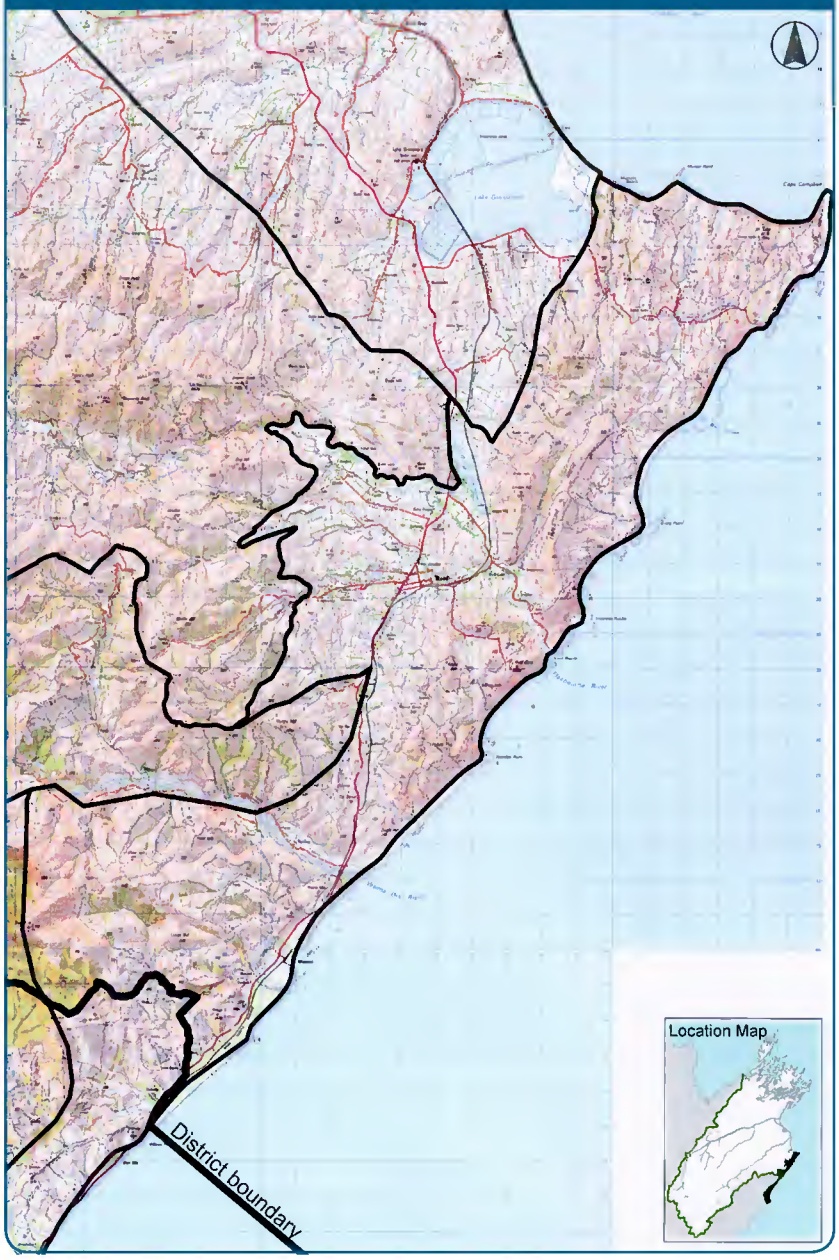
RESULTS OF ECOLOGICAL DISTRICT SURVEY WORK

KEKERENGU ECOLOGICAL DISTRICT

MAP 3 - KEKERENGU ECOLOGICAL DISTRICT



OVERVIEW

The northern half of the Kekerengu Ecological District lies along the eastern coast of the Marlborough territorial area. It is a zone of low coastal hills of complex geology. It is essentially composed of sedimentary rocks (sandstone, limestone and mudstone), post-glacial loess and recent river and coastal deposits. The dramatic coastline is exposed to south and east, with an abrupt directional change at Cape Campbell. It is a very dry area with hot summers and strong winds channelled by Cook Strait.

The highest points are Weld Cone (368m) in the north, and Laings Nut (548m) and Ben More (1244m) in the south. The Waima and Flaxbourne Rivers cut through the zone, and the hill country is made up of a complex system of ridges, streams and gullies. The dominant geological features are limestone masses at Weld Cone, Needles Point and Woodside Creek. Several fault-lines cross the zone. Wind-blown loess soils form a surface layer in places. The geological complexity underlies landscape and habitat diversity. The landforms are particularly scenic; sometimes spectacular, sometimes forming gentle smooth terrain, sometimes eroding to form a 'badlands' terrain.

The original vegetation was probably predominantly forest but now consists of regenerating forests, shrublands and silver tussock grassland, all within a pastoral land use. A dryland forest of totara (with matai in the sheltered valleys), kanuka and kowhai, with akiraho and broadleaf on the rocky slopes, may have dominated in the past. Shrublands of prostrate kowhai (inland rocks), *Olearia solandri* (coastal areas), matagouri and *Muehlenbeckia astonii* may have occurred, and tussock grassland is likely to have been largely confined to the uplands. Beech and podocarp-broadleaved forests would have grown in the moister parts of the area; there are some small remnants still remaining. The limestone masses are inherently unstable, and have eroded into cliffs, steep outcrops, precipitous gullies and mobile screes. For that reason, they have developed a suite of plants found nowhere else. They include various daisies and small fleshy herbs. Plants normally found in the mountains, such as big speargrasses and mountain daisies, also occur on the limestone, in places very near the coast.

SURVEY RESULTS

Of the 21 properties where the owners were approached, 18 were surveyed. A total of 55 significant sites were identified. These have a combined area of 1340 ha and make up approximately 4.3% of the total land area of the ecological district. They are classified into 15 basic categories or ecosystem types, (see Table 2). The majority of sites are situated in gullies, reflecting the value of these havens of natural biodiversity in an arid landscape. An appreciable number are rugged and rocky and several are coastal or wetland. Most sites fall into the category of high value for significance, indicating how distinctive and special they are.

TABLE 2 - SITES IDENTIFIED IN THE KEKERENGU ECOLOGICAL DISTRICT

Ecosystem type	Total number of sites	Total area (ha)	% area of Ecological District
Coastal sand dune and flat communities	2	53	
Coastal rock and stonefield communities	1	20	
Coastal wetlands	5	21	
Inland wetlands	2	2	
Riparian communities	2	63	
Rock outcrop, scarp and cliff communities	8	99	
Limestone communities	3	133	
Silver tussock grasslands	2	51	
Dry shrublands ("grey scrub")	11	354	
Manuka low forests	1	2	
Broadleaved forests (coastal gullies)	11	266	
Broadleaved forests (inland gullies/faces)	1	60	
Podocarp-broadleaved forests	1	145	
Kanuka forests	3	66	
Cabbage Tree treelands	2	5	
Total	**55**	**1340**	**4.3%**

ECOSYSTEMS FOUND

The original vegetation cover of the Kekerengu Ecological District has been thoroughly disturbed and modified since human arrival. However, there are several indigenous ecosystems that remain, providing opportunities for protection and enhancement. Most are now mere remnants of their original extent, so every one is valuable. To date, there are virtually no areas of public land protected for conservation purposes (the tiny Chancet Rocks Scientific Reserve is one), but a number of landowners are in the process of protecting natural areas on their land as a direct result of this survey. The main ecosystems found were:

COASTAL SAND DUNE AND FLAT COMMUNITIES

Mainly dominated by marram grass, but small remnants of native sandbinders and other special coastal plants including mat daisies.

COASTAL ROCK AND STONEFIELD COMMUNITIES

Rare, very old ecosystems, threatened by exotic plants.

COASTAL WETLANDS

A few small examples left, some ephemerally wet.

INLAND WETLANDS

A few small examples left, some with spring-fed upwellings.

RIPARIAN COMMUNITIES

Two remaining examples of significant riparian plant communities.

ROCK OUTCROP, SCARP AND CLIFF COMMUNITIES

Widespread and containing Marlborough endemic plants (rock daisies, pink broom and NZ lilac).

LIMESTONE COMMUNITIES

Localised and containing plants distinct to the limestone.

SILVER TUSSOCK GRASSLANDS

Fairly widespread. Recognised as having value to pastoral production (stock shelter, pasture growth) so generally conserved by farm practice.

DRY SHRUBLANDS ("GREY SCRUB")

Widespread in the hill country. Habitat for native shrubs, climbers, small birds, lizards and invertebrates. Recognised as having value to pastoral production (stock shelter, pasture growth) so generally conserved by farm practice.

MANUKA LOW FORESTS

Never very common, now rare.

BROADLEAVED FORESTS (COASTAL GULLIES)

A number of small remnants remain.

BROADLEAVED FORESTS (INLAND GULLIES AND FACES)

Only a few small modified pockets remain.

PODOCARP-BROADLEAVED FORESTS

Functionally extinct in most of the Ecological District although a substantial remnant remains in the southern area.

KANUKA FORESTS

Formerly widespread, now only remnants in gullies south west of Ward.

CABBAGE TREE (TI KOUKA) TREELANDS

Several good examples left, although formerly far more common.

SPECIAL FEATURES

There are many special biological features in the Kekerengu Ecological District. That is because of its complex geology, extreme climate, elongated shape and diversity of topography. Its history of human settlement and land-use, extensive more than intensive and with a sense of stewardship, has ensured that these special features remain. They fall into several categories of flora and fauna.

NATIVE FLORA

- Marlborough endemics (plants found only in Marlborough) are quite common, particularly in steep rocky places. They include Marlborough rock daisy (*Pachystegia insignis*), NZ lilac (*Heliohebe hulkeana* subsp. *hulkeana*), pink broom (*Carmichaelia glabrescens*), the shrub daisies *Olearia coriacea* and *Brachyglottis monroi* and local forms of the alpine daisy *Celmisia monroi*.

- Localised endemics (plants found only in local areas) are also present. They include *Heliohebe hulkeana* subsp. *evestita*, which is more or less confined to the Waima Valley, the coastal groundsel *Senecio hauwai*, and several plants confined to limestone: the gentian *Gentianella* "Ward", Ward daisy (*Brachyscome* "Ward"), the harebell *Wahlenbergia matthewsii*, the small grass *Poa acicularifolia*, the willowherb *Epilobium wilsonii* and the woollyhead *Craspedia* "Marfells".

- Nationally threatened plants found during the survey include shrubby tororaro (*Muehlenbeckia astonii*), *Muehlenbeckia ephedroides*, sand tussock (*Austrofestuca littoralis*), pingao (*Desmoschoenus spiralis*), coastal mat daisy (*Raoulia* aff. *hookeri*), *Convolvulus verecundus*, the mistletoe *Tupeia antarctica*, limestone plume grass *Dichelachne lautumia* and fierce lancewood (*Pseudopanax ferox*).
- Geographical distribution limits and isolated populations have been discovered for several plants, due largely to the strong climatic drought gradient. Tree hebe (*Hebe parviflora*) is confined to the north and the northern coastal limit of Marlborough rock daisy (*Pachystegia insignis*) occurs near Long Point. Black beech, hinau, titoki, rangiora, matai, totara, kahikatea, kanono, climbing rata and narrow-leaved lacebark only occur south west of Ward. The only occurrence of nikau between Rarangi and Rakautara is at Woodside Creek. An isolated population of sand coprosma occurs at Canterbury Gully mouth. Isolated pockets of kawakawa, tree fuchsia, ngaio and mamaku occur in microsites in the extreme dry zone of the Cape Campbell hinterland.
- Plants typical of the alpine or subalpine zone occur in the lowlands, even at the coast. They include the daisy *Celmisia monroi* and the speargrasses *Aciphylla aurea* and *A. glaucescens*.

NATIVE FAUNA

- NZ fur seals haul out and breed in various places along the coast. Numbers were severely reduced by human hunting but are making a dramatic comeback.
- Waterfowl that breed on small wetlands include NZ scaup (black teal).
- Bush birds are not prevalent due to lack of habitats, but the forest remnants contain strong populations of bellbird, fantail and grey warbler. Of note are the local occurrence of NZ robin and NZ falcon (karearea or sparrowhawk).
- Lizards (skinks and geckos) are common, especially in rock screes, mature shrubland and coastal driftwood. These habitats are also good for native invertebrates such as weta, giant earwig, black cockroach, ground beetles, moths and spiders.
- The Cape Campbell area is significant for *Metorana* and *Notoreus* moths and the weta *Hemiandrus* "Cape Campbell".
- Although eight species of native freshwater fish have been recorded in the district, fish are not common because of minimal available habitat. Where there is sufficient flow, such as the Flaxbourne River, a diverse native fish fauna exists. Long fin eel are listed as nationally threatened. Upland bullies are non-migratory and may be genetically isolated in their catchment.