

# PRIORITIES FOR INDIGENOUS BIODIVERSITY PROTECTION IN WAIMAKARIRI DISTRICT: SIGNIFICANT VEGETATION AND HABITAT TYPES AND INDIGENOUS PLANT SPECIES

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Indigenous shrubland-grassland habitat at Dagnum Reserve, Low Plains Ecological District, Waimakariri District (Photograph: Melissa Hutchison).

## **Contract Report No. 4714b**

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# 1. INTRODUCTION

Waimakariri District Council (WDC) is currently reviewing the Waimakariri District Plan. This includes a review of indigenous vegetation types and indigenous plant species that are subject to permitted activity standards and discretionary activity rules in the District Plan (also known as “vegetation clearance rules”). The current operative District Plan includes provisions relating to indigenous vegetation types that have some form of protection under the Plan (Rule 25.2.6) (see Appendix 1) and a list of ‘Identified Rare Plant Species’ (Table 25.1) (see Appendix 2). Table 1 below (provided by WDC) shows the planning framework for protection of significant natural areas (SNAs) under the District Plan. The vegetation clearance rules should apply to naturally occurring indigenous vegetation and plant species, not planted indigenous vegetation.

Table 1: RMA planning framework for protection of significant indigenous vegetation and significant habitats of indigenous fauna under the Waimakariri District Plan (table provided by Waimakariri District Council).

<p><u>s 6(c) of RMA</u></p> <ul style="list-style-type: none"> <li>Protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna (SNAs)</li> </ul>	
	
<p><u>CRPS Appendix 3</u></p> <ul style="list-style-type: none"> <li>Criteria for an SNA - significant indigenous vegetation and significant habitat of indigenous biodiversity (Representativeness, Rarity/Distinctiveness, Diversity and Pattern, and Ecological Context)</li> </ul>	
	
<p><u>SNA Mapped</u></p> <ul style="list-style-type: none"> <li>Shown on planning map and listed in ECO-SCHED1</li> </ul>	<p><u>SNA Unmapped</u></p> <p>Reasons for being unmapped:</p> <ul style="list-style-type: none"> <li>The area is unknown; or</li> <li>There wasn't sufficient budget for it to be assessed; or</li> <li>The landowner is unwilling for Council to undertake a field visit.</li> </ul> <p><i>Vegetation/habitat list to be developed in this workshop and listed in ECO-SCHED2</i></p>
<p>District Plan rules restricting vegetation clearance and other activities apply.</p> <p>It should be noted that there will also be a standard vegetation clearance rule for non-significant indigenous vegetation (as required under the s31 function of maintaining indigenous biodiversity).</p>	

Rules addressing the potential clearance of important habitats and ‘identified rare plant species’ would be consistent with the identification and protection of significant indigenous vegetation and significant habitats of indigenous fauna as per Appendix 3 of the Canterbury Regional Policy Statement (CRPS) (Environment Canterbury 2013), which includes the following criteria:

- **Criterion 3 Rarity/Distinctiveness:** *“Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, or freshwater environment.”*
- **Criterion 4 Rarity/Distinctiveness:** *“Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district” and also if a site “contains indigenous vegetation or an indigenous species at its distribution limit within Canterbury Region or nationally.”*
- **Criterion 6 Rarity/Distinctiveness:** *“Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.”*

## 2. METHODS

### 2.1 Vegetation workshop

In order to gather feedback and input from local ecologists and other relevant experts for this review, a workshop was held in Rangiora on 1 September 2020. The purpose of the workshop was to develop lists of significant vegetation and habitat types and indigenous plant species that should be protected by indigenous vegetation clearance rules (but are not yet within a mapped significant natural area). This list would provide landowners with lists of vegetation/habitat types and indigenous plant species that are protected under the District Plan, instead of having to interpret the criteria in the Canterbury Regional Policy Statement (see Appendix 3 and Wildland Consultants 2013), which requires assessment by an ecologist.

Participants in the workshop were:

- Melissa Hutchison - Senior Ecologist, Wildland Consultants.
- Shelley Milosavljevic - Senior Policy Planner, Waimakariri District Council.
- Daniel Cox - Policy Analyst, Waimakariri District Council.
- Kate Steel - Ecologist-Biodiversity, Waimakariri District Council.
- Trevor Ellis - Development Planning Manager, Waimakariri District Council.
- Andrew Willis - Contract Planner for Waimakariri District Council.
- Philip Grove - Scientist, Environment Canterbury.
- Jason Butt - Principal Biodiversity Advisor-Wetlands, Environment Canterbury.
- Zipporah Ploeg - Biodiversity Officer-Northern, Environment Canterbury.
- Nick Head - Ecologist, Christchurch City Council.
- Daniel Kimber - Ranger, Rangiora Office, Department of Conservation.
- Andy Spanton - Biodiversity Coordinator, Selwyn District Council.
- Miles Giller - North Canterbury Representative, QEII National Trust.
- Judith Roper-Lindsay - Independent ecologist, Waimakariri Water Zone Committee.



Notes on the topics discussed at the workshop were recorded by Melissa Hutchison and Shelley Milosavljevic, and these were used to develop the lists of significant indigenous vegetation/habitat types for the proposed District Plan.

## 2.2 Indigenous plant species in Waimakariri District

Previous ecological reports (e.g. Meurk *et al.* 1995, Steven and Meurk 1996, Meurk 1997, Rossiter 1997, Given 1999, McCombs 2003, Meurk 2008, Boffa Miskell 2009, 2010, 2012, Rossiter 2011, Giller 2014, Harding 2016), iNaturalist observations ([www.inaturalist.nz](http://www.inaturalist.nz)), and recent ecological surveys by Wildland Consultants Ltd (Wildland Consultants 2020) were used to compile a list of indigenous vascular plant species that have been recorded (or are likely to be present) in Waimakariri District. This is a preliminary list only, however, as comprehensive botanical surveys have not been carried out in substantial parts of the District, e.g. Oxford, Torlesse and Ashley Ecological Districts.

Preliminary lists of indigenous non-vascular plant species (mosses and liverworts) and lichen species recorded in Waimakariri District have been compiled using existing literature (e.g. Meurk *et al.* 1995, Meurk 2008) and recent observations (e.g. Hutchison *et al.* 2020 and iNaturalistNZ 2020), however these contain only a small proportion of the species likely to be present in the District.

## 3. ECOLOGICAL CONTEXT

### 3.1 Ecological Districts

Waimakariri District contains five ecological districts: Low Plains, High Plains, Oxford, Torlesse, and Ashley (McEwen 1987), spread across three ecological regions, indicating strong ecological gradients across the district (Table 2; Figure 1). The Low Plains and High Plains Ecological Districts are located within the Canterbury Plains Ecological Region, while Oxford and Ashley Ecological Districts are located in the Foothills Ecological Region, and Torlesse Ecological District is located in the Puketeraki Ecological Region.

Table 2: Ecological Districts within the Waimakariri District.

Ecological District	Ecological Region	Area (ha) Within Waimakariri District
Low Plains Ecological District	Canterbury Plains	88,367
High Plains Ecological District	Canterbury Plains	38,593
Oxford Ecological District	Foothills	55,058
Torlesse Ecological District	Foothills	35,918
Ashley Ecological District	Puketeraki	3,775
<b>TOTAL</b>		<b>221,713</b>

### 3.2 Threatened Environment Classification

The Threatened Environment Classification (TEC) combines data from three national databases: Land Environments of New Zealand (LENZ), the Land Cover Database (LCDB), and the national protected areas network (Cieraad *et al.* 2015, Walker *et al.*

2015). The TEC is designed as a regional-national scale tool for assessing the threat status of land environments based on the loss of original natural vegetation cover, and the extent to which the remaining indigenous vegetation is protected.

A large proportion of Waimakariri District (c.60%) comprises ‘critically threatened’ land environments with less than 10% indigenous vegetation cover remaining (Table 3 and Figure 1). Most of the Low Plains and High Plains Ecological Districts, as well as the lower altitude parts of Oxford Ecological District, are located on land environments with less than 20% indigenous vegetation cover remaining (Figure 1). In contrast, the higher altitude parts of Oxford Ecological District and most of Torlesse and Ashley Ecological Districts occur within land environments with more than 30% indigenous cover remaining and more than 20% protected.

Table 3: Area of each Threatened Environment Classification (TEC) category within the Waimakariri District.

Threatened Environment Classification Category	Area (ha)
<10% indigenous cover left	126,992
10-20% indigenous cover left	8,429
20-30% indigenous cover left	3,094
>30% left and <10% protected	5,856
>30% left and 10-20% protected	0
>30% left and >20% protected	68,880

Indigenous vegetation and habitats of indigenous fauna that occupy threatened land environments with <20% indigenous vegetation cover left should be a priority for protection under the Waimakariri District Plan.

## 4. INDIGENOUS ECOSYSTEMS AND VEGETATION/ HABITAT TYPES

### 4.1 Indigenous vegetation and habitats

The ecological significance of different vegetation and habitat types depends on their character and composition and the ecological context in which they occur (e.g. ecological district, land environment, geographic location, local landform and context). It is therefore appropriate to divide the Waimakariri District into four broad geographic zones in order to identify significant indigenous vegetation and habitat types that require protection under the District Plan (see Figure 2):

- Coastal - coastal wetlands, estuaries and sand dunes (see Boffa Miskell 2018).
- Plains - Low Plains and High Plains Ecological Districts.
- Foothills - hill country (Oxford, Torlesse, and Ashley Ecological Districts).
- Lees Valley - valley floor of inter-montane basin (see Given 1999).

Table 4 contains a list of vegetation and habitat types that are priorities for protection in the four zones of the Waimakariri District. These have been identified using information in the literature (e.g. Meurk *et al.* 1995, Steven and Meurk 1996, Meurk 2008, Harding 2009, Harding 2016) and from discussions with participants at the WDC vegetation workshop on 1 September 2020. Common and/or notable plant species are also listed for each type – these are not exhaustive, but are provided to help characterise the types.

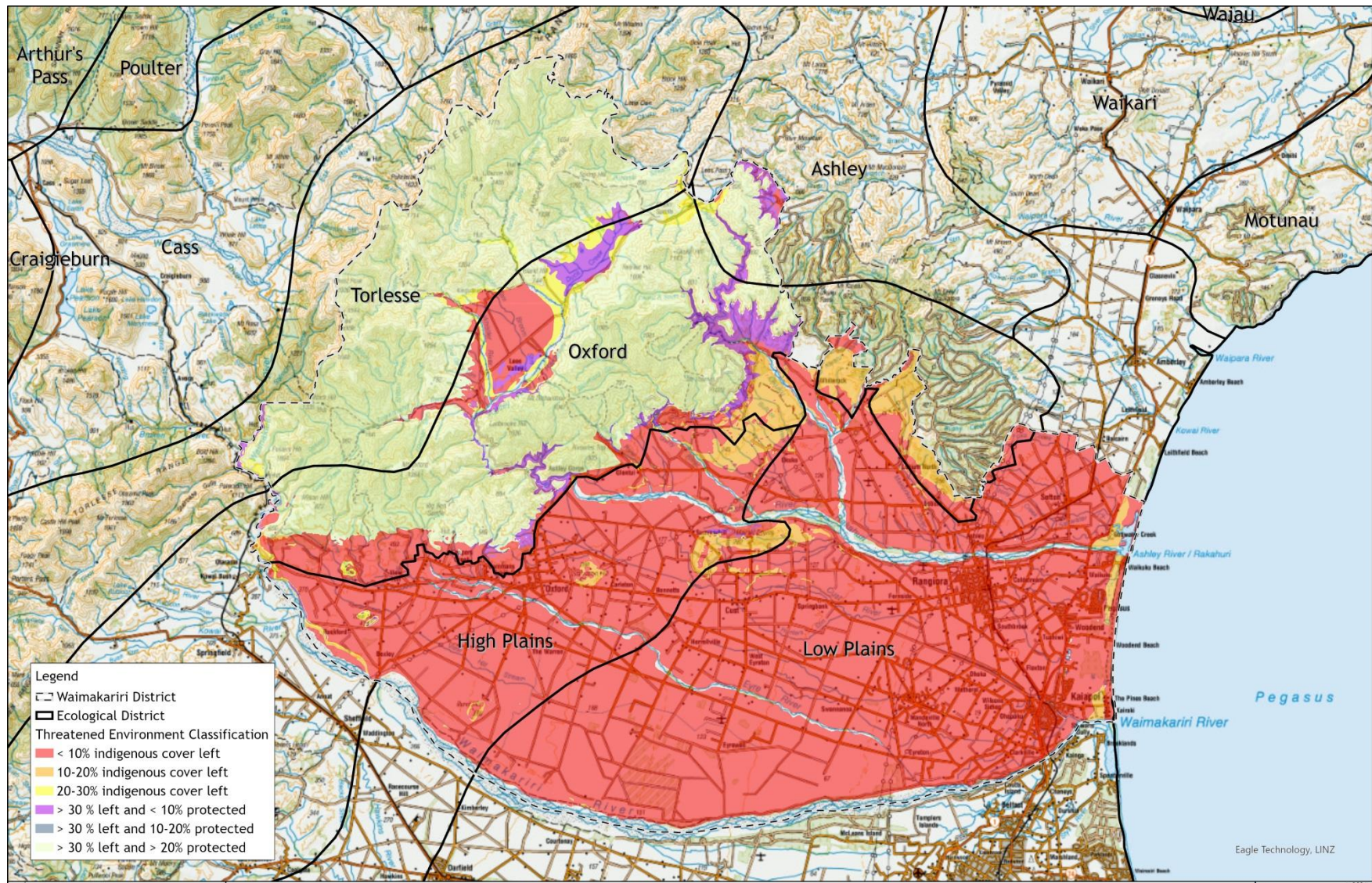


Figure 1. Ecological Districts and Threatened Environment Classifications in Waimakariri District

**Data Acknowledgment**  
 -Contains data sourced from the LINZ Data Service licensed for reuse under CC BY 4.0  
 Ecological Districts have been modified by Wildlands  
 Report: 4714  
 Ref: 07 0283  
 Client:  
 Name: WaimakaririDNA.aprx  
 Path: E:\g1\WaimakaririDNA\



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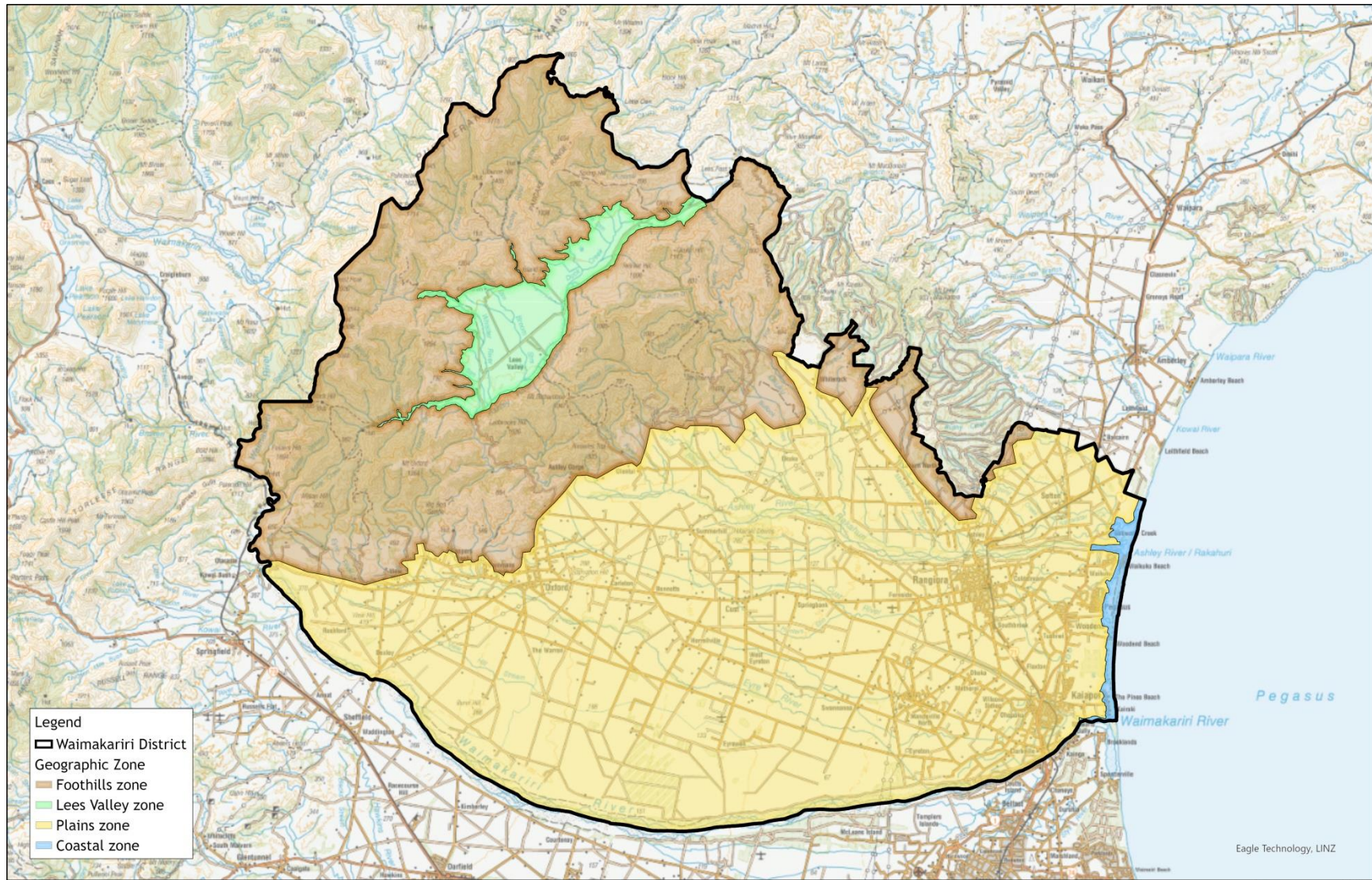


Table 4: Indigenous vegetation and habitat types that are priorities for protection in four zones in the Waimakariri District. Common and/or notable indigenous plant species in each type are listed (NB. this list is not exhaustive and other plant species may be present).

Zone	Ecological District/s	Vegetation/Habitat Type	Indigenous Plant Species (Common and/or Notable Species)
Coastal	Low Plains	Coastal sand dunes	<i>Discaria toumatou</i> <i>Pteridium esculentum</i> <i>Ficinia nodosa</i> <i>Poa billardierei</i> <i>Carex pumila</i>
	Low Plains	Saline wetlands, including lagoons, estuaries, saltmarshes	<i>Plagianthus divaricatus</i> <i>Apodasmia similis</i> <i>Ficinia nodosa</i> <i>Juncus kraussii</i> subsp. <i>australiensis</i> <i>Lepidosperma australe</i> <i>Schoenoplectus pungens</i> <i>Cotula coronopifolia</i> <i>Thyridia repens</i> <i>Samolus repens</i> <i>Sarcocornia quinqueflora</i> subsp. <i>quinqueflora</i> <i>Selliera radicans</i>
	Low Plains	Freshwater wetlands	<i>Cordyline australis</i> <i>Phormium tenax</i> <i>Leptospermum scoparium</i> <i>Coprosma propinqua</i> , <i>C. robusta</i> <i>Typha orientalis</i> <i>Bolboschoenus caldwellii</i> <i>Carex coriacea</i> , <i>C. maorica</i> , <i>C. secta</i> <i>Urtica perconfusa</i> <i>Blechnum minus</i> <i>Juncus edgariae</i> , <i>J. pallidus</i> <i>Eleocharis acuta</i>
Plains	Low Plains High Plains	Kānuka forest/ treeland/ shrubland (including narrow and sparse roadside 'threads')	<i>Kunzea serotina</i> , <i>K. robusta</i> <i>Carmichaelia australis</i> <i>Clematis</i> spp. <i>Coprosma intertexta</i> , <i>C. rhamnoides</i> <i>Discaria toumatou</i> <i>Helichrysum lanceolatum</i> <i>Leptecophylla juniperina</i> subsp. <i>juniperina</i> <i>Leptospermum scoparium</i> <i>Pomaderris amoena</i> <i>Leptinella serrulata</i> , <i>L. squalida</i> <i>Rytidosperma clavatum</i> <i>Senecio glomeratus</i> , <i>S. aff. quadridentatus</i>
	Low Plains High Plains	Indigenous small-leaved shrubland-grassland	<i>Sophora microphylla</i> <i>Discaria toumatou</i> <i>Coprosma crassifolia</i> , <i>C. propinqua</i> <i>Leucopogon fasciculatus</i> <i>Sophora prostrata</i> <i>Carmichaelia australis</i> , <i>C. corrugata</i> <i>Muehlenbeckia axillaris</i> , <i>M. complexa</i> , <i>M. ephedroides</i> <i>Melicytus alpinus</i> <i>Aciphylla subflabellata</i> <i>Poa cita</i> <i>Rytidosperma clavatum</i> <i>Senecio</i> spp. <i>Thelymitra</i> spp. <i>Racomitrium</i> spp., <i>Triquetrella papillata</i>
	Low Plains High Plains	Indigenous mossfield-herbfield-stonefield	<i>Carmichaelia corrugata</i> <i>Coprosma brunnea</i> , <i>C. petriei</i> <i>Leucopogon fraseri</i> <i>Muehlenbeckia axillaris</i> , <i>M. ephedroides</i> Mosses and lichens, e.g. <i>Bryum</i> spp., <i>Racomitrium</i> spp., <i>Triquetrella papillata</i>

Zone	Ecological District/s	Vegetation/Habitat Type	Indigenous Plant Species (Common and/or Notable Species)
	Low Plains High Plains	Uncultivated dryland soils, including riverbanks and terraces	<i>Carmichaelia australis</i> <i>Rytidosperma clavatum</i> <i>Leucopogon fraseri</i> <i>Muehlenbeckia axillaris</i> <i>Pteridium esculentum</i> <i>Thelymitra</i> spp. <i>Dichondra repens</i> <i>Triquetrella papillata</i> <i>Hypnum cuppressiforme</i>
	Low Plains High Plains	Freshwater wetlands (e.g. swamp, marsh, fen, bog)	<i>Cordyline australis</i> <i>Phormium tenax</i> <i>Typha orientalis</i> <i>Coprosma propinqua</i> <i>Blechnum minus</i> <i>Carex coriacea</i> , <i>C. secta</i> <i>Eleocharis acuta</i>
	High Plains	Beech forest	<i>Fuscospora solandri</i> , <i>F. cliffortioides</i>
	High Plains	Podocarp-hardwood forest	<i>Dacrycarpus dacrydioides</i> <i>Prumnopitys taxifolia</i> <i>Podocarpus totara</i> <i>Elaeocarpus hookerianus</i> <i>Fuchsia excorticata</i> <i>Griselinia littoralis</i> <i>Hoheria angustifolia</i> <i>Lophomyrtus obcordata</i> <i>Melicytus ramiflorus</i> <i>Myrsine divaricata</i> <i>Pennantia corymbosa</i> <i>Pittosporum tenuifolium</i> <i>Pseudopanax arboreus</i> , <i>P. crassifolius</i> <i>Schefflera digitata</i> <i>Hebe salicifolia</i> <i>Coprosma linariifolia</i> , <i>C. pedicellata</i> <i>Neomyrtus pedunculata</i>
Lees Valley	Oxford Torlesse	Indigenous short tussock grassland-herbfield-mossfield-stonefield	<i>Discaria toumatou</i> <i>Festuca novae-zelandiae</i> <i>Aciphylla subflabellata</i> <i>Carmichaelia monroi</i> <i>Leucopogon fraseri</i> , <i>L. nanum</i> <i>Melicytus alpinus</i> <i>Plantago spathulata</i> <i>Rytidosperma clavatum</i> , <i>R. merum</i> <i>Brachyscome pinnata</i> <i>Sonchus novae-zelandiae</i>
	Oxford Torlesse	Uncultivated dryland soils, including riverbanks, terraces, screes, and fans	<i>Discaria toumatou</i> <i>Melicytus alpinus</i> <i>Carmichaelia monroi</i> <i>Leucopogon fraseri</i> , <i>L. nanum</i>
	Oxford Torlesse	Indigenous shrubland/scrub in riparian habitats and on screes/fans and rock outcrops <sup>1</sup>	<i>Aristotelia fruticosa</i> <i>Coprosma intertexta</i> , other <i>Coprosma</i> spp. <i>Corokia cotoneaster</i> <i>Discaria toumatou</i> <i>Dracophyllum</i> spp. <i>Leptospermum scoparium</i> <i>Melicytus alpinus</i> <i>Olearia avicenniifolia</i> , <i>O. bullata</i>
	Oxford Torlesse	Indigenous forest (beech, kānuka, podocarp)	<i>Fuscospora cliffortioides</i> , <i>F. solandri</i> <i>Griselinia littoralis</i> <i>Hoheria lyallii</i> <i>Kunzea robusta</i> , <i>K. serotina</i> <i>Sophora microphylla</i>
	Oxford Torlesse	Snow tussock grassland	<i>Chionochloa macra</i> , <i>C. rubra</i>

Zone	Ecological District/s	Vegetation/Habitat Type	Indigenous Plant Species (Common and/or Notable Species)
	Oxford Torlesse	Valley floor and toeslope wetlands (e.g. swamps, marsh, bogs, fens, seepages)	<i>Leptospermum scoparium</i> <i>Carmichaelia torulosa</i> <i>Austroderia richardii</i> <i>Phormium tenax</i> <i>Typha orientalis</i> <i>Coprosma propinqua</i> <i>Chionochloa rubra</i> <i>Carex secta</i> , <i>C. tenuiculmis</i> <i>Drosera arcturi</i> <i>Eleocharis acuta</i> <i>Juncus</i> spp. <i>Oreobolus</i> spp. <i>Schoenus pauciflorus</i>
Foothills	Oxford Torlesse Ashley	Beech forest	<i>Fuscospora solandri</i> , <i>F. cliffortioides</i>
	Oxford Torlesse Ashley	Podocarp-hardwood forest	<i>Dacrycarpus dacrydioides</i> <i>Podocarpus totara</i> , <i>P. laetus</i> <i>Prumnopitys taxifolia</i> <i>Fuscospora solandri</i> <i>Aristotelia serrata</i> <i>Carpodetus serratus</i> <i>Griselinia littoralis</i> <i>Hebe salicifolia</i> <i>Hoheria lyallii</i> <i>Melicytus ramiflorus</i> <i>Myrsine australis</i> <i>Olearia paniculata</i> <i>Pennantia corymbosa</i> <i>Pittosporum eugenioides</i> , <i>P. tenuifolium</i> <i>Pseudopanax arboreus</i> , <i>P. colensoi</i> , <i>P. crassifolius</i> <i>Pseudowintera colorata</i> <i>Schefflera digitata</i>
	Oxford Torlesse Ashley	Kānuka forest/scrub (height threshold) <sup>2</sup>	<i>Kunzea robusta</i> , <i>K. serotina</i> <i>Coprosma</i> spp. <i>Leptospermum scoparium</i>
	Oxford Torlesse Ashley	Indigenous shrubland/scrub in riparian habitats and on screes/fans and rock outcrops <sup>1</sup>	<i>Discaria toumatou</i> <i>Aristotelia fruticosa</i> <i>Carmichaelia australis</i> <i>Coprosma brunnea</i> , <i>C. intertexta</i> and other small-leaved <i>Coprosma</i> spp. <i>Corokia cotoneaster</i> <i>Dracophyllum</i> spp. <i>Hebe</i> spp. <i>Leptospermum scoparium</i> <i>Melicytus alpinus</i> <i>Olearia avicenniifolia</i> , <i>O. cymbifolia</i> <i>Ozothamnus leptophyllus</i>
	Oxford Torlesse Ashley	Tall tussock grassland	<i>Chionochloa macra</i> , <i>C. rigida</i> <i>Aciphylla</i> spp. <i>Celmisia</i> spp.
	Oxford Torlesse Ashley	Short tussock grassland on dry ridges, rock outcrops, slips, and valley floors <sup>3</sup>	<i>Discaria toumatou</i> <i>Festuca novae-zelandiae</i> <i>Poa cita</i> <i>Aciphylla subflabellata</i>
	Oxford Torlesse Ashley	Wetlands (e.g. swamps, marshes, fens, bogs)	<i>Cordyline australis</i> <i>Phormium tenax</i> <i>Coprosma propinqua</i> <i>Carex coriacea</i> , <i>C. secta</i> <i>Juncus</i> spp.

<sup>1</sup> Does not include recently induced matagouri shrubland (scattered, low stature shrubs) over exotic grassland.

<sup>2</sup> Kānuka >4 metres in height and lower stature kānuka adjoining taller indigenous forest (provides buffering).

<sup>3</sup> Does not include recently induced silver tussock grassland in sites that historically supported indigenous forest.

## 4.2 Naturally uncommon ecosystems

In total, 72 naturally uncommon (historically rare) ecosystem types have been identified in New Zealand (Williams *et al.* 2007). At least 10 naturally uncommon ecosystem types are present in the Waimakariri District (Table 5), and all of them, except for snow banks, are classified as threatened at a national scale (Holdaway *et al.* 2012) (Table 5). Indigenous vegetation and habitats of indigenous fauna that occur in naturally uncommon ecosystem types should be a priority for protection under the Waimakariri District Plan.

Table 5: Naturally uncommon ecosystem types (Williams *et al.* 2007) in Waimakariri District and their threat status (Holdaway *et al.* 2012).

Ecosystem Type (Williams <i>et al.</i> 2007)	Threat Status (Holdaway <i>et al.</i> 2012)	Description (Manaaki Whenua-Landcare Research)	Example/s
Ephemeral wetlands	Critically Endangered	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/ephemeral-wetlands/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/ephemeral-wetlands/</a>	Lees Valley
Active sand dunes	Endangered	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/coastal/active-sand-dunes/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/coastal/active-sand-dunes/</a>	Waikuku Beach
Braided riverbeds	Endangered	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/inland-and-alpine/braided-riverbeds/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/inland-and-alpine/braided-riverbeds/</a>	Ashley River, Waimakariri River
Coastal lagoons	Endangered	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/lagoons/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/lagoons/</a>	Tūtaepatu Lagoon
Dune slacks	Endangered	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/dune-slacks/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/dune-slacks/</a>	Pines Beach
Seepages and flushes	Endangered	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/seepages-and-flushes/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/seepages-and-flushes/</a>	Foothills
Basic cliffs, scarps, and tors	Vulnerable	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/inland-and-alpine/basic-cliffs-scarps-and-tors/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/inland-and-alpine/basic-cliffs-scarps-and-tors/</a>	Burnt Hill, View Hill
Calcareous cliffs, scarps and tors	Vulnerable	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/inland-and-alpine/calcareous-cliffs-scarps-and-tors/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/inland-and-alpine/calcareous-cliffs-scarps-and-tors/</a>	Limestone scarps north of Okuku
Estuaries	Vulnerable	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/lagoons/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/lagoons/</a>	Ashley/ Rakahuri, Waikuku
Snow banks	Not Threatened	<a href="https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/snow-banks/">https://www.landcareresearch.co.nz/publications/naturally-uncommon-ecosystems/wetlands/snow-banks/</a>	Foothills

## 5. SIGNIFICANT INDIGENOUS PLANT SPECIES IN WAIMAKARIRI DISTRICT

### 5.1 Nationally Threatened and At Risk plant species

The conservation status of all indigenous plant species is assessed at a national scale by a panel of experts every 3-5 years using criteria in the New Zealand Threat Classification System (see Townsend *et al.* 2008 and <https://www.doc.govt.nz/conservation-status/>). Indigenous species are classified as Threatened (with three sub-categories), At Risk (with four sub-categories), Data Deficient, or Not Threatened and the assessments are published by the Department of Conservation (see <https://nzctcs.org.nz/>) (previously these were published in various peer-reviewed scientific journals).



According to the latest conservation status assessment for vascular plants (de Lange *et al.* 2018a), 66 of the indigenous vascular plant species recorded (or likely to be present) in Waimakariri District are classified as Threatened, At Risk, or Data Deficient (Table 6). This includes seven ‘Threatened-Nationally Critical’ species, 15 ‘Threatened-Nationally Vulnerable’ species, 33 ‘At Risk-Declining’ species, and seven ‘At Risk-Naturally Uncommon’ species.

Table 6: Threatened, At Risk, and Data Deficient vascular plant species (as per de Lange *et al.* 2018) recorded or likely to be present in Waimakariri District. Note that this list is not exhaustive and other Threatened, At Risk, and Data Deficient species may be present in the District.

Scientific Name	Common Name	Conservation Status (de Lange <i>et al.</i> 2018a)
<i>Brachyscome pinnata</i>		Threatened-Nationally Critical
<i>Carmichaelia torulosa</i>	Canterbury pink broom	Threatened-Nationally Critical
<i>Gentianella calcis</i> subsp. <i>waipara</i>	Native gentian	Threatened-Nationally Critical
<i>Korthalsella salicornioides</i>	Dwarf mistletoe	Threatened-Nationally Critical
<i>Lophomyrtus obcordata</i>	Röhutu, NZ myrtle	Threatened-Nationally Critical <sup>1</sup>
<i>Neomyrtus pedunculata</i>	Röhutu, myrtle	Threatened-Nationally Critical <sup>1</sup>
<i>Sebaea ovata</i>	Sebaea	Threatened-Nationally Critical
<i>Heliohebe maccaskillii</i> <sup>2</sup>	Weka Pass sun hebe	Threatened-Nationally Endangered
<i>Carex inopinata</i>	Grassy mat sedge, unexpected sedge	Threatened-Nationally Vulnerable
<i>Carmichaelia corrugata</i>	Dwarf broom	Threatened-Nationally Vulnerable
<i>Carmichaelia kirkii</i>	Climbing broom	Threatened-Nationally Vulnerable
<i>Coprosma obconica</i>		Threatened-Nationally Vulnerable
<i>Geranium retrorsum</i>	Turnip-rooted geranium	Threatened-Nationally Vulnerable
<i>Kunzea robusta</i>	Kānuka, rawirinui	Threatened-Nationally Vulnerable <sup>1</sup>
<i>Kunzea serotina</i>	Kānuka, makahikatoa	Threatened-Nationally Vulnerable <sup>1</sup>
<i>Melicytus flexuosus</i>		Threatened-Nationally Vulnerable
<i>Metrosideros diffusa</i>	Climbing rātā	Threatened-Nationally Vulnerable <sup>1</sup>
<i>Muehlenbeckia ephedroides</i>	Leafless pōhuehue	Threatened-Nationally Vulnerable
<i>Olearia fimbriata</i>		Threatened-Nationally Vulnerable
<i>Ranunculus ternatifolius</i>		Threatened-Nationally Vulnerable
<i>Raoulia monroi</i>	Fan-leaved mat daisy	Threatened-Nationally Vulnerable
<i>Solanum aviculare</i> subsp. <i>aviculare</i>	Poroporo	Threatened-Nationally Vulnerable
<i>Sonchus novae-zelandiae</i>	Kirkianella	Threatened-Nationally Vulnerable
<i>Acaena buchananii</i>	Bidibidi, pipiripi	At Risk-Declining
<i>Aciphylla subflabellata</i>	Grassland speargrass, grassland spaniard, kurikuri	At Risk-Declining
<i>Alepis flavida</i>	Yellow mistletoe, piritā	At Risk-Declining
<i>Carex buchananii</i>	Cutty grass, matirewa	At Risk-Declining
<i>Carex litorosa</i>	Salt sedge	At Risk-Declining
<i>Carex tenuiculmis</i>		At Risk-Declining
<i>Carmichaelia monroi</i>	Stout dwarf broom	At Risk-Declining
<i>Coprosma brunnea</i> <sup>3</sup>		At Risk-Declining
<i>Coprosma intertexta</i>		At Risk-Declining
<i>Coprosma pedicellata</i>		At Risk-Declining
<i>Coprosma virescens</i>	Mikimiki	At Risk-Declining
<i>Coprosma wallii</i>	Bloodwood	At Risk-Declining
<i>Daucus glochidiatus</i>	Dwarf carrot	At Risk-Declining
<i>Discaria toumatou</i>	Matagouri, tūmatakurū	At Risk-Declining
<i>Eleocharis neozelandica</i>	Sand spike sedge	At Risk-Declining
<i>Ficinia spiralis</i>	Pīngao, pīkao, golden sand sedge	At Risk-Declining
<i>Geranium solanderi</i>	Native geranium	At Risk-Declining
<i>Hypericum involutum</i>	Grassland hypericum	At Risk-Declining
<i>Juncus caespiticius</i>		At Risk-Declining
<i>Korthalsella clavata</i>	Dwarf mistletoe	At Risk-Declining
<i>Leptinella serrulata</i>	Dryland button daisy	At Risk-Declining

Scientific Name	Common Name	Conservation Status (de Lange <i>et al.</i> 2018a)
<i>Leptospermum scoparium</i>	Mānuka, tea tree	At Risk-Declining <sup>1</sup>
<i>Leucopogon nanum</i>		At Risk-Declining
<i>Linum monogynum</i>	NZ linen flax	At Risk-Declining
<i>Mentha cunninghamii</i>	NZ mint	At Risk-Declining
<i>Olearia lineata</i>	Narrow-leaved tree daisy	At Risk-Declining
<i>Poa billardierei</i>	Sand tussock, hinarepe	At Risk-Declining
<i>Raoulia australis</i>	Common mat daisy	At Risk-Declining
<i>Rytidosperma exiguum</i>	Danthonia, bristle grass	At Risk-Declining
<i>Rytidosperma merum</i>	Danthonia, bristle grass	At Risk-Declining
<i>Tupeia antarctica</i>	White mistletoe, piritā, tupia	At Risk-Declining
<i>Urtica perconfusa</i>	Swamp nettle	At Risk-Declining
<i>Zoysia minima</i>	Native twitch	At Risk-Declining
<i>Centipeda aotearoana</i>	New Zealand sneezewort	At Risk-Naturally Uncommon
<i>Chenopodium allanii</i>		At Risk-Naturally Uncommon
<i>Hymenophyllum cupressiforme</i>	Filmy fern	At Risk-Naturally Uncommon
<i>Juncus distegus</i>	Wīwī	At Risk-Naturally Uncommon
<i>Pimelea pseudolyallii</i>	Pimelea	At Risk-Naturally Uncommon
<i>Pseudopanax ferox</i>	Fierce lancewood	At Risk-Naturally Uncommon
<i>Thyridia repens</i>	Native musk	At Risk-Naturally Uncommon
<i>Cardamine cubita</i>	Native bittercress	Data Deficient
<i>Ranunculus macropus</i>	Native buttercup	Data Deficient
<i>Rytidosperma maculatum</i>	Danthonia	Data Deficient

<sup>1</sup> All species of Myrtaceae in New Zealand, including kānuka (*Kunzea robusta* and *K. serotina*), mānuka (*Leptospermum scoparium*), and rātā (*Metrosideros* spp.), have been classified as Threatened or At Risk nationally due to the potential threat posed by myrtle rust (*Austropuccinia psidii*). However, this fungus has not yet been recorded in the wild in Canterbury, and kānuka, mānuka and rātā are still relatively common and widespread in the Canterbury Region.

<sup>2</sup> Also referred to as *Veronica maccaskillii*.

<sup>3</sup> Also referred to as *Coprosma acerosa* (see <https://www.nzpcn.org.nz/flora/species/coprosma-brunnea/>).

## Bryophyte and lichen species

Only one At Risk-Declining lichen species (as per de Lange *et al.* 2018b) has been identified in the Waimakariri District (resurrection lichen, *Xanthoparmelia semiviridis*), however other At Risk or Data Deficient species may be present (further investigation of distribution records would be needed to confirm this). We are not aware of any Threatened, At Risk or Data Deficient bryophyte (moss and liverwort) species (as per de Lange *et al.* 2015, Rolfe *et al.* 2016) records in the District, but again further investigation would be required to confirm this.

## 5.2 Indigenous plant species uncommon in the Low Plains and/or High Plains Ecological Districts

A list of indigenous vascular plant species that are uncommon in the Low and/or High Plains Ecological Districts but are not classified as Threatened, At Risk, or Data Deficient (according to de Lange *et al.* 2018a) was compiled using information from various sources (e.g. Meurk *et al.* 1995, Steven and Meurk 1996, Meurk 1997, Rossiter 1997, Meurk 2008, Rossiter 2011, Boffa Miskell 2009, 2010, 2012, Environment Canterbury 2013, Selwyn District Council 2014, Harding 2016) and from our own knowledge and discussions with other local ecologists (see Table 13). The list comprises 97 species but it should be noted that this list is not exhaustive and other indigenous plant species may also be uncommon in the Low and High Plains Ecological Districts.

Table 7: Indigenous vascular plant species that are uncommon in the Low and/or High Plains Ecological Districts (and are not classified as Threatened, At Risk, or Data Deficient by de Lange *et al.* 2018a). Note that this list is not exhaustive and other species may also be uncommon in these ecological districts.

Scientific Name	Common Name	Information Source/s
<i>Acaena novae-zelandiae</i>	Red bidibidi	Steven & Meurk 1996
<i>Anaphalioides bellidioides</i>	Everlasting daisy, hells bells	Steven & Meurk 1996
<i>Anthosachne solandri</i>	Blue wheatgrass	Steven & Meurk 1996
<i>Apodasmia similis</i>	Oioi	Meurk 2008, Parker 2012
<i>Argentina anserinoides</i>	Silverweed	Hutchison 2020
<i>Asplenium flabellifolium</i>	Necklace fern	Steven & Meurk 1996, Butt 2017, Hutchison <i>et al.</i> 2020
<i>Austroderia richardii</i>	Toetoe	Steven & Meurk 1996
<i>Blechnum discolor</i>	Crown fern, piupiu	Steven & Meurk 1996
<i>Blechnum fluviatile</i>	Kiwakiwa	Steven & Meurk 1996
<i>Blechnum minus</i>	Swamp kiokio	Steven & Meurk 1996, Meurk 2008
<i>Blechnum penna-marina</i>	Little hard fern	Steven & Meurk 1996
<i>Bolboschoenus caldwellii</i>	Purua grass, Caldwell's clubrush	Steven & Meurk 1996
<i>Brachyglottis bellidioides</i>		Hutchison <i>et al.</i> 2020
<i>Caladenia lyallii</i>		Hutchison <i>et al.</i> 2020
<i>Carex breviculmis</i>	Grassland sedge	Steven & Meurk 1996, Hutchison <i>et al.</i> 2020
<i>Carex dipsacea</i>	Teasel sedge	Butt 2017
<i>Carex dissita</i>	Forest sedge	Steven & Meurk 1996
<i>Carex goyenii</i>	Goyens sedge	Hutchison 2013
<i>Carex maorica</i>	Cutty grass, rautahi	Steven & Meurk 1996
<i>Carex pumila</i>	Sand sedge	Meurk 2008, Parker 2012
<i>Carex resectans</i>		Meurk <i>et al.</i> 1995
<i>Carex secta</i>	Pūrei, pūkio	Steven & Meurk 1996
<i>Carmichaelia australis</i>	Common native broom	Steven & Meurk 1996, Meurk 1997
<i>Celmisia gracilentia</i>	Slender mountain daisy, pekapeka	Hutchison <i>et al.</i> 2020
<i>Centella uniflora</i>	Centella	Steven & Meurk 1996, Hutchison 2020
<i>Cheilanthes sieberi</i>	Rock fern	Steven & Meurk 1996
<i>Chionochloa rubra</i>	Red tussock	Steven & Meurk 1996
<i>Clematis forsteri</i>	Clematis	Steven & Meurk 1996, Hutchison <i>et al.</i> 2020
<i>Clematis marata</i>	Clematis	Steven & Meurk 1996, Hutchison <i>et al.</i> 2020
<i>Coprosma atropurpurea</i>	Mat coprosma	Meurk 1997
<i>Coprosma crassifolia</i>	Thick-leaved coprosma, mikimiki	Hutchison <i>et al.</i> 2020
<i>Coprosma linariifolia</i>	Yellow-wood	Steven & Meurk 1996
<i>Coprosma petriei</i>	Turfy coprosma	Meurk 1997
<i>Coprosma propinqua</i>	Mingimingi, mikimiki	Steven & Meurk 1996
<i>Coprosma rhamnoides</i>	Mingimingi, mikimiki	Hutchison <i>et al.</i> 2020
<i>Corybas trilobus</i> agg.	Spider orchid	Wildland Consultants 2019
<i>Corokia cotoneaster</i>	Korokio	Steven & Meurk 1996
<i>Crassula sieberiana</i>	Native stonecrop	Hutchison <i>et al.</i> 2020
<i>Dacrycarpus dacrydioides</i>	Kahikatea	Steven & Meurk 1996
<i>Dacrydium cupressinum</i>	Rimu	Steven & Meurk 1996
<i>Dichelachne crinita</i>	Plume grass	Steven & Meurk 1996, Wildland Consultants 2019
<i>Dichondra brevifolia</i>	Dichondra	Meurk 1997
<i>Dicksonia squarrosa</i>	Whēkī, rough tree fern	Steven & Meurk 1996
<i>Elaeocarpus hookerianus</i>	Pōkākā	Steven & Meurk 1996
<i>Eleocharis acuta</i>	Sharp spike sedge	Steven & Meurk 1996
<i>Elymus rectisetus</i>		Steven & Meurk 1996
<i>Epilobium alsinoides</i>	Willowherb	Meurk 1997
<i>Euchiton audax</i>	Native cudweed	Steven & Meurk 1996, Hutchison <i>et al.</i> 2020
<i>Ficinia nodosa</i>	Club rush, wiwi	Parker 2012
<i>Fuchsia excorticata</i>	Tree fuchsia, kōtukutuku	Meurk 2008

Scientific Name	Common Name	Information Source/s
<i>Fuchsia excorticata</i> x <i>F. perscandens</i>	Shrubby fuchsia	Wildland Consultants 2019
<i>Fuscospora solandri</i>	Black beech	Meurk 2008
<i>Galium propinquum</i>	Native bedstraw	Hutchison <i>et al.</i> 2020
<i>Gonocarpus aggregatus</i>		Wildland Consultants 2019
<i>Gratiola sexdentata</i>	Gratiola	Meurk 2008, Meurk 2018
<i>Helichrysum lanceolatum</i>	Niniaio	Hutchison <i>et al.</i> 2020
<i>Hypericum pusillum</i>	Native hypericum	Butt 2018, Hutchison 2020
<i>Hypolepis ambigua</i>	Pig fern	Steven & Meurk 1996
<i>Juncus australis</i>	Leafless rush, wī	Hutchison 2020
<i>Juncus kraussii</i> subsp. <i>australiensis</i>	Sea rush	Meurk 2008
<i>Juncus pallidus</i>	Giant rush, leafless rush, wī	Meurk 2008, Parker 2012
<i>Juncus planifolius</i>		Meurk 2008
<i>Lagenophora cuneata</i>		Steven & Meurk 1996
<i>Lepidosperma australe</i>	Square sedge, square-stemmed sedge	Parker 2012
<i>Leptecophylla juniperina</i> subsp. <i>juniperina</i>	Prickly mingimingi, mikimiki	Steven & Meurk 1996
<i>Leptinella dioica</i>	Button daisy	Meurk 2008
<i>Leptinella squalida</i>	Button daisy	Hutchison <i>et al.</i> 2020
<i>Leptostigma setulosum</i>	Nertera	Hutchison <i>et al.</i> 2020
<i>Leucopogon fraseri</i>	Dwarf heath, pātōtara	Hutchison <i>et al.</i> 2020
<i>Machaerina rubiginosa</i>	Baumea	Butt 2017
<i>Machaerina tenax</i>		Steven & Meurk 1996
<i>Melicytus alpinus</i> agg.	Porcupine shrub	Steven & Meurk 1996
<i>Melicytus ramiflorus</i>	Māhoe, whiteywood	Steven & Meurk 1996
<i>Microlaena stipoides</i>	Meadow rice grass, pātiti	Steven & Meurk 1996
<i>Muehlenbeckia axillaris</i>	Creeping pōhuehue	Steven & Meurk 1996, Butt 2017
<i>Myriophyllum propinquum</i>	Common water milfoil	Steven & Meurk 1996
<i>Olearia avicenniifolia</i>	Mountain akeake	Steven & Meurk 1996
<i>Oxalis exilis</i>	Yellow oxalis	Steven & Meurk 1996
<i>Parsonsia capsularis</i>	Native jasmine, akakaikiore	Steven & Meurk 1996
<i>Parsonsia heterophylla</i>	Native jasmine, akakaikiore	Steven & Meurk 1996
<i>Phormium tenax</i>	Harakeke, lowland flax	Steven & Meurk 1996
<i>Poa cita</i>	Silver tussock, wī	Steven & Meurk 1996, Hutchison <i>et al.</i> 2020
<i>Podocarpus totara</i>	Lowland tōtara	Steven & Meurk 1996
<i>Polystichum vestitum</i>	Prickly shield fern	Steven & Meurk 1996, Meurk 2008
<i>Pomaderris amoena</i>	Pomaderris	Meurk <i>et al.</i> 1995
<i>Potamogeton cheesemanii</i>	Pondweed	Steven & Meurk 1996
<i>Prumnopitys taxifolia</i>	Mataī, black pine	Steven & Meurk 1996
<i>Pterostylis</i> spp.	Green-hood orchid	Stanley 2020
<i>Ranunculus glabrifolius</i>	A native buttercup, waioriki	Meurk 2008
<i>Rytidosperma clavatum</i>	Danthonia	Steven & Meurk 1996
<i>Schoenus pauciflorus</i>	Bog rush	Meurk 2005
<i>Sophora microphylla</i>	Small-leaved kōwhai	Steven & Meurk 1996, Meurk 1997
<i>Sophora prostrata</i>	Prostrate kōwhai	Steven & Meurk 1996, Meurk 1997
<i>Thelymitra longifolia</i>	White sun orchid	Hutchison <i>et al.</i> 2020
<i>Typha orientalis</i>	Raupō, bullrush	Steven & Meurk 1996
<i>Viola cunninghamii</i>	A native violet	Butt 2017
<i>Wahlenbergia albomarginata</i>	NZ harebell	Meurk <i>et al.</i> 1995, Wildland Consultants 2019

It was not possible to compile a list of species that are uncommon in the Oxford, Torlesse, or Ashley Ecological Districts, as there is insufficient information available on the distribution and abundance of indigenous plant species in these districts.

### 5.3 Indigenous plant species at national or regional distribution limits

At least seven indigenous plant species appear to reach their national or regional distributional limits in Waimakariri District (see Table 8), however we have insufficient information to compile a full list of species and this warrants further investigation.

Table 8: Indigenous plant species that reach their national or regional distribution limits in the Waimakariri District. Note that this list is not exhaustive and other species may also reach their distribution limits in the District.

Scientific Name	Common Name	Distribution limit
<i>Astelia grandis</i>	Swamp astelia	Southern regional limit <sup>1</sup> (Miles Giller pers. comm.)
<i>Cardamine cubita</i>	Bittercress	Only known from the Lees Valley (Heenan <i>et al.</i> 2013)
<i>Carex dipsacea</i>	Teasel sedge	Eastern distribution limit (Butt 2017)
<i>Gratiola sexdentata</i>	Gratiola	Possible northern regional limit (Meurk 2018)
<i>Hebe leiophylla</i> <sup>2</sup>		Southern national limit (Giller 2016)
<i>Leucogenes grandiceps</i>	South Island eidelweiss	Possible eastern national limit (Given 1999)
<i>Pomaderris amoena</i>	Pomaderris	Southern national limit (Meurk 2008)

<sup>1</sup> *Astelia grandis* has been found at several locations near Oxford and also has an outlier population near Ohoka. It has been recorded (as a lone male plant) in Riccarton Bush, Christchurch (further south), however that 'population' is likely to be effectively dysfunctional (Miles Giller pers. comm.).

<sup>2</sup> Also referred to as *Veronica leiophylla*.

## 6. CONCLUSIONS

### 6.1 Significant indigenous vegetation

The indigenous vegetation and habitat types, naturally uncommon ecosystem types, and indigenous plant species listed in Tables 4-8 are ecologically significant according to the criteria in the Canterbury Regional Policy Statement, and should be included in the 'Schedule of Significant Indigenous Vegetation and Significant Habitat of Indigenous Biodiversity' in the proposed Waimakariri District Plan. The significant vegetation and habitat types are located in four different zones within the Waimakariri District - Coastal, Plains, Lees Valley, and Foothills, and the vegetation clearance rules will need to reference the relevant zone(s). The vegetation clearance rules should apply to naturally occurring indigenous vegetation and plant species, not indigenous vegetation that has been planted (for ecological restoration or other purposes).

Although lists of Threatened, At Risk, and locally uncommon plant species have been compiled, most rural landowners are unable to recognise these species, therefore such lists generally have less utility when setting vegetation clearance rules than vegetation/habitat and ecosystem types. A partial solution might be to pick out a subset of these species and develop educational resources for them. If this option is adopted, the subset of species should be those that are more prominent and recognisable, and which are more likely to occur on private land. Educational resources (including images, descriptions, and locations) of the protected vegetation/habitat and ecosystem types should be developed and made available to landowners. This would facilitate landowner recognition of these and thus promote better compliance with vegetation clearance rules.

## 6.2 Significant habitats of indigenous fauna

This report does not explicitly address significant habitats of indigenous fauna, however some vegetation/habitat and ecosystem types listed in Tables 4 and 5 constitute such habitat, for example braided rivers, estuaries (e.g. Ashley/Rakahuri estuary), and freshwater wetlands. An overview of significant habitats of indigenous fauna in Canterbury that are dominated by exotic vegetation, or do not contain any vegetation, is provided by Wildland Consultants (2015).

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## INDIGENOUS VEGETATION TYPES LISTED IN THE OPERATIVE WAIMAKARIRI DISTRICT PLAN

### 25.2 Discretionary Activities

25.2.5 The clearance of more than 5000 m<sup>2</sup> of indigenous vegetation on any site in any continuous period of five years is a discretionary activity.

25.2.6 The clearance of more than 500 m<sup>2</sup> of indigenous vegetation on any site in any continuous period of five years is a discretionary activity where that vegetation:

- a. has a closed canopy and where the maximum height of the canopy is greater or equal to 3 m;
- b. is tall tussock of the genus *Chionochloa*;
- c. is indigenous shrubland containing at least five of the following species: matagouri, *Coprosma* spp., Porcupine shrub, mountain wineberry, *Hebe* spp., *Olearia* spp., native broom (*Carmichaelia* spp.), prostrate kowhai, native jasmine (*Parsonsia* spp.), *Clematis* spp., *Muehlenbeckia* spp., and bush lawyer; or
- d. is indigenous shrubland containing at least three of the following species: broadleaf, kohuhu (*Pittosporum tenuifolium*), kowhai, mountain ribbonwood, *Hebe* spp., *Fuchsia*, *Pseudopanax* spp., mahoe, cabbage tree, black beech/mountain beech, mountain akeake, manuka and kanuka.

For the purpose of Rule 25.2.6 the canopy height is to be determined over each of 1 ha, or over the lesser area where the vegetation is less than 1 ha.

## RARE INDIGENOUS PLANT SPECIES LISTED IN THE OPERATIVE WAIMAKARIRI DISTRICT PLAN

### 25. Indigenous Vegetation, Fauna and Habitats - Rules

#### 25.1 Permitted Activities

Any land use is a permitted activity if it:

- i. is not otherwise listed as a discretionary activity under this chapter;
- ii. complies with the conditions under Rule 25.1.1; and
- iii. complies with all the conditions and provisions for permitted activities in all chapters.

##### 25.1.1 Conditions

Within any vegetation and habitat site listed in Appendix 25.1 and identified on the District Plan Maps:

- 25.1.1.1 The overall abundance and health of identified rare plant species, as identified in Table 25.1 shall not be reduced.

**Table 25.1: Identified Rare Plant Species**

Latin Name	English Name
<i>Pomaderris phyllicifolia</i> var. <i>ericifolia</i> <sup>1</sup>	
<i>Coprosma intertexta</i>	
<i>Coprosma obconica</i>	
<i>Coprosma pedicellata</i>	
<i>Carmichaelia kirkii</i>	Climbing broom
<i>Olearia lineata</i>	Weeping tree daisy
<i>Ricciocarpus natans</i>	Liverwort species
<i>Lepidosperma australe</i>	Four square sedge

<sup>1</sup> This species is now referred to as *Pomaderris amoena* (NZPCN 2020).

## CRITERIA FOR DETERMINING ECOLOGICAL SIGNIFICANCE IN CANTERBURY

Criteria for determining significant indigenous vegetation and significant habitat of indigenous biodiversity from Appendix 3 of the Canterbury Regional Policy Statement (Environment Canterbury 2013).

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### **Criterion**

#### **Representativeness**

1. Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.
2. Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.

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#### **Rarity/Distinctiveness**

3. Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, or freshwater environment.
4. Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district.
5. The site contains indigenous vegetation or an indigenous species at its distribution limit within Canterbury Region or nationally.
6. Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.

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#### **Diversity and Pattern**

7. Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.

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#### **Ecological Context**

8. Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.
  9. A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.
  10. Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.
-



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