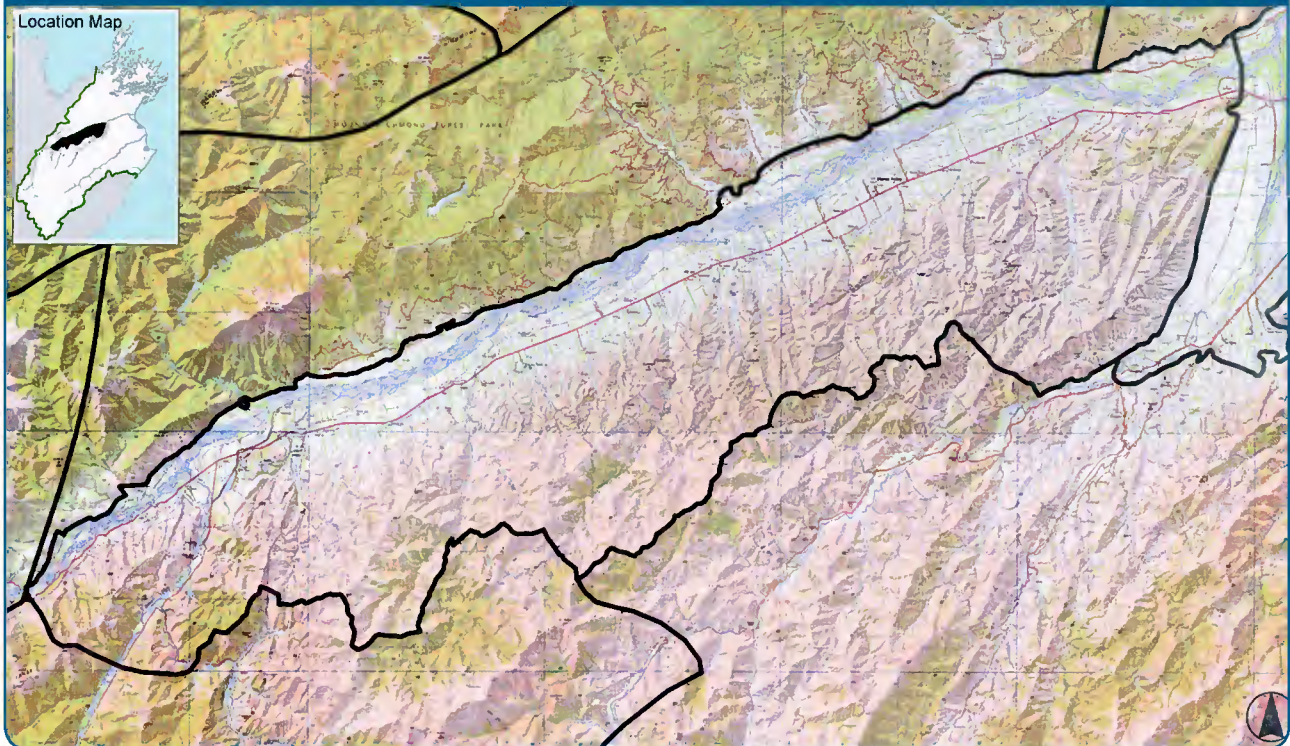


## HILLERSDEN ECOLOGICAL DISTRICT

## MAP 10 - HILLERSDEN ECOLOGICAL DISTRICT

**OVERVIEW**

The Hillersden Ecological District forms a long narrow arm in the Wairau Valley and includes the north-west facing hill country south of the Wairau River and the alluvial terraces on both sides of the river. The Richmond Range lies to the north. The ecological district extends to the Waihopai River confluence in the north-east, and to the Wash Bridge in the south-west. The western boundary runs up and over the northern portion of the Raglan Range. The land lies between 75 -1448 m above sea level, reaching its highest point at Mt Impey. It runs approximately 10 km back from the Wairau River into the hills to the tributary catchment heads in most cases, with the largest tributaries being the Wye River and Boundary Creek. The steeply dissected land falls in approximately parallel north-running ridges and valleys to the Wairau River. In the far west the very lowest reaches of the Branch and Leatham Rivers are included. Also included are the high and low terraces and their associated terrace risers on both sides of the Wairau River, as well as the braided riverbed and the floodplain.

The geology is not complex. Half of the area and most of the hill country is comprised of Mesozoic greywacke and argillite that is highly sheared, well indurated, graded and bedded. The gentler eastern hills are comprised of Tertiary mudstones and sandstones grading into basal conglomerate and grit. All of the Wairau River plain, which constitutes a third of the ecological district, is recent post-glacial alluvium. Along the western upper end of this plain are a number of Quaternary terminal moraine and glacial outwash gravel deposits. A very small area of Carboniferous schist occurs on the south-bank margins of the Wairau River. This geology is much more extensive to the north. The Branch River faulted terraces are of national importance as a classic example of progressive displacement of late Quaternary terraces by right lateral slip on the Alpine Fault. The Wairau River braids are of regional importance as an excellent representative example of braided riverbeds in Marlborough rivers. Soils are derived from loess or the underlying rocks and are of low to medium fertility.

The climate is generally mild, but with high solar radiation and a distinct rainfall gradient (increasing both inland and with altitude). Summers are typically dry and winters cool. Winter frosts are common and snow occasionally lies on the hills.



Pre-human vegetation of the ecological district has been described as probably a diverse mosaic of podocarp, beech and hardwood forest, shrublands of kanuka, manuka, kowhai and matagouri and silver tussock grassland, with perhaps some warm temperate rainforest on the lowest ground in the east. However, there seems to be no ecological reason why forest would not have covered all areas other than deep swamps. Silver tussock and shrubland would have been confined to rocky outcrops where tree cover was absent or minimal, and where slips caused open conditions. This survey confirms the existence of very small remnants of mature Halls totara, matai, red beech, black beech and broadleaved species located in the mid to western parts of the ecological district, that can only be interpreted as being the highly modified remnants, or their progeny, of the original pre-human forest cover. Most of the original forest was destroyed by fire in the centuries prior to European settlement.

The Hillersden Ecological District is now predominantly a landscape of pastoralism and exotic forestry. Only remnant and largely secondary indigenous ecosystems remain, of which very few are in public ownership or formally protected. Five protected natural areas together cover 2.9% of the ecological district. They mostly contain kanuka forest, with a small amount of beech forest and a wetland.

### SURVEY RESULTS

Of the 31 properties where the owners were approached, 27 were surveyed. A total of 28 significant sites were identified on private land. A further nine sites were identified on public land (this includes the Wairau River bed). The sites on private land have a combined total area of 3660 ha which is approximately 7.5% of the total land area of the ecological district.

The sites are classified into six basic ecosystem categories or types, (see Table 9). Many of the sites are riparian or associated with rivers, and there are several small wetlands. Most of the remaining sites are hillslope mosaics of mixed native vegetation, predominantly kanuka forests. All of the sites are distinctive and special.

**TABLE 9 - SITES IDENTIFIED IN THE HILLERSDEN ECOLOGICAL DISTRICT**

Ecosystem type	Total number of sites	Sites on Public land	Sites on Private land	Total area of sites on privately owned land (ha)*	% area of Ecological District in private hands
Inland wetland	8	2	6	6 (8)	
River bed /Riparian communities	1	1		(6000)	
Dry shrublands	8		8	645	
Silver tussock grassland & "grey scrub"	2		2	470	
Kanuka forest	13	5	8	2470 (1677)	
Beech-kanuka-broadleaved forest on alluvium	5	1	4	69 (20)	
<b>Total</b>	<b>37</b>	<b>9</b>	<b>28</b>	<b>3660</b>	<b>7.5%</b>

\* Publicly owned site shown in brackets for information only

### ECOSYSTEMS FOUND

The original vegetation cover of the Hillersden Ecological District has been largely eliminated since human arrival although some larger areas of kanuka forest are present. The main ecosystem patterns are briefly described below.

#### INLAND WETLANDS

Very small wetlands are scattered along the Wairau River plain, most of them associated with the Wairau Fault. In the west these are dominated by a range of sedges, but from around the mid-part of the ecological district eastward, harakeke becomes the principal species.



### RIVER BED /RIPARIAN COMMUNITIES

The Wairau River plain is now almost devoid of native vegetation, and is largely managed for improved pasture. Forests on the Wairau River plain are confined to small pockets of alluvial kanuka and, more rarely, riparian kowhai and kohuhu. Old mans beard and woody weeds (crack willow, gorse, broom and buddleia especially) are common near the Wairau River.

### SILVER TUSSOCK GRASSLANDS

The loss of the former extensive silver tussock grasslands, so widespread at the time of European settlement, has been almost complete, with only two remaining tracts identified in the mid-west of the ecological district.

### DRY SHRUBLANDS (“GREY SCRUB”)

The hill country is primarily composed of rough pastures of mainly exotic species with a variable shrubland presence, merging into shrublands and scrub, particularly in the middle and west of the ecological district. The eastern third of the ecological district, south of the Wairau River, generally lacks any native woody vegetation. Matagouri, *Coprosma propinqua*, tauhinu and, away from the western areas, *C. crassifolia*, make up the bulk of the shrubland vegetation.

### KANUKA FORESTS WITH BROADLEAVED AND BEECH MOSAICS

On the hill country to the south of the District, locally extensive kanuka forests exist in the Goat Stream, Wye River and Boundary Creek catchments that run from valley bottom to ridgeline. Lancewood is locally co-dominant across large areas, merging into lancewood associations and mixed broadleaved-beech forest along gullies, valley bottoms and lower side slopes. Black beech, red beech, broadleaf, putaputaweta and *Coprosma linariifolia* components of mixed broadleaved-beech forest are typical, with mahoe, akiraho, cabbage tree and kohuhu becoming increasingly scarce to the west. Lemonwood and narrow-leaved lacebark are very local. Red beech tends to occur at higher elevations than black beech but there is considerable overlap. A number of very small pockets of matai and Hall’s totara also still survive in deeply incised gullies, the very last remnants of once extensive podocarp forest cover.

### UPLAND SHRUBLAND COMMUNITIES

The upland shrublands at the highest elevations locally include *Dracophyllum filifolium*. These merge into locally extensive upland rocklands and, on the Raglan Range, screes and sub-montane herbfields. Wilding exotic conifers pose a considerable threat in the uplands.

## SPECIAL FEATURES

Despite the history of tremendous modification by people, there are several features worthy of celebration.

### NATIVE FLORA

- Nationally threatened plants found in the ecological district during the survey include the sedge *Carex inopinata*, the willowherb *Epilobium chionanthum*, the shrub *Teucrium parvifolium*, the mistletoes *Tupeia antarctica* and *Korthalsella salicornioides*, white fuzzweed (*Vittadinia australis*) and the local endemic daisy *Celmisia insignis*.
- The dwarf broom *Carmichaelia corrugata* and the sedge *Carex inopinata* both reach their northern limits in the ecological district. Coral shrub (*Helichrysum coralloides*) is at its northern limit, either in Hillersden Ecological District or the adjacent Waihopai Ecological District.

### NATIVE FAUNA

- Birds listed as nationally threatened that are found in the ecological district are black-billed gull, black-fronted tern, grey duck, banded dotterel, black shag, kereru (NZ pigeon) and NZ falcon (karearea or sparrowhawk).



- Native bird species commonly recorded in forest areas during the survey were bellbird, grey warbler, brown creeper, silveryeye and fantail. South Island tomtit was present locally. Rifleman was recorded in only one location, South Island robin in two, kereru in four, and tui in five. A ruru (morepork) was heard once, although this species is likely to be more common than this indicates because of its nocturnal nature. Kingfisher was noted along one forest stream.
- Upland grasslands, shrublands and rocklands revealed low numbers of native species, with only Australasian harrier hawk (kahu) common. Pipit was scarce, and falcon was seen singly on only seven occasions.
- Wetlands are few and small in size and birds were rarely associated with them as such. Pukeko were seen at only three sites.
- Riverbeds were not surveyed to a great extent. However, the bird life of the Wairau River is well known. There are large populations of breeding black-fronted tern and black-billed gull (classified as “chronically threatened, serious decline”), and notable numbers of breeding banded dotterel (classified as “chronically threatened, gradual decline”), South Island pied oystercatcher, pied stilt, black-backed and red-billed gulls. Black shag and little shag breed locally. The Wairau River has one of the largest breeding populations of black-fronted tern which is in serious decline nationally. Backwaters support numbers of grey teal and grey duck/mallard. Welcome swallow frequents the open riverbed as well as other open habitats. Spur-winged plover and paradise shelduck use the river margins, braids and adjacent alluvial pastoral flats. Caspian tern and white-faced heron are occasional along the Wairau riverbed.
- There are records of only two lizard species in the District, common gecko (*Hoplodactylus maculatus*) and common skink (*Oligosoma nigriplantare polychroma*).
- Twelve species of native freshwater fish have been recorded in the ecological district. Three are listed as nationally threatened: dwarf galaxias, lamprey and longfin eel. Four species – dwarf galaxias, alpine galaxias, northern galaxias and upland bully – are non-migratory and may be genetically isolated in their catchments, differing from other populations. The Wairau River catchment, the mid reaches of which flow through the ecological district, is considered to be of regional importance for freshwater fish and habitat diversity. All watercourses drain into the Wairau catchment. Recent fish surveys on the tributary streams and rivers that drain the true right have located seven species including alpine galaxias. Significant lengths of Boundary Creek and Parker Stream (Wye River) pass through native forest that would have been the original natural situation for all the streams in the ecological district prior to human arrival. These are the very last sizeable remnants of forested stream courses and are therefore of unique value.

## HILLERSDEN ECOLOGICAL DISTRICT – PHOTO ESSAY

**WAIRAU RIVER -**

The largest river in Marlborough and one of the country's unique braided river systems. This type of habitat supports large breeding populations of river dependent birds, including the nationally important black-fronted tern and regionally important black-billed gull, black-fronted dotterel, pied stilt, and black-backed gull.

**UPPER WAIRAU FAULT WETLAND -**

A group of six small wetlands of moderately low fertility are a feature of the Wairau River terrace faults in the Hillersden Ecological District. Each has unique elements – this is the only one on a low terrace and supports several threatened plant species.





#### PARKER STREAM –

This site is a large area of an upper catchment with a diverse range of vegetation types and plant species including 50 species of trees and shrubs and 33 species of ferns. Remnants of red beech, black beech and Halls totara occur within the predominantly kanuka forest. The site is large enough to support bird species like South Island robin, kingfisher and eastern falcon, all of which are relatively rare in the ecological district.



#### HAYCOCK RIDGE –

An example of the shrub-rocklands which are found along the highest ridgelines in this Ecological District and provide habitat for a range of plant communities.

