Schedule II. Sustainable Land Use

1 INTRODUCTION

1.1 One of the more challenging areas arising from the implementation of the RMA is the development and application of methods to monitor and encourage the sustainability of land use. The HBRC has adopted a "minimum regulation" approach to land use. Such an approach relies upon the provision of information to land users to assist them in making land use decisions which lead toward sustainably managing the land resource.

1.2 As part of its land use management function the HBRC has undertaken a programme which looks at existing land use cover, identifies sustainable land uses, and then compares the two sets of information to see where they do not match. The areas of mis-match represent areas of the region where land is being used outside its level of sustainability. This Schedule presents this information in the following form:

- A map of existing land uses (i.e. the Land Cover Map in Schedule 2 Maps).
- A map of sustainable land uses (derived from a Sustainable Land Use Index).
- A map identifying areas of mismatch between existing land uses and sustainable land uses.

1.3 After this Introduction, this Schedule describes the purpose of the maps, and then sets out the methodology used to derive each of the maps.

2 PURPOSE

2.1 There are two key purposes for the type of information presented in the maps in this Schedule:

(a) to track changes in sustainable land use that occur over time within the region, and
(b) to provide Council with guidance as to the areas that could be targeted for its land management programmes. If a person is using an area of land outside its suite of sustainable land uses, HBRC staff will provide them with advice (and possible assistance) on ways to change land use practices so that they fit with the physical limitations of the land.

2.2 The HBRC has a number of programmes covering farm plans, one-on-one advice, education programmes and financial grants/incentives that can assist appropriate activities to take place.

2.3 In using the information contained within this Schedule it is important to note the following:

(a) That it is <u>not</u> the intention of the HBRC to use this as the basis for regulating what types of use a piece of land should be put to (rather it is targeted at the implementation of non-regulatory methods, as described in section 3.2 of this Plan).
(b) That the information is presented at a region-wide scale, not a scale suitable for farm-by-farm interpretation. A farm-based comparison of existing land uses with sustainable land use could only be achieved by inspecting the farm.

3 LAND COVER

3.1 The HBRC contracted Terralink to prepare a Land Cover Database of Hawke's Bay using SPOT satellite imagery. Eleven SPOT multi spectral scenes were required to cover the region and ranged in acquisition date from 1995 to 1997. There was a ground accuracy of ± 25 m (with a 90% confidence limit).

3.2 The minimum mapping unit for the classification was 1 hectare. The land cover legend, set out below, resulted from discussions between Terralink and the HBRC to ensure that the classification was relevant to Hawke's Bay.

LEGEND : LAND COVER MAP USING SPOT IMAGES	
Primarily Horticulture	Dune Vegetation
Primarily Pastoral	Coastal Wetlands
Forestry planted >5 years	Inland Water
Forestry planted 2-5 years	Inland Wetlands
Clearfelled Forests	Bareground
Indigenous Forests	Recreational
Shrubland	Mine
Predominantly Tussock	Urban
Riparian Trees	Unclassified
Conservation Planting	Shelter Belt

4 SUSTAINABLE LAND USE INDEX

4.1 The sustainable land use index was derived by experienced land management staff of the HBRC interpreting the physical capability of the land and identifying a range of uses that each area of land was physically capable of being sustainably used for. The information is presented as a series of maps and forms a part of this Schedule.

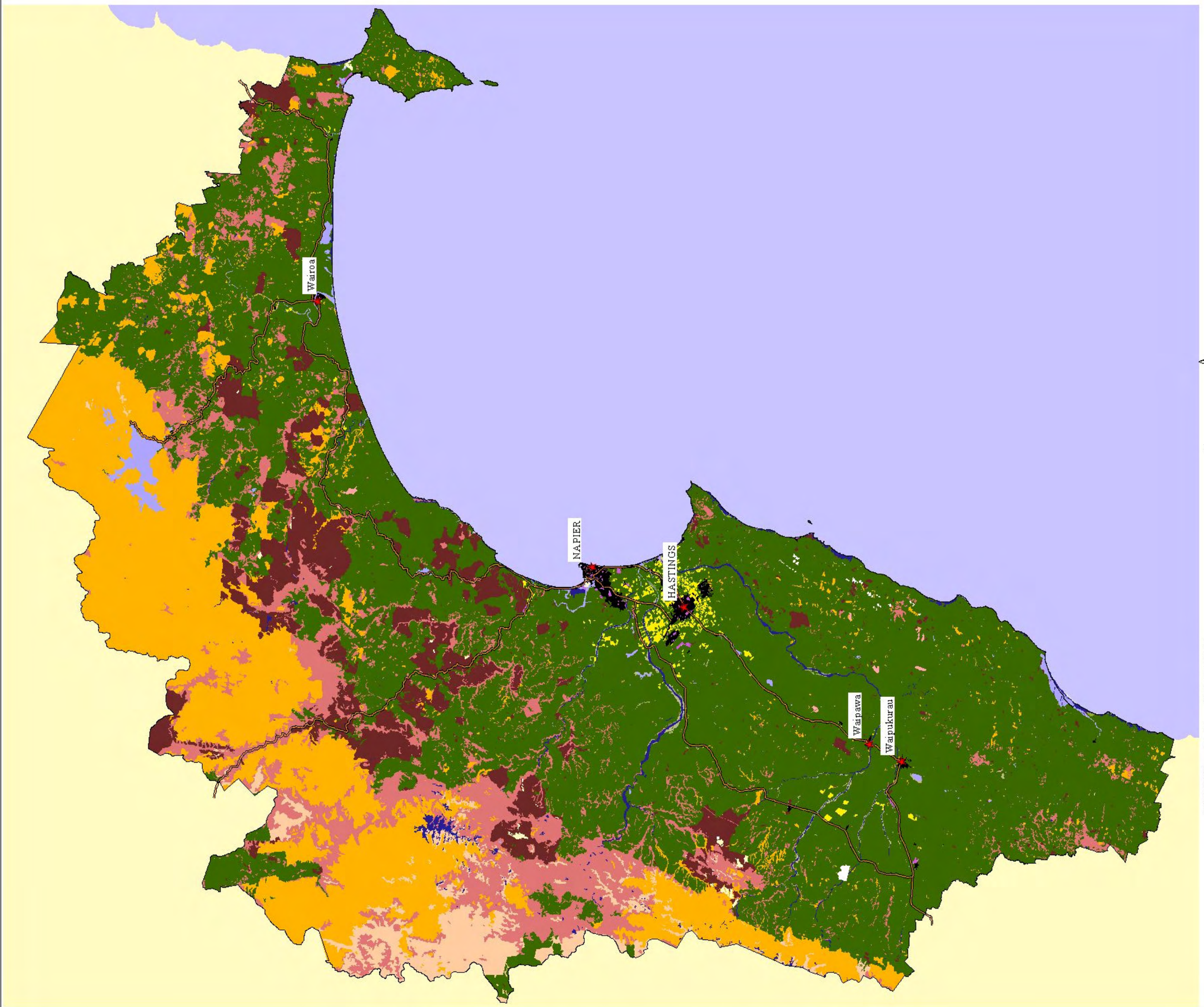
4.2 The interpretation was based on Land Resource Inventory Sheets, a national land resource survey carried out in the 1970's and 80's which classified land according to its physical capabilities and limitations. A total of 117 different types of land (i.e. "Land Use Capability" units) were identified within the Hawke's Bay region. These were grouped together into areas of land with similar physical limitations, which have the same potential uses and which require the same soil conservation measures. A range of seven physically sustainable land uses groups was derived and are described in the table below:

RANGE OF PHYSICALLY SUSTAINABLE LAND USES						
HORTICULTURE	Cropping	Dairying	Pasture	Pasture & Trees	Forestry	Protection
	CROPPING	Dairying	Pasture	Pasture & Trees	Forestry	Protection
		DAIRYING	Pasture	Pasture & Trees	Forestry	Protection
			PASTURE	Pasture & Trees	Forestry	Protection
				PASTORAL FARMING WITH TREES	Forestry	Protection
					FORESTRY	Protection
						PROTECTION

4.3 The index is based on seven broad land uses which are representative of those relevant to Hawke's Bay. These are arranged in order of increasing versatility so that land assessed as having its highest level of sustainable use as protection planting had no other options, whereas horticultural land could also be used for cropping, dairying, pastoral farming, pastoral farming with trees or forestry uses. Each of the 117 land use capability units was assigned to one of the seven sustainable land uses by the HBRC's Land Management team. Their assessment was based on the collective experience of the team members and followed discussion as to past experiences of different uses on that land use capability unit.

5 IDENTIFICATION OF AREAS OF 'UNSUSTAINABLE' LAND USE

5.1 Using a GIS overlay analysis of the two sets of maps, areas where the current land use (interpreted from the land cover) is not within the sustainable land use level were identified and plotted. Each map was prepared at a scale of 1:300,000, which enabled a consistent regional presentation but did not encourage enlargement to farm scale.



LEGEND

- Placenames
- Railway
- Main Highways
- Primarily Horticulture
- Primarily Pastoral
- Planted Forests
- Planted Forests
- Clearfelled Forests
- Indigenous Forests
- Shrubland
- Predominately Tussock
- Riparian Trees
- Conservation Planting
- Dune Vegetation
- Coastal Wetlands
- Inland Water
- Inland Wetlands
- Bare Ground
- Recreational
- Mine
- Urban
- Unclassified

RELIABILITY: Land cover information is derived from mapping at 1:50,000 scale and should not be relied upon for measurements at scales larger than this.

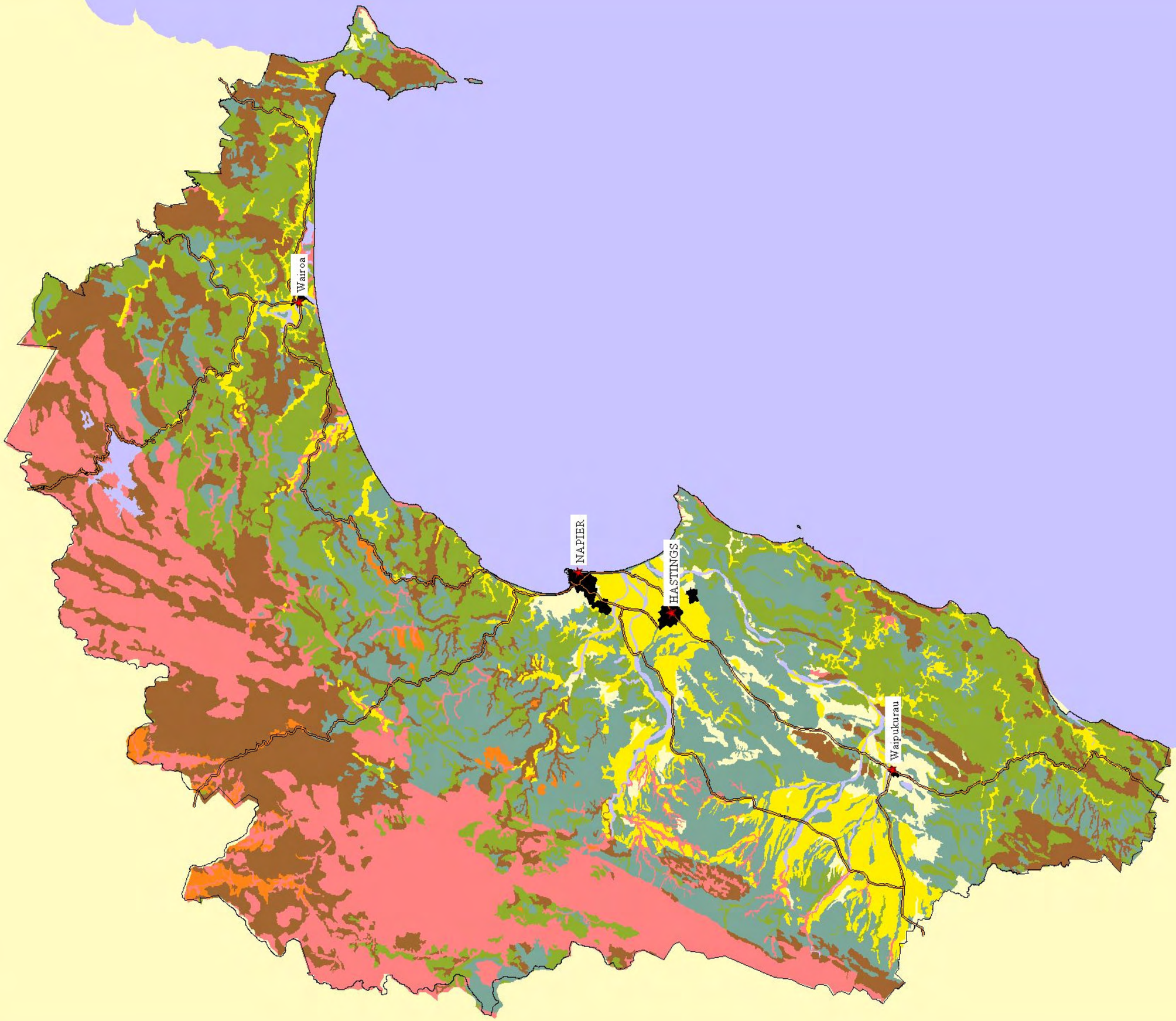
DATA FROM: Land cover information obtained from Terralink New Zealand Ltd,

Cadastral Information and Digital Terrain Information obtained from Land Information New Zealand.

HAWKE'S BAY REGIONAL COUNCIL

RESOURCE MANAGEMENT PLAN

Schedule II
Land Cover 1995-1996



LEGEND

- Placenames
- Railway
- Main Highways
- Regional Roads

- Cropping
- Dairying
- Forestry
- Horticulture
- Pastoral Farming
- Pastoral Farming with Trees
- Protection
- Lakes and Rivers
- Urban

N

Kilometers
20 10 0 10

RELIABILITY: Sustainable land use information is derived from mapping at 1:63,360 scale and should not be relied upon for measurements at scales larger than this.

DATA FROM: Land Resource Inventory obtained from Landcare Research New Zealand Ltd, New Zealand Land Resource Inventory Computer Archive. Landcare Research New Zealand Ltd, Private Bag 11052, Palmerston North.

Cadastral Information and Digital Terrain Information obtained from Land Information New Zealand.

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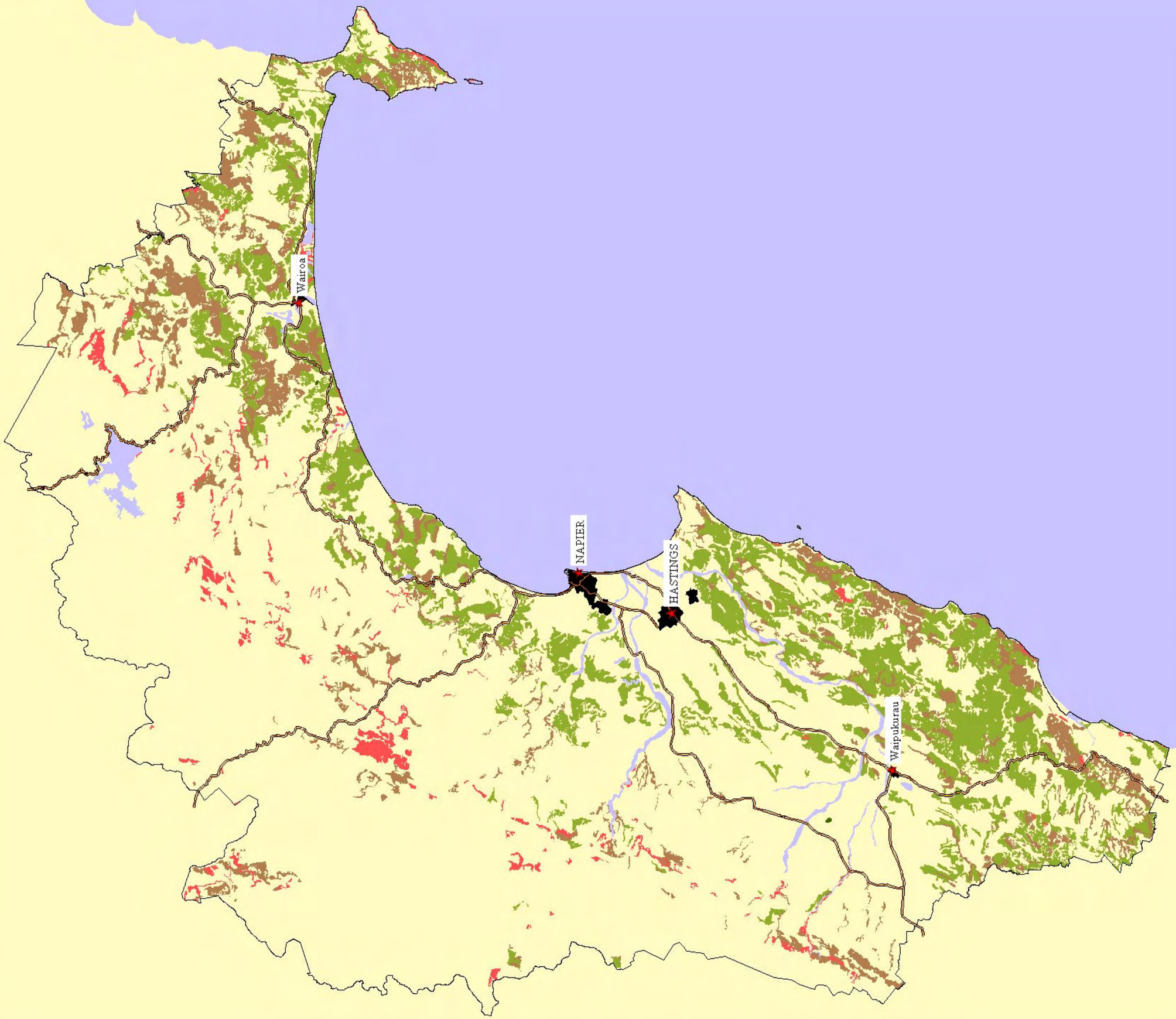
REGIONAL COUNCIL

RESOURCE MANAGEMENT PLAN

Schedule II
Sustainable Land Use Capability



LEGEND

- Placenames
- Railway
- Main Highways
- Regional Roads
- Forestry
- Pastoral Farming
- Pastoral Farming with Trees
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RESOURCE MANAGEMENT PLAN

Schedule II
Extent of Areas of Unsustainable Land Use