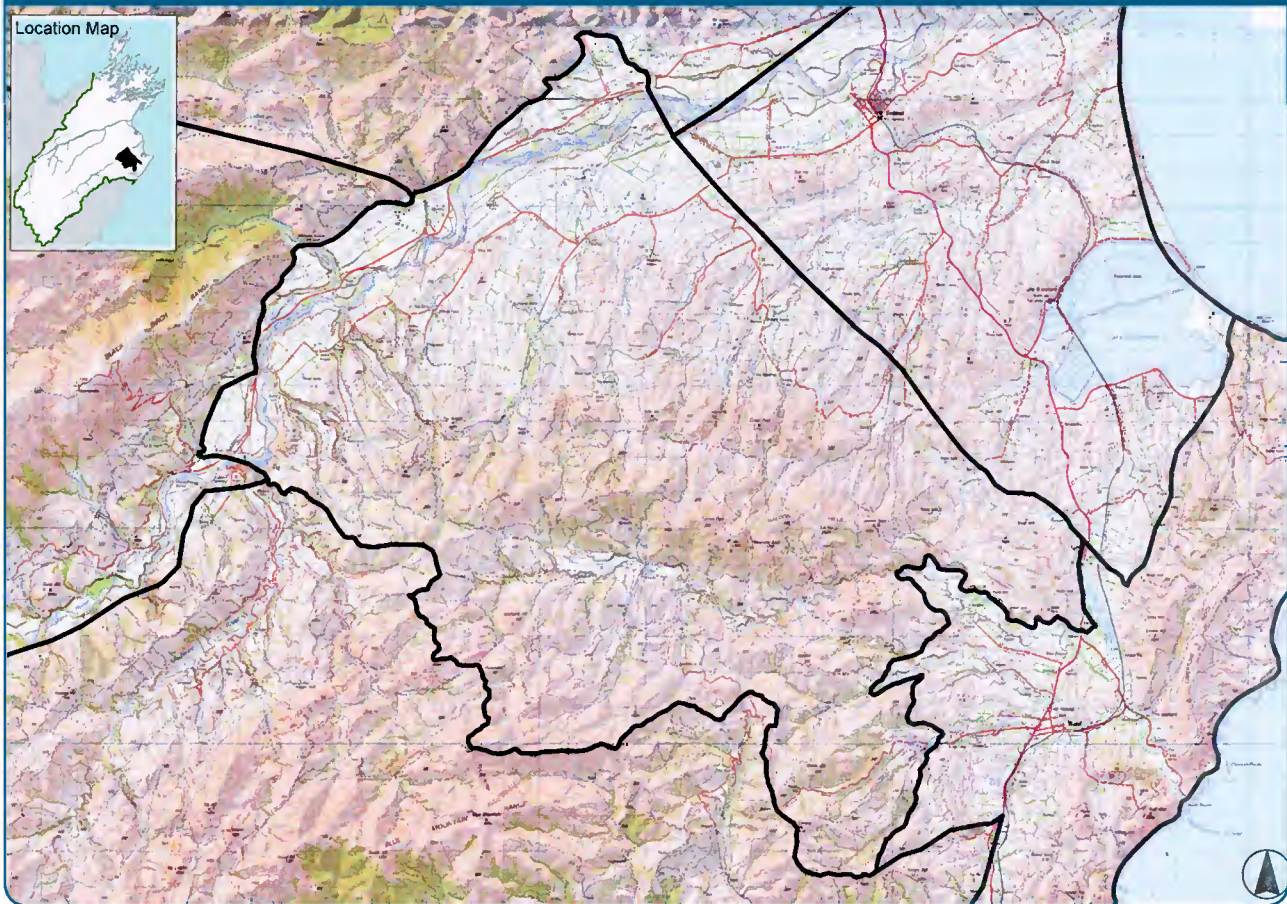


FLAXBOURNE ECOLOGICAL DISTRICT

MAP 9 - FLAXBOURNE ECOLOGICAL DISTRICT

**OVERVIEW**

The Flaxbourne Ecological District is bounded by the Awatere River valley to the north-west, while its southern and western boundaries are largely defined by the catchment margin of the Flaxbourne River, and its north-eastern boundary with the Grassmere Ecological District lies along a contour line at approximately 150 m asl. The District lies within 4.5 km of the Kaikoura coast at its nearest point. The land lies between 40 and 822 m above sea level, with altitude generally increasing from the north-east to the south-west. The mid to upper Flaxbourne River catchment dominates the southern sector, with numerous small gully tributaries. Its upper catchment widens into a shallow basin, bound steeply to the north by the Haldon Hills that span the centre of the District. The northern sector comprises ridges and gullies that run northward from the Haldon Hills to the Awatere River plain. Some of these gullies dissect the much smaller Little Haldon Hills. Many of these northern gullies are deeply incised, featuring deep vertical cliff systems.

Much of the Flaxbourne River catchment and the Haldon Hills are dominated by Mesozoic greywacke. The northern foot slopes of the Haldon Hills are comprised of Tertiary mudstone and sandstone grading into basal conglomerate. Quaternary terminal moraine deposits dominate the Awatere River plain, overlain to the south by more recent post-glacial alluvium that has subsequently been dissected into low-lying ridges. Some recent alluvium occurs close to the margins of the current course of the Awatere River. Two major active faultlines, the Awatere and Clarence Faults, cross the ecological district on a south-west to north-east orientation. The Awatere faultline lies approximately along the north-western boundary, and is responsible for a number of fault-induced wetlands and a lake. Upton Brook has an important fossil site. Soils are derived from wind deposited loess or the underlying rocks.



The climate is warm and dry with high solar radiation and frequent drought. Frosts occur in winter and the area is moderately windy.

The pre-human vegetation of the Flaxbourne Ecological District has been described as small areas of matai-totara-hinau-mahoe forest, extensive mahoe-five finger-mapou forest and kanuka/manuka forest, and some black beech forest in the south. However, the survey revealed that totara was once widespread on the hill country. Very small remnant stands or isolated trees of black beech, matai and lowland totara still exist in the south, and it is logical to assume that they too would have once been widespread, dominating lowland forest canopies, with Halls totara abundant on the higher slopes. Most of the forest was destroyed by fire in the centuries prior to European settlement. The flat, wide stream valleys in the north of the District once held extensive harakeke flaxlands (hence the name), although only one area remains today. Wetlands were, and still are a feature of the Awatere faultline, but were only ever of local occurrence. Very little native vegetation remains in the low-lying lands of gently undulating foothills and the Awatere River plain. Land use in the Flaxbourne Ecological District is currently almost entirely pastoral.

Only tiny remnant indigenous ecosystems remain, of which very little is in public ownership or formally protected. There are only two protected natural areas, one a small reserve with pockets of native forest and scrub and the other a considerably larger private covenanted area of mixed vegetation containing the majority of the only population of red rock daisy (*Pachystegia rufa*), endemic to the Little Haldon Hills. Together these two areas make up 0.55% of the ecological district.

SURVEY RESULTS

Of the 35 properties where the owners were approached, 21 were surveyed. A total of 24 significant sites were identified on private land. A further two sites were identified on public land (this includes the Awatere River bed). The sites on private land have a combined total area of about 1165ha which is approximately 4.1 % of the total land area of the ecological district.

The sites identified are classified into seven basic ecosystem categories or types (see Table 8). Several of the sites are riparian or associated with rivers. Most of the rest are hillslope mosaics of mixed native vegetation. All of the sites are distinctive and special.

TABLE 8 - SITES IDENTIFIED IN THE FLAXBOURNE 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	3		3	27	
River bed/Riparian	1	1		(700)	
Silver tussock grassland, bracken & "grey scrub"	1		1	120	
Rock /dry shrubland/tussock	2		2	160	
Dry shrublands	7		7	216	
Kanuka-manuka forest,	5		5	550	
Broadleaved forest	7	1	6	92 (15)	
Total	26	2	24	1165 ha	4.1%

* Publicly owned sites shown in brackets for information only

ECOSYSTEMS FOUND

The original vegetation cover of the ecological district has been largely eliminated since human arrival. The main ecosystem patterns are briefly described below.



INLAND WETLANDS

Wetlands are extremely rare, with very localised areas of harakeke flaxland, and *Carex secta* sedgeland.

RIPARIAN RIVERBED COMMUNITIES

The Awatere Riverbed vegetation is substantially exotic, but there are localised areas of the mat-forming native plants *Raoulia australis* and *Muehlenbeckia axillaris*. Some gentle slopes and terraces, particularly those associated with the Flaxbourne River and streams south of it, may hold narrow bands of kanuka treeland and open forest, with kowhai and manuka locally common.

ROCK OUTCROP, SCARP AND CLIFF COMMUNITIES

Rocklands are common, particularly on the Haldon and Little Haldon Hills, where large bluffs are present. These support a diverse assemblage of herbs, ferns, grasses and shrubs.

SILVER TUSSOCK GRASSLANDS, DRY SHRUBLANDS ("GREY SCRUB") AND BRACKEN FERNLANDS

Hilly pastoral lands are largely comprised of exotic grasses with abundant silver tussock grassland, bracken fernland, and variable densities of hill slope shrublands composed of tauhinu, *Coprosma propinqua*, *C. crassifolia*, matagouri and porcupine shrub (*Melicytus* aff. *alpinus* "Waipapa"). Shady slopes in the Haldon Hills locally support areas of a wharariki-bracken association. Young kanuka regeneration is widespread, particularly through bracken.

KANUKA, MANUKA AND BROADLEAVED FORESTS

Forest areas are almost exclusively confined to steeply incised gullies and valleys, generally on more southerly aspects. These are comprised mostly of kanuka and occasionally manuka, with smaller areas of mixed broadleaved forest, usually present as narrow strips along gully bottoms and foot slopes, below more substantial stands of kanuka forest. Broadleaved tree species commonly include mahoe, ngaio, five-finger and akiraho, with kowhai, cabbage tree, kohuhu and mapou less common. Very locally, titoki and kaikomako are present. Rare trees of the original primary canopy still occur, namely black beech, matai, and lowland totara. Halls totara, once widespread from the plentiful evidence of logs on the hill slopes, does not appear to persist in the wild within the District.

SPECIAL FEATURES

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

NATIVE FLORA

- Nationally threatened plants found in the ecological district during the survey include red rock daisy (*Pachystegia rufa*), deciduous tree daisy (*Olearia hectorii*), sea holly (*Eryngium* aff. *vesiculosum*), shrubby tororaro (*Muehlenbeckia astonii*), *Muehlenbeckia ephedroides*, the mistletoe *Tupeia antarctica*, two small-leaved clematis species (*Clematis marata* and *C. petriei*), white fuzzweed (*Vittadinia australis*) and the native bedstraw *Galium trilobum*.
- One species reaches its national northern distribution limit within the Flaxbourne Ecological District, although it was recorded in the past from further north (Pelorus Bridge): deciduous tree daisy (*Olearia hectorii*).
- Two species are endemic to the District. The red rock daisy (*Pachystegia rufa*) is confined to the Haldon and Little Haldon Hills, and *Craspedia* "Haldon Hills" which is confined to the Haldon Hills.



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, pied shag, kereru (NZ pigeon) and NZ falcon (karearea or sparrowhawk).
- Bellbird, brown creeper and silvereve are common in forest areas. Fantail, grey warbler and shining cuckoo are uncommon but usually present. South Island robin was recorded in one location, rifleman and kereru in three locations with all three species being confined to the far south of the ecological district. Ruru (morepork) was inevitably overlooked because of its nocturnal nature. Kingfisher was noted along one forest stream.
- Hill country grasslands, with shrublands and rocklands hold low numbers of native species, with only Australasian harrier hawk (kahu) common. Pipit was scarce, and NZ falcon was noted only at one site, in the Haldon Hills.
- Wetlands are now rare and only one site, Lake Jasper, held any water birds during survey visits, including pukeko, scaup, grey teal, grey duck and pied shag.
- The Awatere River supports large numbers of breeding banded dotterel (classified as “chronically threatened, gradual decline”) and black-billed gull (classified as “chronically threatened, serious decline”), and reasonable numbers of breeding South Island pied oystercatcher, black-fronted tern (classified as “chronically threatened, serious decline”) and pied stilt within the District. Five percent of the South Island population of black-fronted dotterel (classified as “chronically threatened, gradual decline”) breed along the mid to lower reaches of the Awatere, largely down-river in Grassmere Ecological District, although they regularly frequent this section. Black shag and little shag breed locally. Backwaters support numbers of grey teal and grey duck/mallard. Welcome swallow frequents the open river bed and spur-winged plover and paradise shelduck the margins, braids and adjacent alluvial flats. Caspian tern and white-faced heron are present occasionally along the Awatere River bed. The Flaxbourne River supports occasional black shag, grey duck/mallard, paradise shelduck and kingfisher. Banded dotterel, pied oystercatcher and pied stilt have bred there in the recent past.
- There are records of four lizard species in the ecological district, namely the Kaikoura gecko (*Hoplodactylus* “Kaikoura”, classified as “at risk”), spotted skink (*Oligosoma lineocellatum*, classified as “chronically threatened”), common gecko (*Hoplodactylus maculatus*), and common skink (*Oligosoma nigriplantare polychroma*). All are recorded from within the Flaxbourne River catchment. Common gecko was observed under old Hall’s totara logs in steep pasture high on the Haldon Hills during the survey. The type locality of the Kaikoura gecko near the Flaxbourne River is one of only two known localities for this species. Its status requires further investigation.
- Only four species of native freshwater fish have been recorded in the District so far. The only one listed as nationally threatened is longfin eel. Banded kokopu and torrent fish, recorded lower in the Awatere River, are most likely to be present. The Flaxbourne River catchment drains much of the ecological district, but to date the mid to upper reaches have not been surveyed.



FLAXBOURNE ECOLOGICAL DISTRICT - PHOTO ESSAY



FLAXBOURNE RIVER –

This area has good examples of riverbed and riparian bluff vegetation including forest species like akiraho, manuka and kanuka, Marlborough rock daisy and other shrubs, lancewood and species like leafless clematis which are rare elsewhere in this Ecological District.



DIVISION CREEK HEADWATERS –

A mosaic of rockland, gully forest, bracken fernland, “grey scrub” and silver tussock grassland. Several rare species are present in small remnant areas of forest and rockland within this mosaic.



TACHALLS CREEK –

A forested gully system merging into bracken fernland and tussock grassland on the upper slopes. The forest is diverse with mixed broadleaved species and the only stand of black beech (once common) in the Ecological District.



STARBOROUGH CREEK –

This area of swamp associated with the ephemeral Starborough Creek is by far the largest area of harakeke flaxland remaining in the Ecological District. Drainage, damage by heavy stock and weed infestation (willows and privet are present), are all potential threats to this type of habitat.

