	2001		<i>Libertia pulchella</i>	Pretty Grass-flag
4	2283		<i>Nothofagus cunninghamii</i>	Myrtle Beech
1	2645		<i>Polystichum proliferum</i>	Mother Shield-fern

Quadrat 2 (O00052) 20 x 20 m				
Date: 2/07/05 Location: Lat. 37 27.10888 Long. 145 54.68123 (accuracy 30m) Altitude: ~1000 m Collector: APP Vegetation: Cool Temperate Rainforest				
Cover	Species No.	Status	Scientific Name	Common Name
2	0311		<i>Atherosperma moschatum</i>	Southern Sassafras
+	0337		<i>Australina pusilla</i> subsp. <i>muelleri</i>	Shade Nettle
+	0404		<i>Blechnum cartilagineum</i>	Gristle Fern
1	0413		<i>Blechnum wattsii</i>	Hard Water-fern
2	1039		<i>Dicksonia antarctica</i>	Soft Tree-fern
1	1519		<i>Grammitis billardierei</i>	Common Finger-fern
4	2283		<i>Nothofagus cunninghamii</i>	Myrtle Beech
+	2645		<i>Polystichum proliferum</i>	Mother Shield-fern



Mature Myrtle Beech within rainforest Site 1. This tree measured 110cm dbh and exceeds the benchmark criteria for large old trees in Cool Temperate Rainforest.



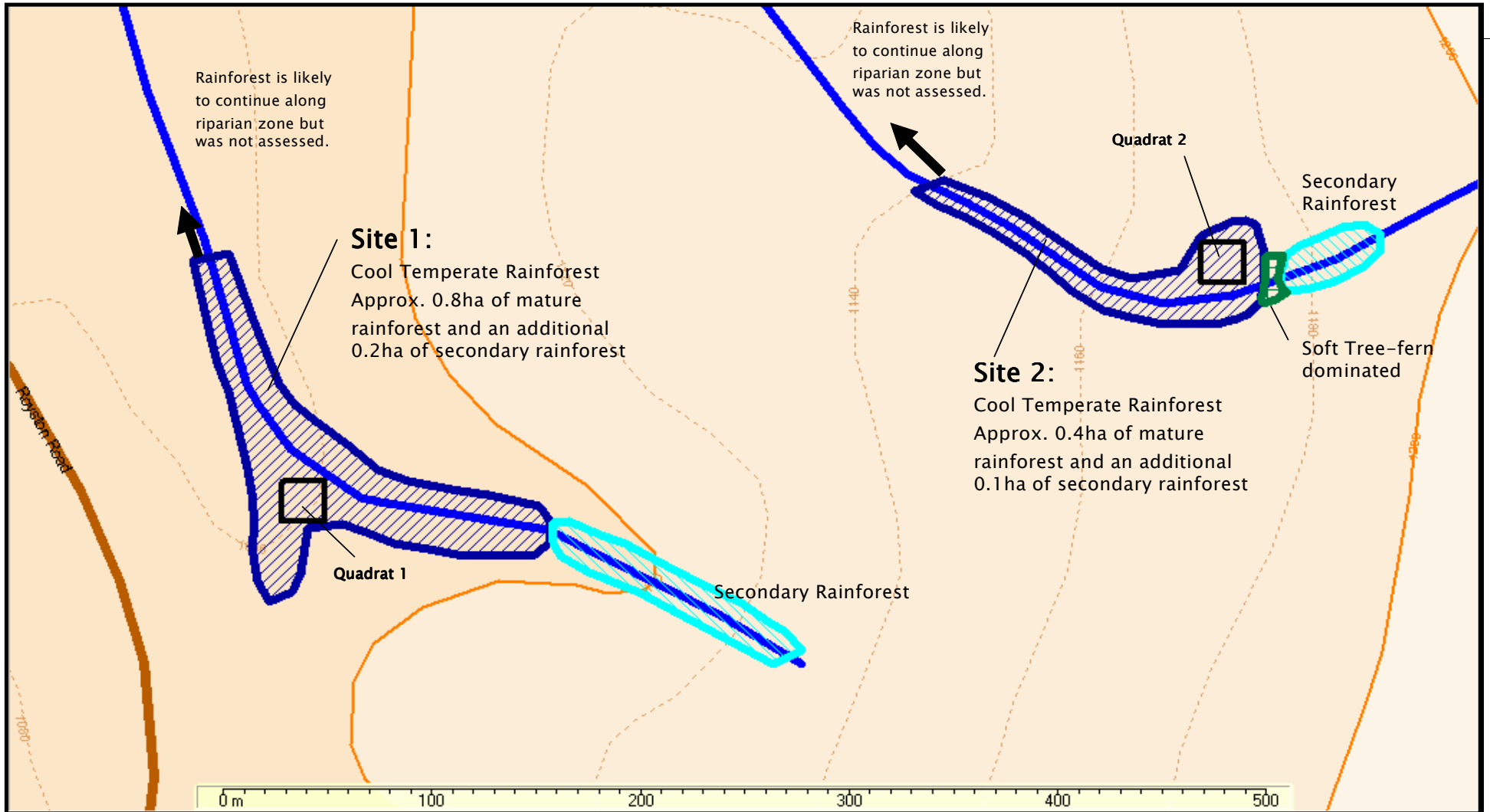
Montane forest dominated by mature and senescent Alpine Ash surround both rainforest sites.



The boundary between Montane Forest and Cool Temperate Rainforest is typically sharp within the study area.



Quadrat 1 within site 1. Rainforest shrubs were virtually absent from both sites.



Study Area: Sites 1 and 2

Fieldwork By: Andrew Picone and Christine Connolly