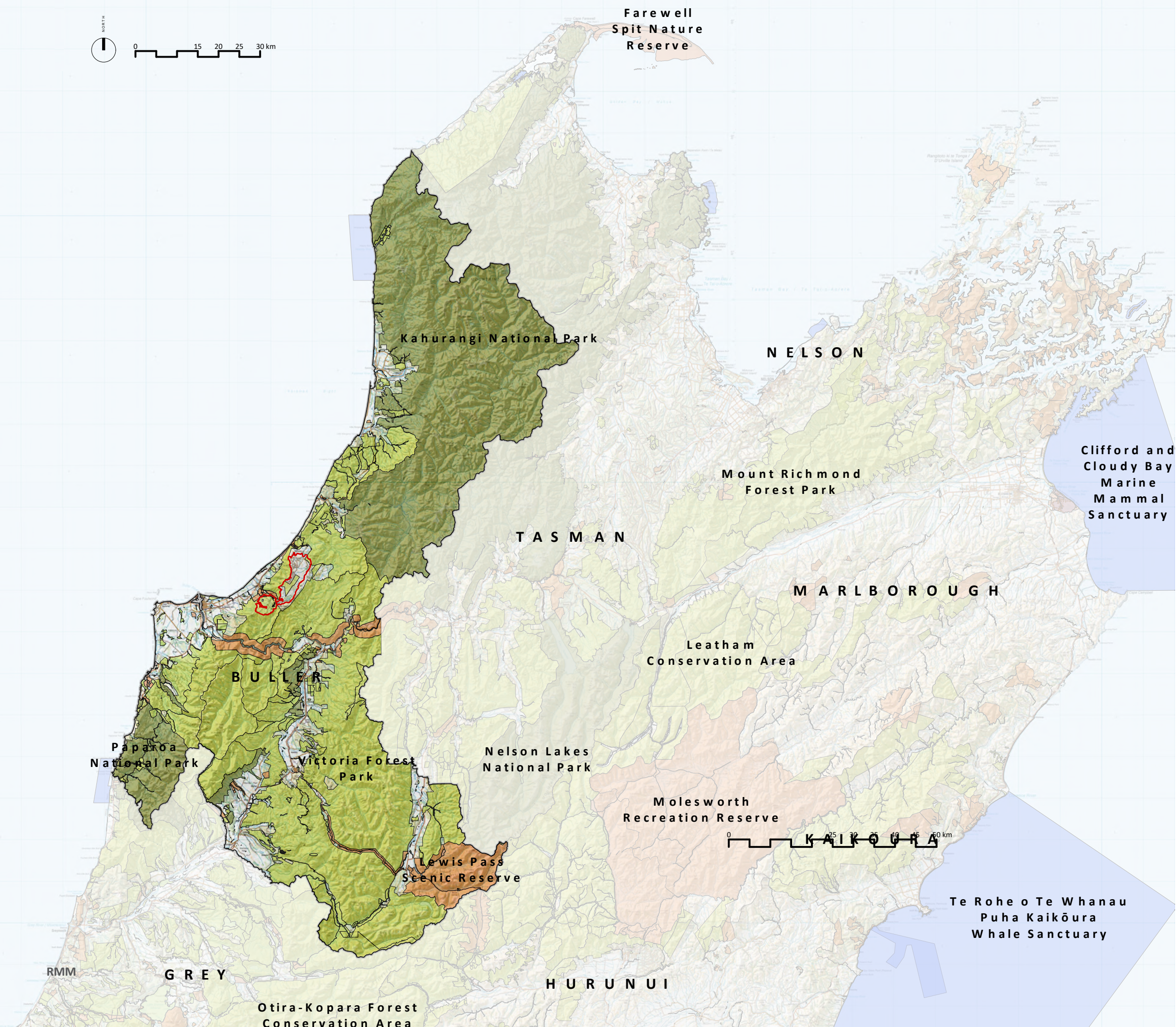


LEGEND

- STOCKTON AND DENNISTON PLATEAUX
- NATIONAL PARKS
- RESERVES
- CONSERVATION AREAS
- MARINE AREA
- MARGINAL STRIP

SOURCE: DEPARTMENT OF CONSERVATION



MAP 3
BULLER DISTRICT
CONSERVATION AREAS

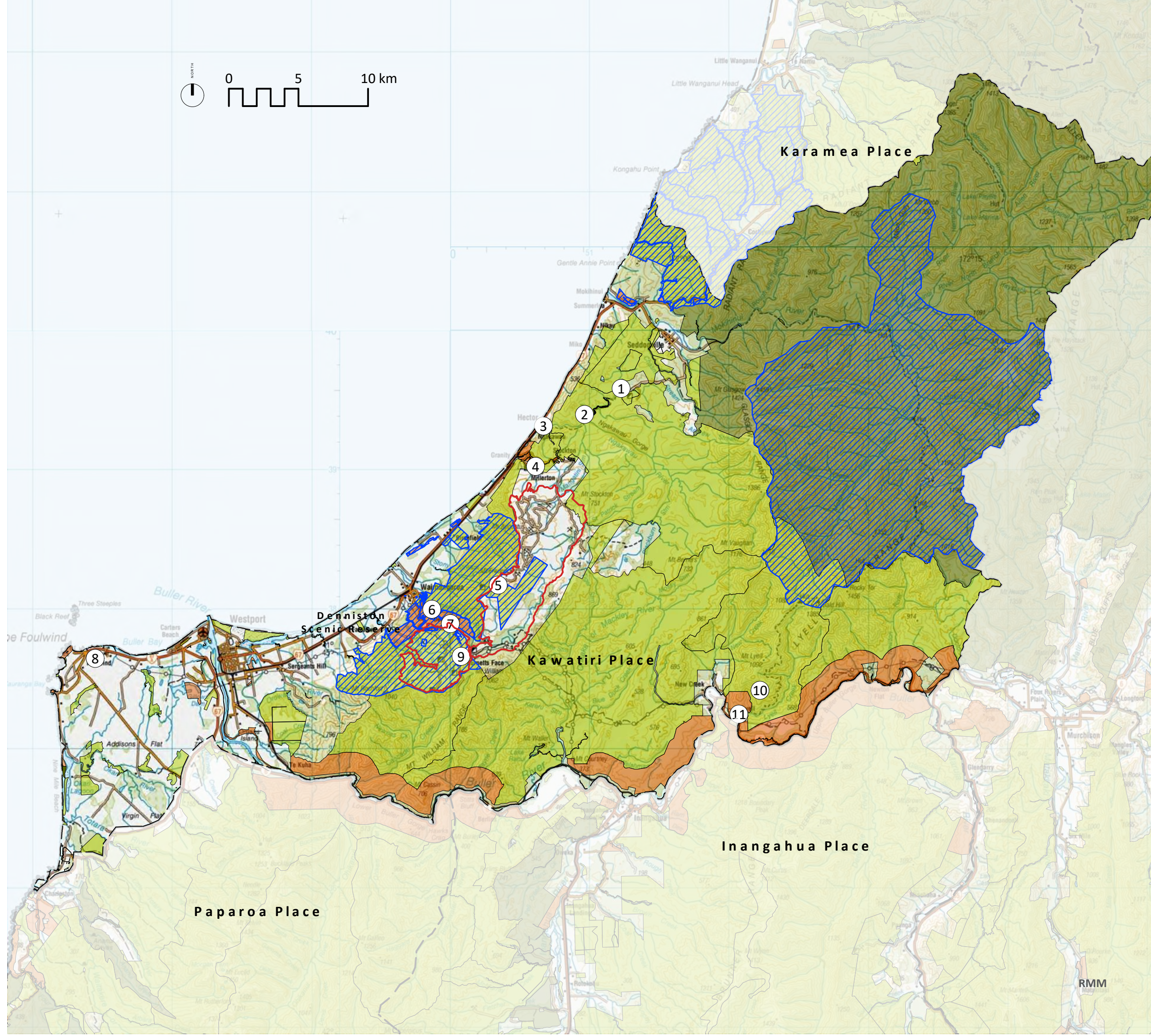
LEGEND

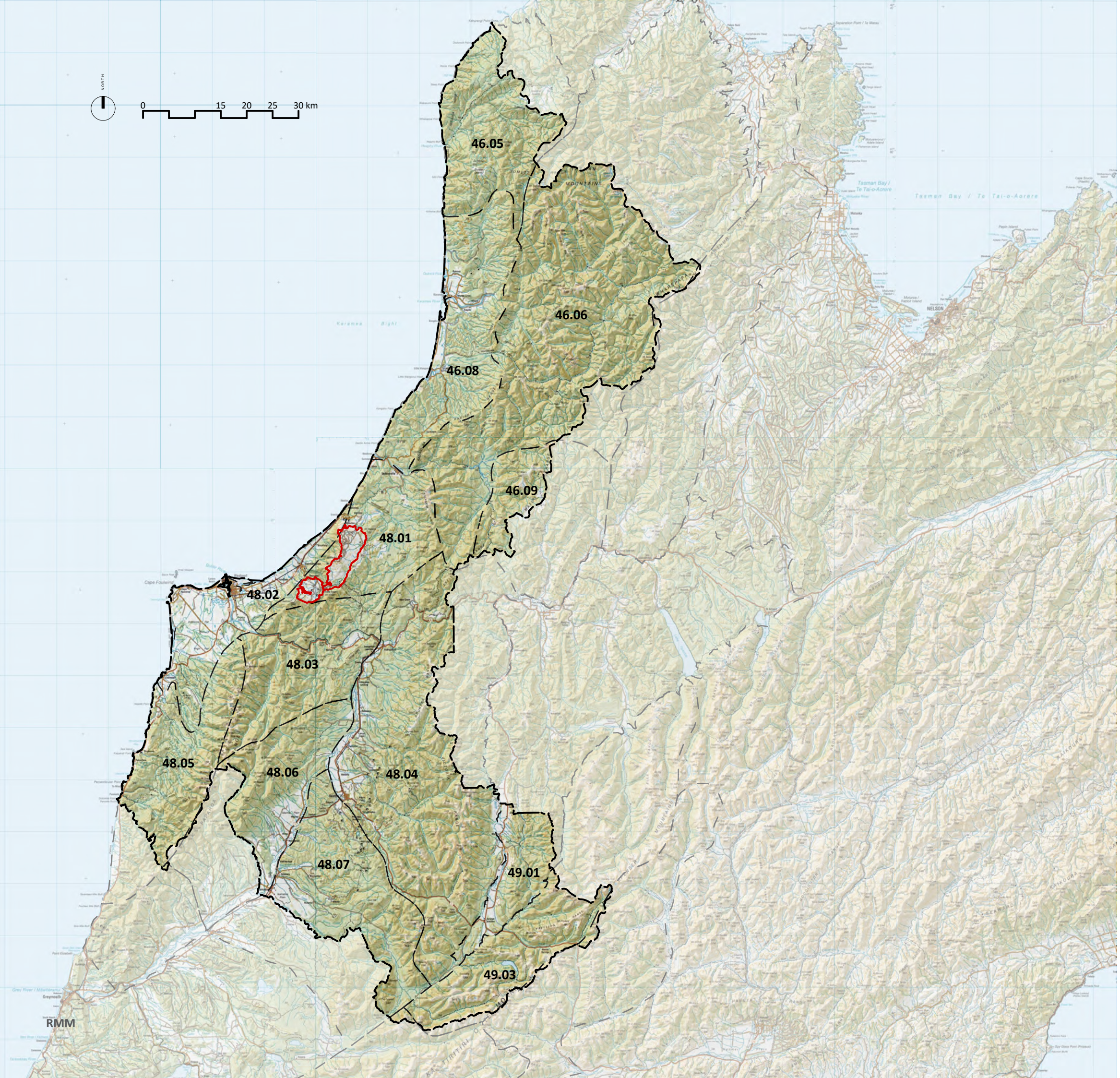
- STOCKTON AND DENNISTON PLATEAUX
- NATIONAL PARKS
- CONSERVATION AREAS
- RESERVES
- PLACE BOUNDARY
- PRIORITY SITES FOR BIODIVERSITY MANAGEMENT (2007)
- 1 ACTIVELY MANAGED HISTORIC SITES (2007)

SOURCE: DEPARTMENT OF CONSERVATION
(WEST COAST CONSERVATION MANAGEMENT STRATEGY 2010-2020)

1. Mumm's Sawmill
2. Watson's Sawmill
3. Charming Creek Tramway
4. Millerton Bath House
5. Britannia Track & Gold Mines
6. Denniston Incline
6. Conns Creek Yards
7. Denniston Brakehead
7. Denniston Bridle Track
7. Denniston Township
7. Banbury Mine, Arch & Roperoad
8. Cape Foulwind Railway & Quarry
9. Burnett's Face & Coalbrookdale
9. Coalbrookdale Roperoad & Mines
10. Lyell Township
10. Lyell Cemeteries
10. Croesus Mine & Battery
11. Lyell Valley Tracks

MAP 4 BULLER DISTRICT CONSERVATION MANAGEMENT STRATEGY - KAWATIRI PLACE





LEGEND

ECOLOGICAL DISTRICTS MAP

CODE	DISTRICT	REGION
48.01	NGAKAWAU	NORTH WESTLAND
48.02	FOULWIND	NORTH WESTLAND
48.03	BULLER	NORTH WESTLAND
48.04	REEFTON	NORTH WESTLAND
48.05	PUNAKAIKI	NORTH WESTLAND
48.06	MAIMAI	NORTH WESTLAND
48.07	TOTARA FLAT	NORTH WESTLAND
48.08	BLACKBALL	NORTH WESTLAND
46.05	HEAPHY	NORTHWEST NELSON
46.06	WANGAPEKA	NORTHWEST NELSON
46.07	ARTHUR	NORTHWEST NELSON
46.08	KARAMEA	NORTHWEST NELSON
46.09	MATIRI	NORTHWEST NELSON
49.01	ROTOROA	SPENSER
49.03	ELLA	SPENSER
49.04	LEWIS	SPENSER
49.05	HOPE	SPENSER

 STOCKTON AND DENNISTON PLATEAUX

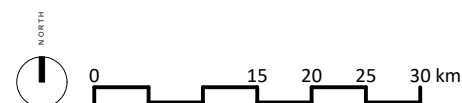
SOURCE: NZ DEPARTMENT OF CONSERVATION

MAP 5
BULLER DISTRICT
ECOLOGICAL
DISTRICTS

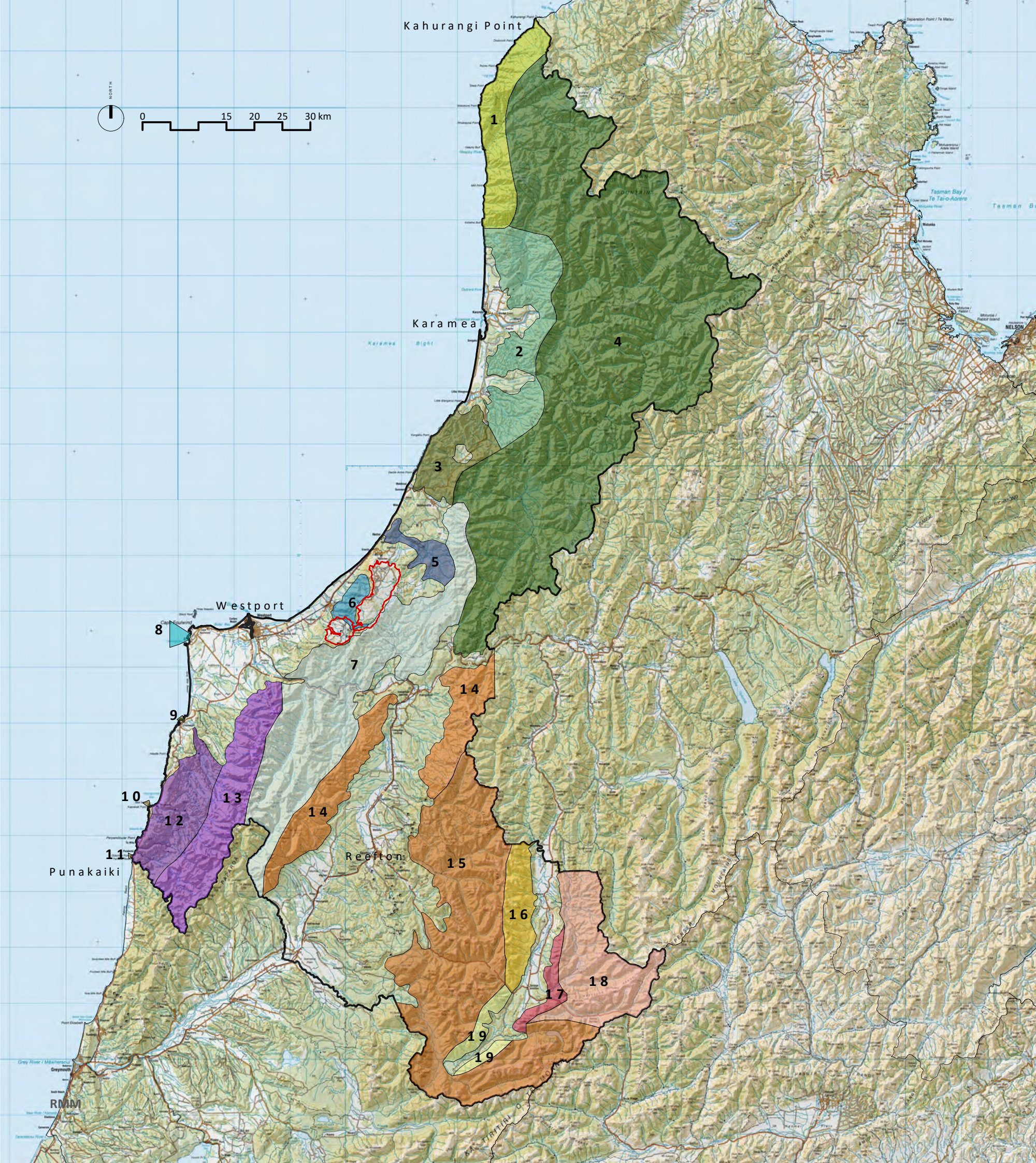
LEGEND

- 1: URBAN ECOSYSTEM
- 2: BARE GROUND
- 3: COSTAL ECOSYSTEM
- 4: ALPINE ECOSYSTEM
- 5: WATER
- 6: AGRICULTURE
- 7: TUSSOCK GRASSLAND
- 8: WETLAND
- 9: OTHER
- 10: SHRUBLAND
- 11: ALPINE SHRUBLAND
- 12: EXOTIC FOREST
- 13: PODOCARP-BROADLEAVED FOREST
- 14: BEECH FOREST
- 15: MIXED BEECH/PODOCRP-BROADLEAVED FOREST
- 16: UNSPECIFIED INDIGENNOUS FOREST
- STOCKTON AND DENNISTON PLATEAUX

SOURCE: NZ LAND RESOURCE INFORMATION SYSTEMS - MAY 2018



MAP 6
BULLER DISTRICT
LANDCOVER



LEGEND

- | | |
|--|---|
| STOCKTON AND DENNISTON PLATEAUX | 11 DOLOMITE POINT PANCAKE ROCKS (PUNAKAIKI) |
| 1 NORTH WEST KAHURANGI NATIONAL PARK COASTAL | 12 PAPAROA SEAWARD RANGE |
| 2 KARAMEA RANGES | 13 PAPAROA INLAND |
| 3 KARAMEA BLUFF ECO AREA | 14 PAPAROA AND BRUNNER INLAND RANGES - INANGAHUA VALLEY |
| 4 KAHURANGI NATIONAL PARK | 15 VICTORIA RANGE WEST INANGAHUA VALLEY |
| 5 NGAKAWAU RIVER VALLEY | 16 VICTORIA RANGE FOOTHILLS MARUIA VALLEY |
| 6 DENNISTON WAIMANGAROA | 17 MARUIA RIVER VALLEY EAST |
| 7 PAPAROA MCWILLIAM INLAND RANGES | 18 FREYBERG RANGE LEWIS PASS |
| 8 TAURANGA BAY HEADLAND AND ISLANDS | 19 UPPER GREY RIVER VALLEY |
| 9 DOCTORS BAY | |
| 10 SEAL ISLAND | |

SOURCE: S BROWN ANNEXURE 62

MAP 7
BULLER DISTRICT
OUTSTANDING NATURAL
LANDSCAPES



BULLER PLATEAUX LANDSCAPE DESCRIPTION



Buller Plateaux Landscape Description

The process of landscape assessment initially requires the identification of the landscape unit of analysis, being that area of landscape that is the subject of description, characterisation, and evaluation. The landscape unit of analysis is commonly analysed in terms of landscape character types and then landscape character areas or units (LCUs).

This assessment focuses on the Buller Plateaux as examples of a landscape character type. A plateau, is an extensive area of flat upland usually bounded by an escarpment (i.e., steep slope) on all sides but sometimes enclosed by mountains. The essential criteria for plateaux are low relative relief and some altitude.

There are three plateaux in the general North Westland area. These are Denniston Plateau - 14 km east of Westport, Stockton Plateau - 21 km to the northeast of Westport and Thousand Acre Plateau - approximately 55 km northeast of Westport (*refer Map 1, page 12*). Of these, the New Zealand Geopreservation Inventory identifies only the Thousand Acre Plateau as one of the best examples in New Zealand of an uplifted plateau.

For the purposes of this baseline study, only the Stockton Plateau landscape is described in terms of LCUs, where general characteristics are derived from broad areas of relief (based on their geological and tectonic history), and a combination of topography/geomorphology, vegetation cover, and confined visual catchment.

The unit approach is a pragmatic response to the scale and complexity of an extensive area of land and at a scale that captures differences in the broader plateaux landscapes, particularly the extent of modification that has occurred through current and historic mining. In this study each LCU is outlined on a NZ Topo map (1:50,000) and illustrated with photos.

The Denniston Plateau is less complex in its topography, although some distinction is made between up-warped and down-warped areas and the central flatter areas of the plateau. However, they are not sufficiently different to warrant dividing into separate LCUs. The risks associated with applying the LCU approach to the Stockton and not the Denniston Plateau is that results/evaluations will vary or may be emphasised depending on the scale at which the divisions are made.

A series of maps also assist in comprehending the plateaux and provide layers of information to inform an understanding of the plateaux landscapes. The maps refer to geological, geomorphological, land type

units (river environment, elevation, slope/aspect, soils, vegetation), land use, archaeological, historical heritage, geopreservation sites, conservation land, and recreational use, within the Denniston and Stockton plateaux.

Landform/Physical Environment

The plateaux were all formed by similar processes. According to Dr Mark Mabin¹¹ the surface of the three North Westland plateaux were formed in relatively young sedimentary rocks (sandstone and coal measures at Denniston and Stockton and limestone at Thousand Acre) that rest on the underlying, much older and harder igneous or metamorphic rocks. The sedimentary rocks form a thin cover over the ancient Te Waipounamu Erosion Surface that was formed widely across a proto-New Zealand landscape, 80 to 30 million years ago (*refer Maps 8 – 14, pages 27-33*).

The north-western plateaux are the exhumed remnants of the ancient Te Waipounamu Erosion Surface that progressively sank below the sea surface and covered by many hundreds of metres of marine sediments. These sediments were subsequently compressed to form sandstone, limestone, and other sedimentary rocks. About 5 million years ago uplift occurred to form the mountainous landscape of New Zealand but in a few places the uplift was uniform and gentle, so elements of the landscape arose in a regular fashion creating the North Westland plateaux visible today.

The Buller Plateaux are identified as elevated coal measure plateaux in the West Coast CMS¹² and are described as part of the coastal hills just north of the Buller River, classified as piedmont plateaux bordered by mountains on one side and the coastal plain and sea on the other. The topography is described as west trending coastal hill and low mountains up to 1400 masl in the northwest with some deep gorges formed by the Ngakawau and Waimangaroa Rivers.

The geology is described as large areas of Eocene quartz sandstone, grit and conglomerate, with coal seams forming dissected plateaux near Denniston and Stockton with highly distinctive vegetation, some siltstone of the same age (Kiaata formation) and smaller areas of Precambrian Gneiss, Tuhua Granite (e.g., Mt Augustus) and Greenland Group greywacke and argillite. The climate is mild near the coast, bleak and wet on the plateaux with a high rainfall between 2,800 – 6,000 mm per annum.



Photograph 16 : Buller Plateaux - Looking north from Mt Rochfort over Denniston Plateau to Stockton Plateau

¹¹ Mabin, M. C. (2012). Statement of Evidence - Denniston Plateau Geomorphology.

¹² Department of Conservation. (2020). West Coast Conservation Management Strategy. Volume 1, page 23

The Buller Plateaux contain by far the largest occurrence of Brunner coal measures in New Zealand and have the greatest diversity of vegetation types on coal measures. Both the Stockton and Denniston plateaux lie within the Ngakawau Ecological District (ED). The Ngakawau ED is the only ecological district in New Zealand defined by the presence of extensive elevated coal measure rocks and associated landforms, vegetation and flora, including endemic species (McEwen 1987, Overmars et al. 1998)¹³.

The coal plateaux vegetation has been described as a mosaic of tussockland, including endemic rush (*Chionochloa juncea*), scrub where disturbed, manuka (*Leptospermum*) mountain flax (*Phormium cookianum*), *Gleichennia circinata*, *Epacris pauciflora*; elsewhere dense scrub dominated by bog pine, some manuka, *Dracophyllum spp* (inaka), *Epacris*, etc., and distinctive low forest with the main species comprising mountain beech, mountain toatoa, *Dracophyllum spp*, *Libocedrus bidwilli* (New Zealand cedar/kaikawaka), yellow-silver pine, and mountain cabbage tree (*Cordyline indivisa*).

Rare endemic species include *Celmisia morganii* confined to Ngakawau Gorge, *Chionochloa juncea* endemic to Stockton and Denniston plateaux, *Sticherus flabellatus* occurs as a disjunct distribution and locally rare *Olearia cheesmanii* and *Metrosideros parkinsonii* are present.

While some of the animal and plant communities of the plateaux are found elsewhere, some *Powelliphanta* spp. snail populations and the communities containing the endemic coal measure tussock (*Chionochloa juncea*) are confined to these plateaux and are internationally unique¹⁴. The combination of plant communities and associated landscapes present on these plateaux occurs nowhere else in New Zealand.

More recently, the extent, distribution and quality of ecosystem and vegetation/habitat types on the coal plateaux was investigated in 2010¹⁵ using aerial photographs, and field mapping over most of the study area. The report was commissioned by DOC and focused particularly on vegetation/habitat types that include species that are in decline and at risk from extinction. The report acknowledged that some areas were not traversed on foot and may lead to mapping uncertainties. Forest types were mapped coarsely, and generally based on their canopy composition. The mapping of the 20 major vegetation/habitat types and the extent of their distribution within the study area was calculated and is summarised below in Table 1.

Number	Unit Name	Area (ha)
1	Rimu-hard beech forest	627.8
2	Rimu/mountain beech-southern rata forest	1,077.9
3	Southern rata-mountain beech forest	1,126.5
4	Mountain beech pahautea forest	5.0
5	Mixed beech forest	962.9
6	High elevation beech forest	272.8
7	Southern rata-broadleaved low forest	36.4
8	Silver beech-mountain beech forest	215.2
9	Manuka forest	197.2
10	Leatherwood scrub	36.5
11	Manuka shrubland	954.8
12	Boulderfield shrubland	10.3
13	[Manuka]/wire rush-pakahi rush-tangle fern rushland	683.1
14	<i>Chionochloa flavescens</i> grassland	5.5
15	<i>Chionochloa juncea</i> grassland	2,803.4
16	Red tussock fen	38.1
17	Wetland-shallow tarn complexes	1.9
18	Herb fen	1.1
19	Vegetation with a significant exotic component	44.2
20	Vegetation cleared by mining, roading, pond construction etc	1,062.7
21	Millerton Village	44.1
22	Non-vegetated riverbed	1.5

Table 1: Vegetation and habitat units and their respective areas (ha) on the Stockton and Denniston Plateaux

¹³Department of Conservation. (1987). Ecological Regions and Districts of New Zealand, Third Revised Edition, Publication No. 5. Department of Conservation, Wellington.

¹⁴Nichol, R., & Overmars, F. (2008). Vegetation and flora baseline survey, L&M Coal Ltd Escarpment Mine Project, Denniston Plateau. Resource and Environmental Management Limited.

¹⁵ Wildlands Consultants Ltd. (2010) Mapping of Vegetation and Habitats on the Stockton and Denniston Plateaux. Contract Report 2334. Department of Conservation.



Photograph 17 : Boulderfields

Photograph 18 : Seepage wetland

Photograph 19 : Sandstone erosion pavement

Photograph 20 : Tarn example

Photograph 21 : Sandstone erosion pavement