

Use of LENZ and LCDB2 in Determining the Representative Value of Stands of Indigenous Vegetation

Kelvin Lloyd (Wildland Consultants)

Ellen Cieraad (Landcare Research)



Landcare Research
Manaaki Whenua

Vegetation significance

Assessments of significance use a range of criteria (representativeness, rarity, ecological context, distinctiveness, diversity, naturalness etc)

These criteria are debated, but **Representativeness** is usually considered one of the most important

Representativeness

Reserves Act 1977:

“Ensuring, as far as possible... the preservation of representative samples of all classes of natural ecosystems and landscape which in the aggregate originally gave New Zealand its own recognisable character.”

Representativeness

Definitions in district plans are surprisingly diverse but fall into two categories:

Those that give significance to the best examples of typical vegetation types remaining within a district

Those that assign significance to vegetation types whose extent has been reduced below an arbitrary threshold.

“The area is one of the best examples of an association of species which is typical of the ecological district”

(Buller, Tasman, and Westland District Plans)

“The area contains one of the best examples of a vegetation type, habitat, or ecological process which is typical of its ecological district”

(Hurunui, Queenstown Lakes, and Timaru District Plans)

Representativeness

Definitions in district plans are surprisingly diverse but fall into two categories:

Those that give significance to the best examples of typical vegetation types remaining within a district

Those that assign significance to vegetation types whose extent has been reduced below an arbitrary threshold.

“A measure of the current extent of a vegetation type/ecosystem compared to its extent at some fixed point in history”

(Grey District Plan)

“An assessment of vegetation of present versus past extent, diversity, pattern, naturalness and size”

(Opotiki District Plan)

Concise Oxford Dictionary

Representative: typical of a class or classes

Typical: serving as a type or characteristic example

Representativeness assesses whether a stand of vegetation is a good example of its type, usually taking pre-European vegetation as best possible example of its type

Assessing representativeness

Information required:

- Area of interest (usually an ecological district)
- Vegetation types that were typical of the district at the defined baseline
- The composition of the current and 'original' vegetation of the relevant type

Different questions

How much of a vegetation class remains?

How much is legally protected?

The answers to these questions determine whether the vegetation is **under-represented** or **under-protected**

These concepts differ from **representativeness** and require different assessments

A three step process

1. Is the vegetation representative?
2. Is the vegetation under-represented?
3. Is the vegetation under-protected?

LENZ and LCDB2 are attractive because of their nationally-consistent coverage, and are being increasingly used in assessments of vegetation significance

But are they appropriate tools?

Some examples...

Blueskin Farm
– topo map



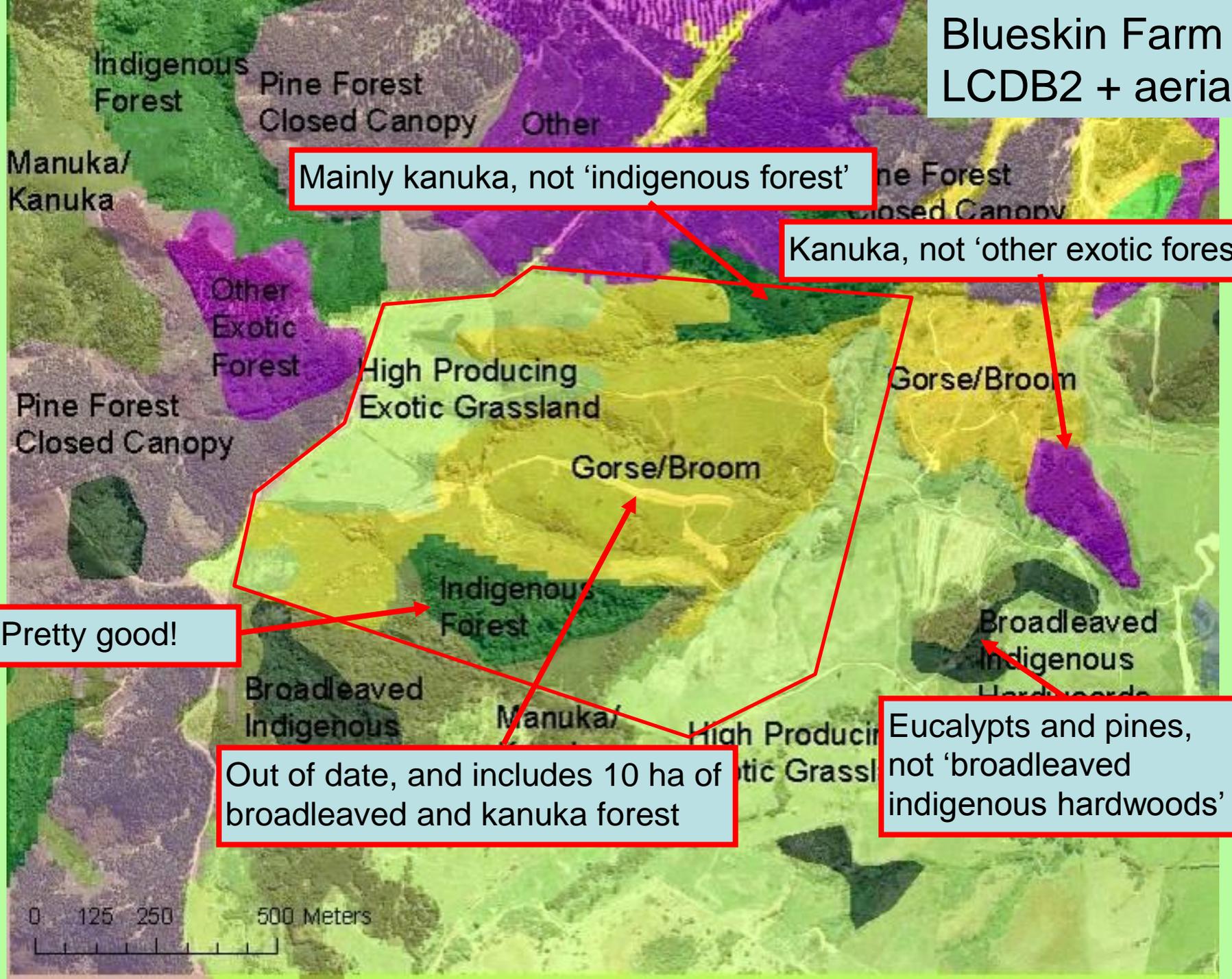
Blueskin Farm
- Aerial photo



0 125 250 500 Meters

A horizontal scale bar with four major segments, each labeled with a number: 0, 125, 250, and 500. The unit 'Meters' is written at the end of the bar.

Blueskin Farm – LCDB2 + aerial



Mainly kanuka, not 'indigenous forest'

Kanuka, not 'other exotic forest'

Pretty good!

Out of date, and includes 10 ha of broadleaved and kanuka forest

Eucalypts and pines, not 'broadleaved indigenous hardwoods'

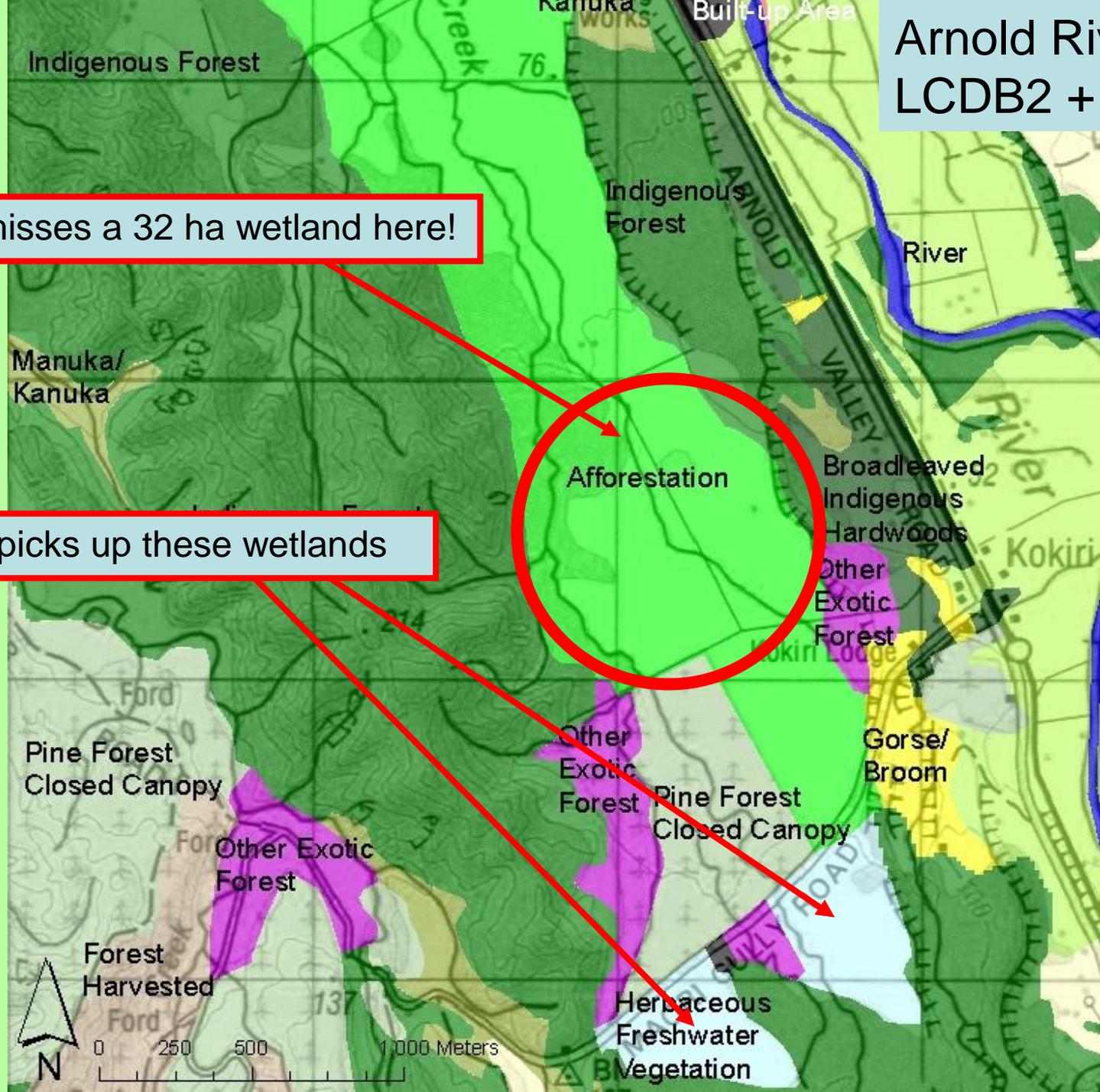
Arnold River (Grey Valley)

- Hydro-electric power scheme currently going through resource consent process
- Proposed canal would destroy >10 ha of a 32 ha wetland not identified by LCDB2

Arnold River – LCDB2 + topo

But misses a 32 ha wetland here!

LCDB2 picks up these wetlands



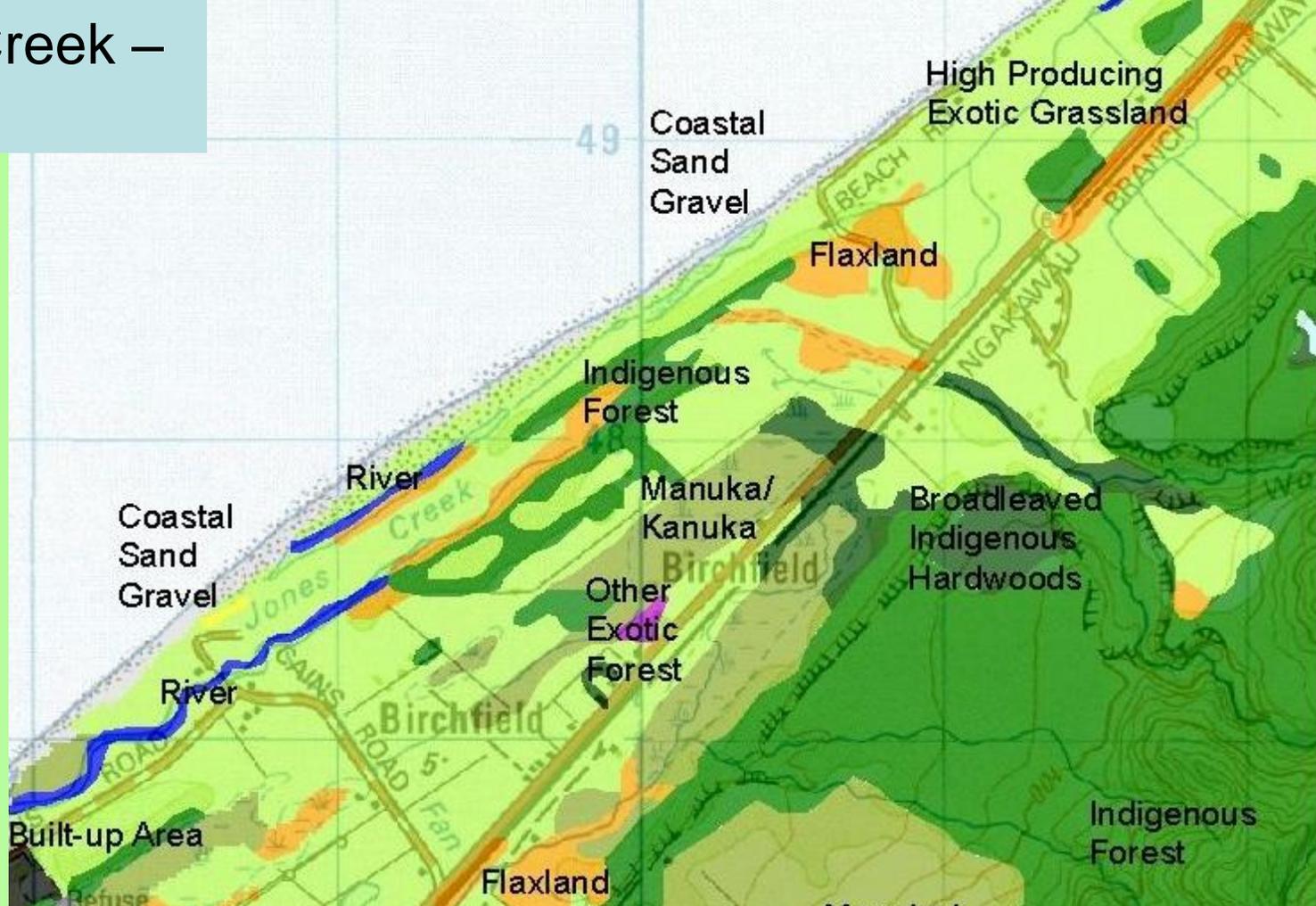
Jones Creek (near Westport)

- Indigenous coastal forest not representative according to analysis using LCDB2+LENZ
- Council consented coastal subdivision with multiple accessways through forest
- Currently being appealed in Environment Court

Jones Creek –
oblique aerial



Jones Creek – LCDB2



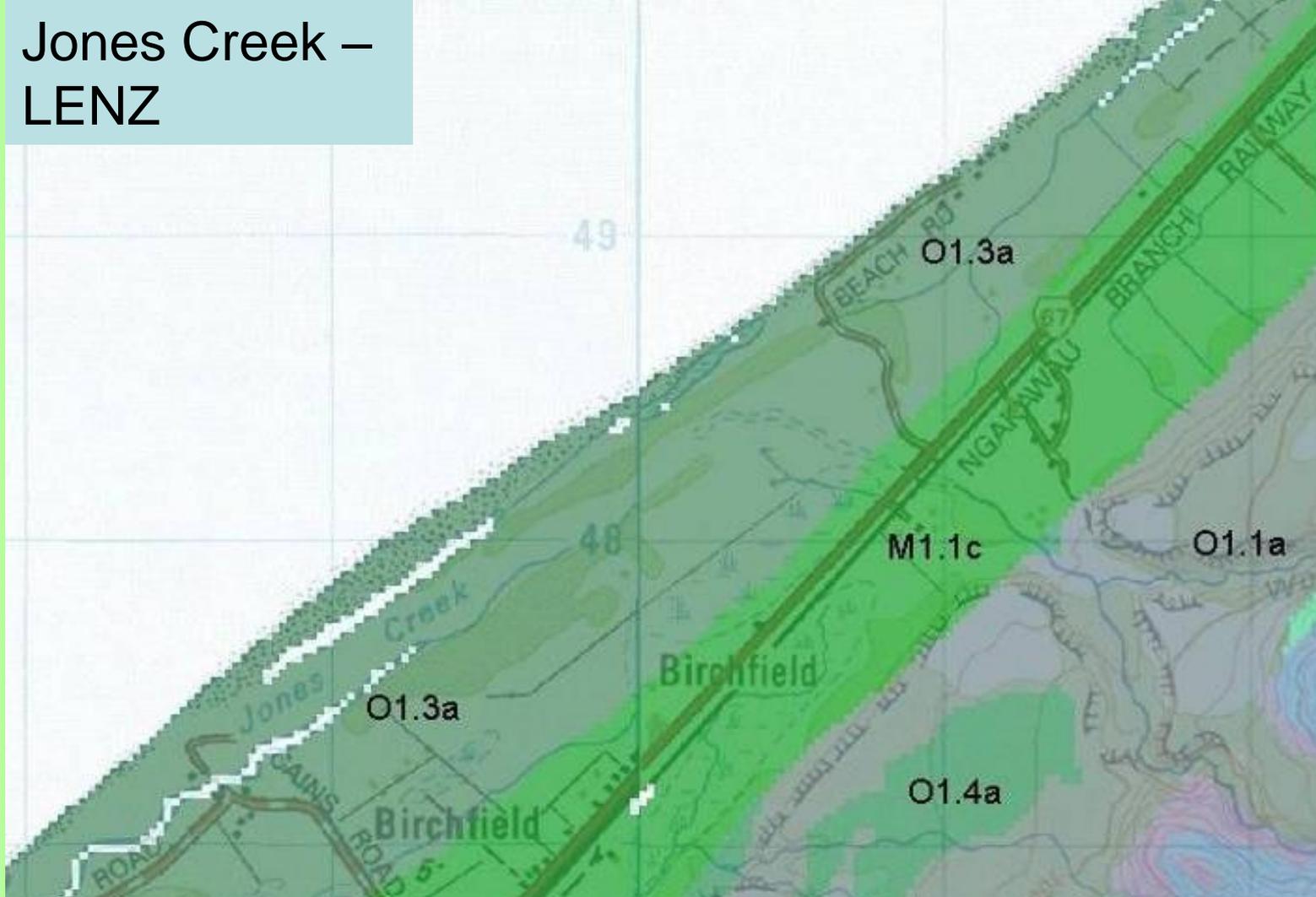
LCDB2 class “Indigenous forest” includes dune forest, kahikatea swamp forest, and hard beech-kamahi forest, ...



Jones Creek –
oblique aerial



Jones Creek – LENZ



LENZ unit O1.3a includes dune forest, swamp forest, flax wetlands, pasture, and beach vegetation



LENZ and representativeness

- No vegetation information
- Many different vegetation types can occur in one LENZ environment
- Uses macro- and meso-scale drivers, lacks resolution at local scale

LENZ can't be used to determine representativeness of vegetation, but can give it useful context

“It is considered that LENZ currently provides the best method for determining the likely historical extent and distribution of vegetation types”

(evidence at resource consent hearing for Arnold River hydro scheme)

Statements such as these cannot be valid because land environments are not surrogates for vegetation types

LCDB2 and representativeness

- Limited vegetation information,
NO information on vegetation quality
- Low resolution – the cover classes are the dominant cover within a 1 ha pixel
- Riddled with mis-classifications
- Out of date by 5 years (10 for grasslands)

LCDB2 and representativeness

On account of these deficiencies, LCDB2 cannot be used to assess representativeness

LCDB2 can be used to assess the extent of indigenous land cover within an area, but its limitations also make this use problematic

LCDB2 and representativeness

Adding areas of several LDCB2 indigenous cover classes within district, and labelling this 'representative' is mistaken

At its worst, this kind of analysis is used to justify the clearance of high quality vegetation (e.g. alluvial forest) because a relatively large amount of lower quality indigenous vegetation (e.g. manuka scrub) is present

Conclusion

LCDB2 and LENZ cannot validly be used to determine representativeness because they contain virtually no information on vegetation type and quality

Currently there is no substitute for good knowledge of local vegetation patterns and adequate field survey when assessing representativeness