SIGNIFICANT NATURAL AREAS OF THE WEST COAST REGION 2021: LAND OUTSIDE OF THE MAJORITY OF THE DEPARTMENT OF CONSERVATION ESTATE – STAGE 1: VOLUME 1

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SIGNIFICANT NATURAL AREAS OF THE WEST COAST REGION 2021: LAND OUTSIDE OF THE MAJORITY OF THE DEPARTMENT OF CONSERVATION ESTATE – STAGE 1: VOLUME 1

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1. INTRODUCTION

District Councils are required to identify and protect areas of significant ecological value on land under their administration. The West Coast Regional Council is preparing a Combined District Plan (Te Tai o Poutini Plan) for the three West Coast Districts - Buller, Grey and Westland. The Council has commissioned Wildland Consultants Ltd to identify potential significant natural areas (SNAs) in the West Coast Region. This report is the first stage of the identification and assessment of all potential SNAs within the three Districts on land outside of the Department of Conservation estate (see Section 2 for further detail).

This report provides an assessment of all potential SNAs within the West Coast Region on land outside of the land administered by the Department of Conservation (DOC Public Conservation Land) and a small proportion of DOC Public Conservation Land. . This includes identification and mapping of any potential sites, mapping of all sites onto the most recent available digital aerial imagery (including 2003, 2004-2005, 2015-2017 aerial photographs and 2018-2019 satellite imagery), and provision of site information and assessment sheets for these potential SNAs within the West Coast Region. The site information sheets include an assessment of each site against the West Coast Regional Policy Statement (West Coast Regional Council 2020). Information contained within this report should be read with an understanding that the assessments were undertaken as a desktop only exercise relying on existing information. This report is intended to comprise a stand-alone report which will summarise the existing information and methods used to compile the list of potential SNAs in the West Coast Region on land excluding the majority of the Department of Conservation Estate, significant wetlands identified in a previous study (West Coast Regional Council 2014) and some Poutini Ngāi Tahu land. The site sheets with the information collated for each assessed site that was deemed as significant are included in a volume II report.

2. EXCLUSIONS

Not all land on the West Coast was included in this study. Areas of Public Conservation Land administered by the Department of Conservation, wetlands, standalone trees in pasture, and some areas of Poutini Ngāi Tahu land were excluded for the purposes of this study. This section outlines what areas or habitat types were excluded from the current study.

2.1 Exclusion of Department of Conservation Land

Within the West Coast Region, there are substantial areas of Public Conservation Land administered by the Department of Conservation (DOC Public Conservation Land). This ranges from National Parks and areas with identified very high ecological values, to land where grazing, mining and urban activities are being undertaken.

The amount of DOC Public Conservation Land within the three districts varies, with 85% of Westland, 83% of Buller and 65% of Grey in DOC Public Conservation Land. This means that some ecological districts are almost entirely within DOC Public Conservation Land, while others are a mix of private land, DOC Public Conservation Land and other public ownership (e.g. Land Information NZ).

West Coast Regional Council provided a priority list of areas for assessment in the current study, based on Ecological Districts. Ecological Districts are local areas of New Zealand where the topographical, geological, climatic, soil and biological features, including the broad cultural pattern, produce a characteristic landscape and range of biological communities (Park *et al.* 1983). The following Ecological Districts were either not assessed, or only partially assessed in this stage of the project (Table 1).

Lands of particular tenure or landcover were specifically excluded from this project by the client.

Table 1: Ecological districts which were included in the current study, not included in the current study, or which were only partially assessed.

District	Ecological District	Land Tenure	Land Excluded from Study	Land Included in Current Study
Buller	Arthur	100% DOC Public Conservation Land	100%	Nil
	Buller	Majority DOC Public Conservation Land	Small amount of DOC Public Conservation Land	All private land and most DOC Public Conservation Land
	Foulwind	Majority private land.	Small amount of DOC Public Conservation Land	All private land and most DOC Public Conservation Land
	Heaphy	100% DOC Public Conservation Land	Most DOC Public Conservation Land	Small amount of DOC Public Conservation Land
	Karamea	Mix of private and DOC Public Conservation Land	Some DOC Public Conservation Land	All private land and some DOC public Conservation Land
	Matiri	100% DOC Public Conservation Land	100%	Nil
	Ngakawau	Mix of private and DOC Public Conservation Land	Small amount of DOC Public Conservation Land	All private land and most DOC Public Conservation Land
	Punakaiki	Majority DOC Public Conservation Land	National Park land	All other DOC Public Conservation Land and private land
	Reefton	Majority DOC Public Conservation Land	Most DOC Public Conservation Land	All private land and small amount of DOC Public Conservation Land
	Rotoroa	100% DOC Public Conservation Land	Some DOC Public Conservation Land	Some DOC Public Conservation Land
	Wangapeka	100% DOC Public Conservation Land	Most DOC Public Conservation Land	Small amount of DOC Public Conservation Land
	West Whanganui	100% DOC Public Conservation Land	100%	Nil
Buller and Grey	Blackball	Majority DOC Public Conservation Land	Some DOC Public Conservation Land	Some DOC Public Conservation Land
	Ella	Majority DOC Public Conservation Land	Most DOC Public Conservation Land	Small amount of DOC Public Conservation Land

District	Ecological District	Land Tenure	Land Excluded from Study	Land Included in Current Study
	Hope	Majority DOC Public Conservation Land	Most DOC Public Conservation Land	Small amount of DOC Public Conservation Land
	Lewis	100% DOC Public Conservation Land	100%	Nil
	Maimai	Majority DOC Public Conservation Land	All DOC Public Conservation Land	All private land
	Totara Flat	Mix of private and DOC Public Conservation Land	Nil	100%
Grey	Greymouth	Mix of private and DOC Public Conservation Land	Nil	100%
	Hochstetter	Mix of private and DOC Public Conservation Land	Nil	100%
Westland and Grey	Brunner	Mix of private and DOC Public Conservation Land	Small amount of DOC Public Conservation Land	All private land and most DOC public Conservation Land
	Hokitika	Mix of private and DOC Public Conservation Land	Nil	100%
	Hope	Majority DOC Public Conservation Land	Most DOC Public Conservation Land	All private land and small amount of DOC Public Conservation Land
	Whitcombe	Majority DOC Public Conservation Land	Most DOC Public Conservation Land	All private land and small amount of DOC Public Conservation Land
Westland	Arawata	Majority DOC public conservation land	Most DOC Public Conservation Land	All private land and small amount of DOC Public Conservation Land
	Armoury	100% DOC public conservation land	100%	Nil
	Arthur's Pass	100% DOC public conservation land	100%	Nil
	Browning	100% DOC public conservation land	100%	Nil
	Cascade	Majority DOC public conservation land	Most DOC Public Conservation Land	All private land and small amount of DOC Public Conservation Land
	Dart	Majority DOC public conservation land	Some DOC Public Conservation Land	All private land and some DOC public Conservation Land
	Glaciers	More than 90% DOC Public Conservation Land.	Some DOC Public Conservation Land	All private land and some DOC public Conservation Land
	Haast	More than 90% DOC Public Conservation Land.	Most DOC Public Conservation Land	All private land and small amount of DOC public Conservation Land
	Harihari	Mix of private and public land (including DOC Public Conservation Land).	Some DOC public Conservation	All private land and most DOC public Conservation Land
	Huxley	100% DOC public conservation land	100%	Nil
	Landsborough	100% DOC public conservation land	100%	Nil

District	Ecological District	Land Tenure	Land Excluded from Study	Land Included in Current Study
	Mahitahi	More than 90% DOC public conservation land.	Most DOC Public Conservation Land	All private land and small amount of DOC public Conservation Land
	Mataketake	More than 90% DOC Public Conservation Land.	Most DOC Public Conservation Land	All private land and small amount of DOC public Conservation Land
	Minchin	100% DOC public conservation land	100%	Nil
	Mt Cook	100% DOC public conservation land	100%	Nil
	Okuru	More than 90% DOC Public Conservation Land.	Most DOC Public Conservation Land	All private land and small amount of DOC public Conservation Land
	Paringa	Majority DOC Public Conservation Land	Most DOC Public Conservation Land	All private land and small amount of DOC public Conservation Land
	Pyke	Majority DOC public conservation land	100%	Nil
	Waiho	Mix of private and DOC Public Conservation Land	Some DOC Public Conservation Land	All private land and some DOC public Conservation Land
	Wilberg	Majority DOC Public Conservation Land	Most DOC Public Conservation Land	All private land and small amount of DOC public Conservation Land

2.2 Exclusion of Poutini Ngāi Tahu Land

Thirty-six blocks of Poutini Ngāi Tahu land within the Westland District of the West Coast Region were specifically excluded from this project by the client (see Appendix 3 for list of Poutini Ngāi Tahu blocks that have been excluded).

2.3 Exclusion of wetlands

The West Coast Regional Council has previously identified and mapped significant wetlands within the West Coast region[1] (West Coast Regional Council 2014). Standalone wetlands with no surrounding terrestrial indigenous vegetation were not mapped in this project and are addressed in the Regional Water Provisions under the National Policy Statement and National Environmental Standards for Freshwater and (West Coast Regional Council 2014). Under the West Coast Regional Policy Statement, wetlands require separate assessment for significance. In general, wetlands identified in the Council's existing database as significant were therefore excluded from this project. However, wetlands have been excluded or mapped and assessed in the following situations:

(i) Wetland areas classified in the 'West Coast Regional Council' GIS layer were included within the site mapping if they were partially or total encompassed by terrestrial vegetation that would meet the significance criteria. (Note: the wetland

[1] Wetlands were noted throughout the Region which have not been mapped by the Council, and were also not mapped in this project due to a lack of terrestrial indigenous vegetation surrounding them.

area did not influence the overall significance or affect the criteria of the site except in the wider landscape context).

(ii) Areas of wetland visible on the aerial photographs at 1:5,000 scale that did not have any terrestrial vegetation adjacent were not mapped.

(iii) The boundaries of WCRC wetland areas were not assessed or adjusted, even if there was evidence to suggest those areas were no longer wetlands; such areas have been included in a site under point (i) above with no adjustment.

(iv) Where the wetland sits inside a mapped SNA, no attempt has been made to exclude the wetland from the site.

(v) If botanical or fauna records existed for the wetland area included within a site, this information was included in the site sheet. Wetland specific records were not used in the assessment of significance of a site.

(vi) Assessments have included the wider landscape context, so an adjacent wetland may result in a site meeting one or more significant criteria, for example buffering, if the mapped site provides this function to the wetland.

2.4 Exclusion of standalone trees in pasture

Scattered indigenous trees within pasture on alluvial floodplains were not included in this study, as these scattered stand-alone trees do not currently meet significance criteria. These trees are often kahikatea (*Dacrycarpus dacrydioides*) which previously made up an important part of the landscape before land modification (wetlands have converted to pasture). If these trees are not given some sort of protection, over time they will incrementally disappear from the landscape.

3. METHODS

West Coast Regional Council requires an up-to-date document that includes information on all potential SNAs within the West Coast Region for the revised Buller, Grey and Westland District Plans (Te Tai o Poutini Plan). Recent aerial photographs, readily available literature and readily available digital mapping information sources were used to prepare accurate ecological assessments of natural areas within the West Coast Region. Details of data and methodology used to describe, assess, and map sites is given below.

3.1 Previous SNA projects

Undertaking work to identify SNAs has been a longstanding matter on the West Coast, with the first work undertaken in the early 2000s. At this time in the absence of standard criteria for identifying SNAs, work was undertaken by Dr David Norton and Boffa Miskell to identify criteria for SNAs and then to pilot the application of this work.

This first stage work included:

- A report on potential SNA criteria.
- Preliminary assessments of SNAs as part of the pilot work in Buller District.
- Preliminary assessments of SNAs as part of the pilot work in Grey District.

Following this early work, Grey District Council went on to undertake field assessments of potential SNAs (using both contract ecologists and Council staff) and to finalise a list of SNAs for inclusion in the Grey District Plan. These SNA files were available to this project.

No work was undertaken in Westland Region to move beyond a pilot study in the Waiho catchment (unfortunately information from the pilot study could not be located for the current project).

No further work was undertaken in Buller to move beyond the "potential SNAs' evaluation. These files were available to this project.

3.2 Literature review

Readily available literature on the indigenous biodiversity of the West Coast Region was searched and reviewed to ensure that the most up-to-date ecological information available for significance assessment was utilised. The information utilised for undertaking and/or reviewing site assessments included published and unpublished reports, online data sets, GIS data sets, and hard copy data sets. Professional knowledge held by the ecologists working on the project was also utilised for relevant sites.

Site information sheets were written using these information sources to ensure the ecological values, vegetation composition and fauna records reflected the most up-to-date available information for each site.

3.3 Relevant information

Relevant information was gathered and the most recently available aerial photographs on the West Coast were used to determine site boundaries and significance. Information was in general dated (pre 1990s) and hard to locate.

a. Ngakawau Ecological District PNAP report (Overmars *et al.* 1998)
b. Landcare Trust management areas.
c. Wetland maps (provided by West Coast Regional Council 2014)
d. Council bush and wetland protection covenants.
e. Recent aerial photography images (2003-2017)[1].
f. NZ Satellite Imagery
g. Sites of International Significance for Birds (international dataset).

[1] The West Coast Region is mainly covered by a combination of 2015/2016 and 2016/2017 imagery, with small parts to the North and South covered by 2003 and 2004/2005 imagery.

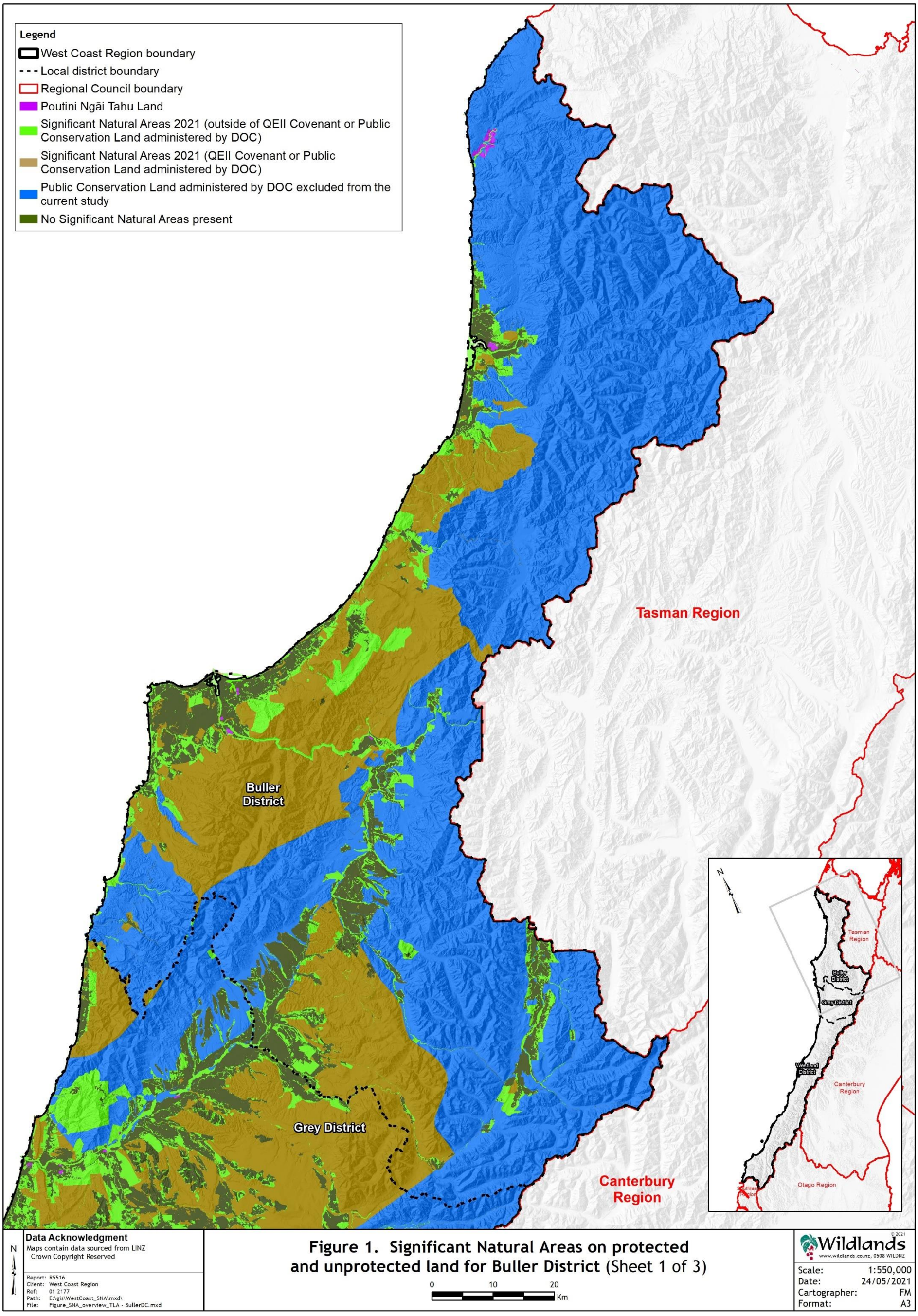

Figure 1. Significant Natural Areas on protected and unprotected land for Buller District (Sheet 1 of 3)

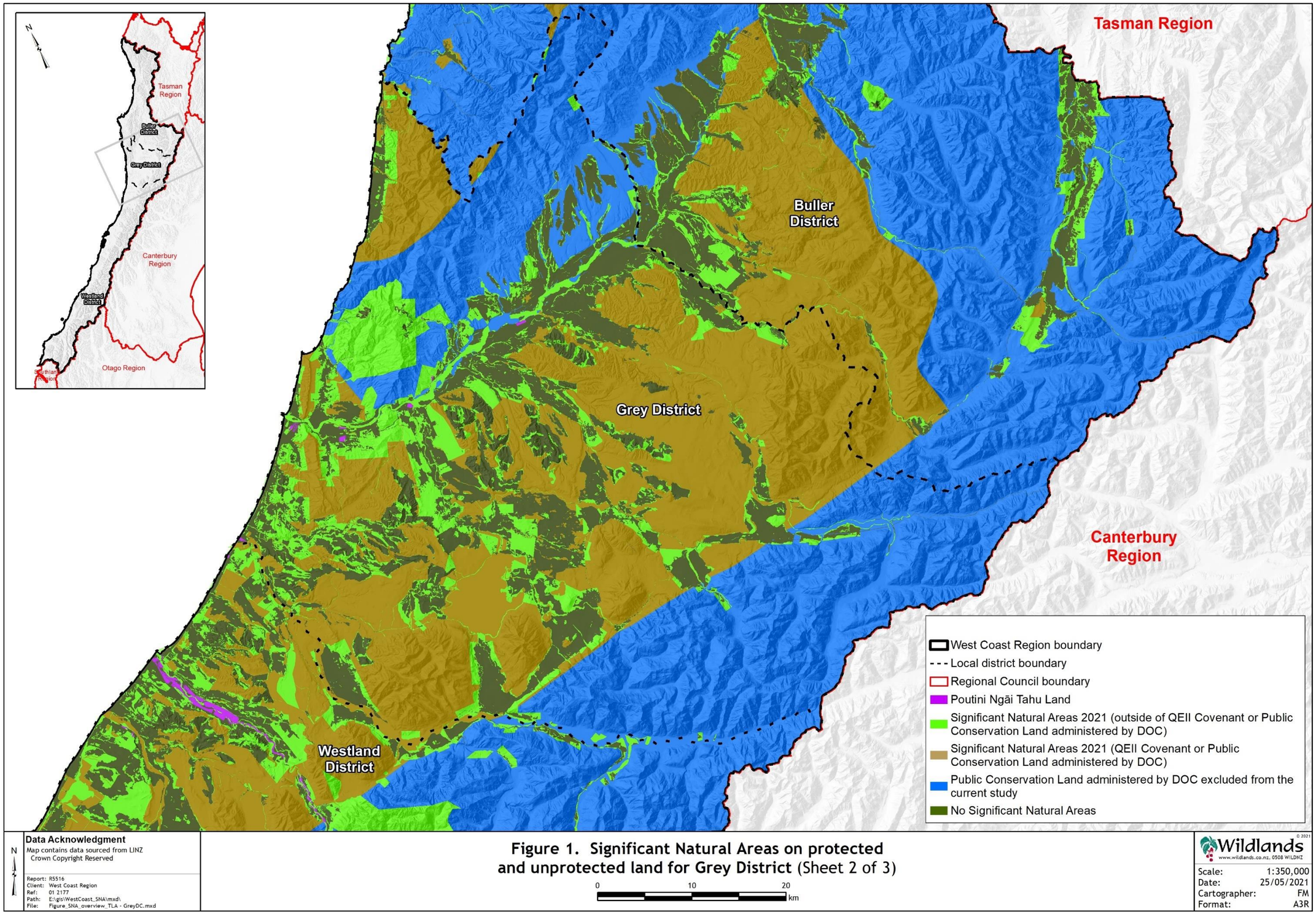

Figure 1. Significant Natural Areas on protected and unprotected land for Grey District (Sheet 2 of 3)

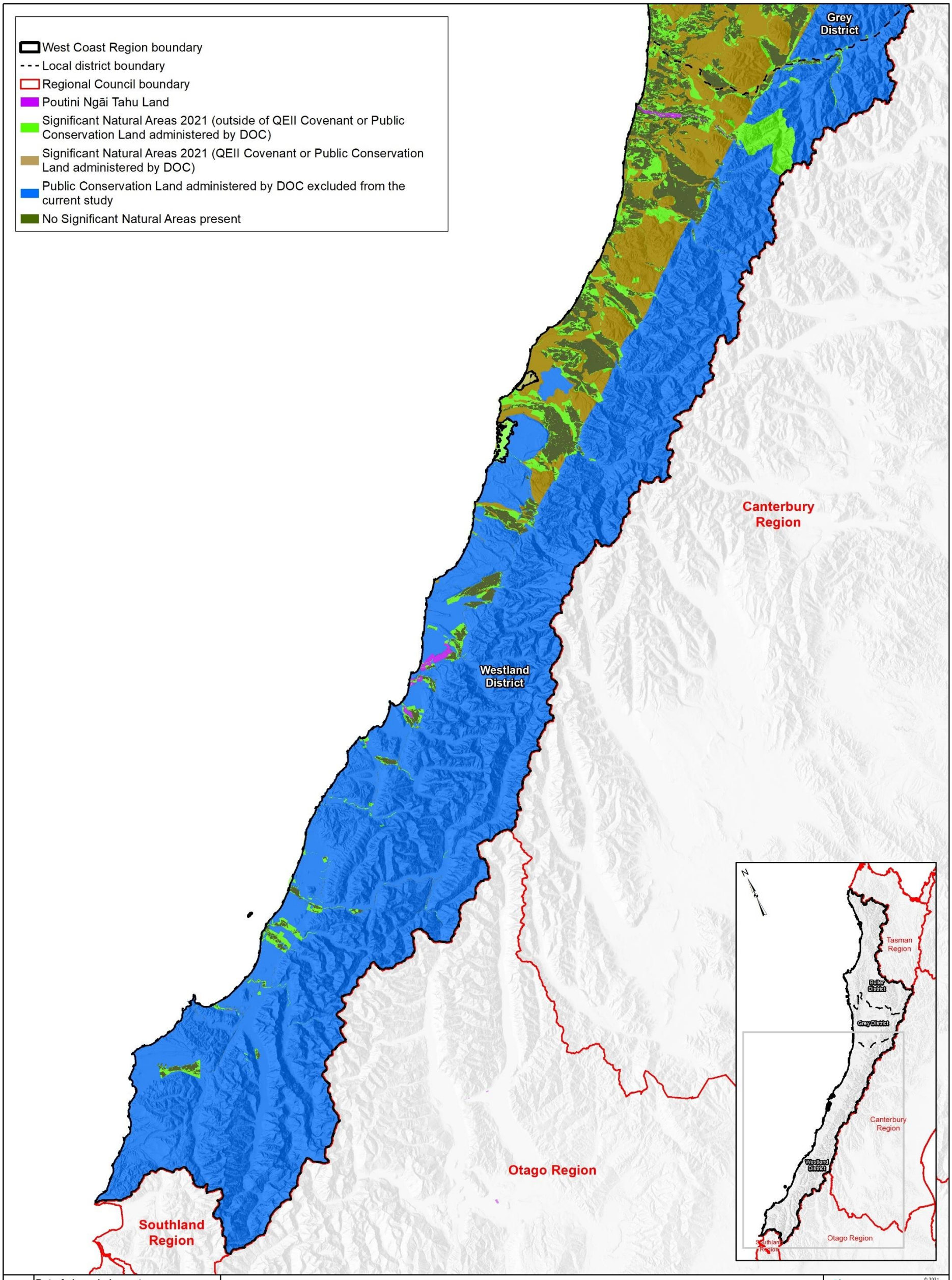

Figure 1. Significant Natural Areas on protected and unprotected land for Westland District (Sheet 3 of 3)

h. Remote sensing datasets (including Land Environment New Zealand (LENZ), Land Cover Database, Land Research Information Systems (LRIS), Natural Vegetation Survey Databank (NVS)).
i. Information held by District Council, Regional Council, and Department of Conservation (DOC).
j. Previous published information (much of which was historic, i.e. pre-1990).
k. Fauna and flora databases (2019-2020).
l. Department of Conservation Bioweb records for flora and fauna.
m. The personal experience and knowledge of qualified ecologists employed by Wildland Consultants Ltd who are familiar with the ecology of the West Coast Region.
n. "Identification of possible SNA" reports for Grey District and Buller District (Norton 2004a & 2004b).

3.4 Site assessment against significance criteria

For all sites identified during this project, the most up-to-date information available was used to describe and assess significance. For sites where no or insufficient information was available, field survey is required to confirm significance of the site. These sites have been recommended for site survey and are listed in Appendix 2.

Site significance was assessed against the West Coast Regional Policy Statement (West Coast Regional Council 2020).

3.5 Site mapping

The following bullet points outline the mapping methodology used for this project:

- GIS data was compiled for the entire West Coast Region to utilise all possible relevant mapping sources for identifying potential SNAs in the region. The GIS layers utilised for identifying sites and boundaries of sites were:
  - West Coast 0.3m Rural Aerial Photos Index Tiles (RAPIT) 2015-2016.
  - West Coast 0.3m Rural Aerial Photos Index Tiles 2016-2017.
  - Tasman 1m Rural Aerial Photos Index Tiles 2003.
  - Tasman 1m Rural Aerial Photos Index Tiles 2004-2005.
  - NZ 10m Satellite Imagery (2018-2019), LINZ and Sinergise Ltd, Solvania
  - LENZ Threatened Environment Classification (LENZ Level 4).
  - Land Cover Database Version 5 (Landcare Research 2015).
  - Department of Conservation-administered areas.
  - QEII covenants.
  - Forest Service Mapping Series 6.
  - Vegetation mapping in Wildland Consultants Ltd reports (Wildland Consultants 2015a,b,&c; Wildland Consultants 2016a&b).
  - Potential SNAs identified in Grey and Buller District (Norton 2004a & 2004b).
  - Poutini Ngāi Tahu land

- All mapping was undertaken at a scale of 1:5,000 onto the most recent aerial photographs available. For most sites the mapping was undertaken on RAPIT 2015-2016 and 2016-2017 aerial photographs, however for a small portion of the Region near the northern and southern boundaries there is no imagery in the RAPIT 2015-

2017 datasets (Figure 2). For those areas in the north, aerial photographs from RAPIT 2003 and RAPIT 2004-2005 were used for mapping and assessment, for the areas in the south Maxar 2012 aerial photographs were used. It is important to note that the 2003-2005 imagery was very poor quality. During the mapping process, site boundaries were digitized at a scale of 1:5000, minimum digitised area of 250 square metres, and a minimum gap of 150 square metres. Small potential SNAs (less than 400 square metres) were mapped if they contained significant vegetation or contributed to an adjacent potential SNA, Public Conservation Land, or QEII covenant. The smallest standalone SNA mapped was approximately 4,000m^2.

- Potential SNAs were assessed primarily on the aerial imagery with support from the other GIS layers and information listed above.
- Site maps are provided as a GIS shape file to accompany this report.
- During mapping and identification of sites, a GIS attribute table was created to inform the mapping layer. This attribute table contains the following information:

Attribute Name	Description
Site Number	Unique site number (e.g. WC001).
Site Name	A suitable name, such as nearest road or feature, ecosystem type and unique suffix if required (e.g. Smith Road A).
Area	Measured in hectares.
NZ Transverse Mercator Easting	Coordinates of the centroid for a probable SNA
NZ Transverse Mercator Northing	Coordinates of the centroid for a probable SNA
Altitude	Altitudinal range about sea-level in metres, rounded to the nearest 10 metres.
Ecological District	As per McEwen (1987).
Territorial local authority	e.g. Buller
Protection status	Whether a site is fully, partially or not legally protected (Public Conservation Land administered by DOC and/or QEII covenants), with a focus on protection of ecological values.
Protection type	The legal mechanism or reserve status.
Site includes a wetland	Y/N
Significance criterion met	
1a	Y/N
1b	Y/N
2a	Y/N
2b	Y/N
2c	Y/N
2d	Y/N
3a	Y/N
4a	Y/N
4b	Y/N
Fieldwork required	Whether field work is required to confirm site significance.
Fieldwork required (boundaries)	Whether field work is required to confirm site boundaries
Additional notes or comments	Additional relevant notes or comments about the site.
Assessment undertaken by	Name of person who undertook the assessment.
Assessment completed on	Date assessment completed.

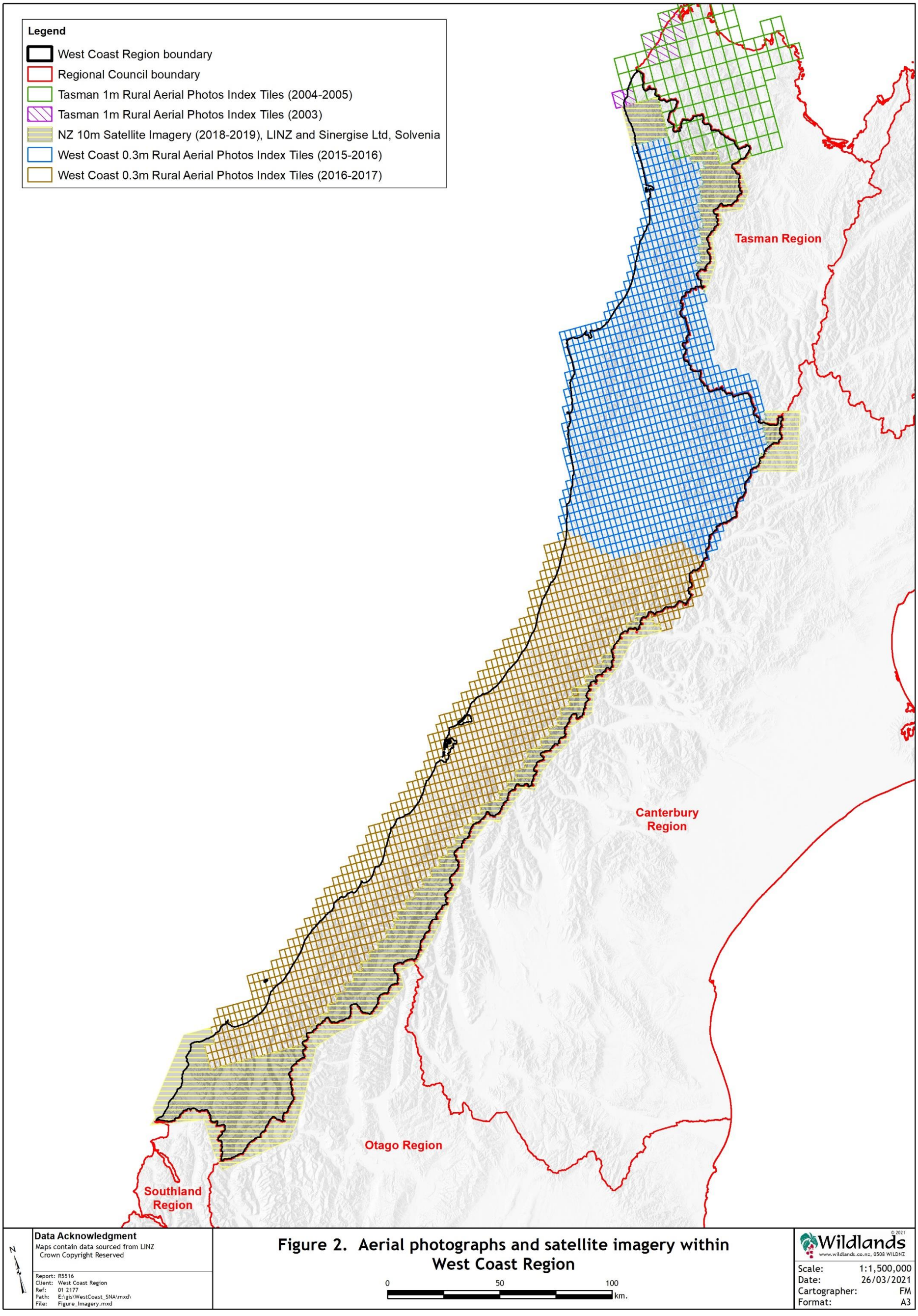

Figure 2. Aerial photographs and satellite imagery within West Coast Region

3.6 Site descriptions and assessments

A site information sheet was prepared for all sites assessed as significant or likely to be significant. The site sheets include information on the ecological values of the site.

At the top of each sheet, information is provided on the site number, protection status, extent of the site, altitudinal range, ecological district, territorial local authority, bioclimatic zone and whether the site contains any wetland habitat or features.

Following this, there is a table within the site sheet which lists descriptions of vegetation classes. Records of nationally Threatened, At Risk, or regionally uncommon plant species or features of vegetation present at the site are presented in the "flora" section of the main table on the site sheets. There are similar sections for "fauna", and an additional notes/comments section. Each site sheet also includes a list of which significance criteria are met, along with a brief justification. References are listed below and what the assessment for significance is based upon. A glossary of common plant and animal names used on the site sheets is provided in Appendix 1.

Site sheets are presented in Volume 2.

SITE NAME

Site Number:	Unique site number (e.g. WC0001).
Protection Status:	Public Conservation Land and QEII covenants (type of protection) and/or land outside Public Conservation Land.
Area (ha):	Total extent of site in hectares.
Altitude Range (m):	Range of altitude within the site, in metres above sea level, from the lowest to highest point (rounded to the nearest 10 metres).
Ecological District:	Ecological District within which the site occurs. If a site extends over multiple ecological districts, all of the ecological districts within which the site occurs are listed.
Territorial Local Authority:	e.g. Buller
Includes Wetland:	Yes/No

VEGETATION CLASS
1. Vegetation types as determined from existing information and/or aerial photographs.
(Land Cover Database v5.0)

Flora:	Key botanical features of the site. Notes on threatened or uncommon plant species which are known to likely be present or have been historically recorded at the site.
Fauna:	Notes on threatened or uncommon animal species which are likely to be present or have been historically recorded at the site.
Notes/Comments:	Additional relevant notes or comments about the site
Significance Assessment:	

Criteria Met	Justification
1a	A brief explanation of the reason(s) why the site meets this criterion.
1b	A brief explanation of the reason(s) why the site meets this criterion.

References:	References about the site and/or records from the site. Species threat classifications reference are not listed here because they are provided in the main report.
Assessment for Significance Based On:	Sources of information used to make the significance assessment.

3.7 Threatened species, habitats, and environments classification assessments

Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is Threatened or At Risk, triggered the threatened species category (criteria 2b). Threat classification documents which list indigenous species classed as being Threatened or as being At Risk were used to determine whether species recorded at the sites were Threatened or At Risk. In addition to this, a range of reports have been published in recent years which describe vegetation and habitat types, and land systems which are either threatened, naturally uncommon, or support vegetation types which are under-represented in current Public Conservation Land area networks within any given region. All these reports and classification systems were used to inform the assessment of significant natural areas during this review (Table 2).

All plant species within the Myrtaceae family have had their threat status upgraded due to the predicted potential effects of Myrtle rust. Most Myrtaceae species found within the West Coast Region, such as mānuka (*Leptospermum scoparium*) and kānuka (*Kunzea robusta*), are generally widely spread and common within a range of habitats in the Region, so the presence of any of these species within a site did not trigger the threatened species category (criteria 2b).

A list of the relevant publications for each taxonomic group, ecosystem, or other habitat type which were utilised for this review are presented in Table 2 below. Subsequent assessments or reviews of sites should use the most up-to-date publications available at the time of the assessment.

Table 2: Threat ranking documents for indigenous species, vegetation types, habitat types, ecosystem types, and land systems used during review of West Coast Region Significant Natural Areas.

Taxonomic Group, Habitat Type, Ecosystem Type	Relevant Ranking Document(s)
Amphibians	Burns *et al.* 2018
Bats	O'Donnell *et al.* 2018
Birds	Robertson *et al.* 2017
Earthworms	Buckley *et al.* 2015
Freshwater fish	Dunn *et al.* 2018
Freshwater invertebrates	Grainger *et al.* 2018
Fungi and lichenised fungi	de Lange *et al.* 2018b
Hornworts and liverworts	de Lange *et al.* 2015
Hymenoptera	Ward *et al.* 2017
Lepidotera	Hoare *et al.* 2017
Land systems	Landcare Research 2012
Macroalgae	Wendy *et al.* 2019
Mosses	Rolfe *et al.* 2016
Naturally uncommon ecosystems	Holdaway *et al.* 2012
Onychophora	Trewick *et al.* 2018
Orthoptera	Trewick *et al.* 2016
Powelliphanta	Hitchmough *et al.* 2007
Plants	de Lange *et al.* 2018a
Reptiles	Hitchmough *et al.* 2016
Historically rare ecosystems	Williams *et al.* 2007

3.8 Field assessments

Sites where little information was available, are prioritised for field survey (listed in Appendix 2). The information gathered from field inspections will be used to either alter site boundaries or adjust significance status as required. All sites listed meet the criteria for significance, based on this desktop assessment.

3.9 Limitations

Site mapping has been undertaken as a desktop only exercise at a scale of 1:5,000. At this scale, it is likely that some areas of shadow, canopy overhang, exotic vegetation and obscure infrastructure have been mapped within the SNA boundaries. Field verification of boundaries will likely be required to rectify this.

While every effort has been made to identify all potential and significant natural areas within the West Coast region, some sites may have been omitted due the desktop nature of this exercise.

Site mapping has not considered property ownership boundaries, but has rather followed the extent of indigenous habitat on the ground. This may result in numerous properties throughout the District with narrow "slivers" of SNA on them. Such slivers could be removed through GIS processing before landowner consultation is undertaken.

A small area did not have any aerial photographs available for mapping. NZ 10m Satellite Imagery (2018-2019) was used for these areas, but was of a much lower quality than aerial photography. However, most of these areas were within DOC public conservation land and did not require accurate mapping.

4. FUTURE STEPS

Sites were identified as requiring a field assessment if it was not possible to determine whether they met more than one of the relevant significance criteria based on a desktop study. These sites should be field checked as a priority to determine vegetation/habitat types present, fauna values, potential threats to the continued existence of these sites, and assess ecological significance.

Most of the sites assessed on the West Coast had limited information available, and many information sources were over thirty years old. Therefore, most sites on private land are likely to require a site visit to properly assess their significance. In most cases, a site visit is likely to result in additional significance criteria being met due to the lack of published information on many sites, boundaries being defined, some areas being removed, and other areas being added to SNAs.

To increase the robustness of the mapping prior to contacting landowners, we strongly recommend that a drive-by survey of sites is undertaken where sites are viewed where possible from public roads or reserves. This will increase the confidence of the desktop assessments and boundary mapping for those sites which can be viewed in this way.

The Draft Policy Statement on Indigenous Biodiversity (2019) has not been considered in this project, and thus the study may require some amendments to comply, if and when this is ratified.

ACKNOWLEDGMENTS

Lois Easton (West Coast Regional Council) initiated this project. Joy Comrie and Jane Marshall (Department of Conservation) provided helpful references from the Department of Conservation West Coast library.

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LIST OF COMMON NAMES USED IN THE TEXT

PLANTS

Common Name	Scientific Name
Bog pine	*Halocarpus bidwillii*
Charleston gentian	*Gentianella scopulorum*
Guano groundsel	*Senecio sterquilinus*
Hard beech	*Fuscospora truncata*
Hūpiro	*Coprosma foetidissima*
Hutu	*Ascarina lucida* var. *lucida*
Kaikawaka	*Libocedrus bidwillii*
Kānuka	*Kunzea robusta*
Kātote, soft tree fern	*Cyathea smithii*
Mānuka	*Leptospermum scoparium* agg.
Māpou matipou, māpau	*Myrsine australis*
Matipou, māpau māpou	*Myrsine australis*
Māpou, matipou, māpau	*Myrsine australis*
Mountain beech	*Fuscospora cliffortioides*
New Zealand spurge, waiū-atua, waiū-o-kahukura	*Euphorbia glauca*
Pīngao	*Ficinia spiralis*
Pink pine	*Halocarpus biformis*
Pirirangi, red mistletoe,	*Peraxilla tetrapetala*
Pirita, scarlet mistletoe,	*Peraxilla colensoi*
Putaputawētā	*Carpodetus serratus*
Rohutu	*Lophomyrtus obcordata*
Red beech	*Fuscospora fusca*
Red mistletoe, pirirangi	*Peraxilla tetrapetala*
Rimu	*Dacrydium cupressinum*
Sand coprosma, tarakupenga	*Coprosma acerosa* s.s
Sand pimelea, autetauranga	*Pimelea villosa* s.s.
Scarlet mistletoe, pirita	*Peraxilla colensoi*
Scree pea	*Montigena novae-zelandiae*
Sea holly	*Eryngium vesiculosum*
Soft tree fern, kātote	*Cyathea smithii*
Southern rātā	*Metrosideros umbellata*
Stout water-milfoil	*Myriophyllum robustum*
Tānekaha	*Phyllocladus trichomanoides*
Tarakupenga, sand coprosma	*Coprosma acerosa* s.s
Tāwheowheo	*Quintinia serrata*
Tī ngahere, forest cabbage tree	*Cordyline banksii*
Waiū-atua, waiū-o-kahukura, New Zealand spurge	*Euphorbia glauca*
Waiū-o-kahukura, New Zealand spurge, waiū-atua	*Euphorbia glauca*
Wire rush	*Empodisma minus*
Yellow mistletoe	*Alepis flavida*

FAUNA

Common Name	Scientific Name
Alborn skink	*Oligosoma* aff. *infrapunctatum* "Alborn"
Australasian bittern, matuku	*Botaurus poiciloptilus*
Banded dotterel, tūturiwhatu	*Charadrius bicinctus bicinctus*
Banded rail, moho-pererū	*Gallirallus philippensis assimilis*
Black-billed gull	*Larus bulleri*
Black shag, kawau	*Phalacrocorax carbo novaehollandiae*
Black swan	*Cygnus atratus*
Blue duck, whio	*Hymenolaimus malacorhynchos*
Bluegill bully	*Gobiomorphus hubbsi*
Canterbury grass skink	Oligosoma aff. *polychroma* Clade 4
Caspian tern, taranui	*Hydroprogne caspia*
Chesterfield skink	*Oligosoma salmo*
Common skink	*Oligosoma* n. *polychroma*
Eastern bar-tailed godwit	*Limosa lapponica baueri*
Forest gecko	*Mokopirirakau granulatus*
Giant kōkopu	*Galaxias argenteus*
Great spotted kiwi, roa	*Apteryx haastii*
Grey duck, pārera	*Anas superciliosa*
Hokitika skink	*Oligosoma* aff. *infrapunctatum* 'Hokitika'
Īnanga	*Galaxias maculatus*
Karoro, southern black-backed gull	*Larus dominicanus dominicanus*
Kawau paka, little shag	*Phalacrocorax melanoleucos brevirostris*
Kawau, black shag	*Phalacrocorax carbo novaehollandiae*
Kea	*Nestor notabilis*
Kekeno, New Zealand fur seal	*Arctocephalus forsteri*
Kōaro	*Galaxias brevipinnis*
Kōura	*Paranephrops zealandicus*
Koekoeā, long-tailed cuckoo	*Eudynamys taitensis*
Koitareke, marsh crake	*Porzana pusilla affinis*
Kōtuku, white heron	*Ardea modesta*
Kōtuku-ngutupapa, royal spoonbill	*Platalea regia*
Little shag, kawau paka	*Phalacrocorax melanoleucos brevirostris*
Little black shag	*Phalacrocorax sulcirostris*
Longfin eel	*Anguilla dieffenbachii*
Long-tailed bat (South Island)	*Chalinolobus tuberculatus* "South Island"
Long-tailed cuckoo, koekoeā	*Eudynamys taitensis*
Mātātā, South Island fernbird	*Bowdleria punctata punctata*
Marsh crake, koitareke	*Porzana pusilla affinis*
Matuku, Australasian bittern	*Botaurus poiciloptilus*
Moho-pererū, banded rail	*Gallirallus philippensis assimilis*
Muttonbird, sooty shearwater, tītī	*Puffinus griseus*
Nelson green gecko	*Naultinus stellatus*
Newman's speckled skink	*Oligosoma newmani*
New Zealand falcon	*Falco novaeseelandiae* "bush"
New Zealand fur seal, kekeno	*Arctocephalus forsteri*
New Zealand pipit, Pīhoihoi	*Anthus novaeseelandiae novaeseelandiae*
Open Bay Islands gecko	*Mokopirirakau* 'Open Bay Islands'
Open Bay Islands skink	*Oligosoma taumakae*
Papanoko, torrentfish	*Cheimarrichthys fosteri*
Pārekareka, spotted shag	*Stictocarbo punctatus punctatus*
Pārera, grey duck	*Anas superciliosa*
Pied shag	*Phalacrocorax varius varius*
Pīhoihoi, New Zealand pipit	*Anthus novaeseelandiae novaeseelandiae*

Common Name	Scientific Name
Pūteketeke, southern crested grebe	*Podiceps cristatus australis*
Pūweto, spotless crake	*Porzana tabuensis tabuensis*
Red-billed gull, tarāpunga	*Larus novaehollandiae*
Roa, great spotted kiwi	*Apteryx haastii*
Royal spoonbill, kōtuku-ngutupapa	*Platalea regia*
Shortjaw kokopu	*Galaxias postvectis*
Sooty shearwater, tītī, muttonbird	*Puffinus griseus*
Southern black-backed gull, karoro	*Larus dominicanus*
Southern crested grebe, pūteketeke	*Podiceps cristatus australis*
Southern falcon	*Falco novaeseelandiae* "southern"
South Island fernbird, mātātā	*Bowdleria punctata punctata*
South Island kākā	*Nestor meridionalis meridionalis*
South Island pied oystercatcher, tōrea	*Haematopus finschi*
South Island robin, toutouwai	*Petroica australis australis*
Speckled skink	*Oligosoma infrapunctatum*
Spotless crake, pūweto	*Porzana tabuensis tabuensis*
Spotted shag, pārekareka;	*Stictocarbo punctatus punctatus*
Tara, white-fronted tern	*Sterna striata striata*
Taranui, Caspian tern	*Hydroprogne caspia*
Tarāpunga; red-billed gull	*Larus novaehollandiae scopulinus*
Tītī, muttonbird, sooty shearwater	*Puffinus griseus*
Tōrea, South Island pied oystercatcher	*Haematopus finschi*
Torrentfish, papanoko	*Cheimarrichthys fosteri*
Toutouwai, South Island robin	*Petroica australis australis*
Tūturiwhatu, banded dotterel	*Charadrius bicinctus bicinctus*
Variable oystercatcher	*Haematopus unicolor*
West coast green gecko	*Naultinus tuberculatus*
Westland petrel	*Procellaria westlandica*
Whio, blue duck	*Hymenolaimus malacorhynchos*
White-fronted tern, tara	*Sterna striata striata*
White heron, kōtuku	*Ardea modesta*

LIST OF SITES REQUIRING FIELD SURVEY TO CONFIRM SIGNIFICANCE OR BOUNDARY LOCATION

Site Number	Site Name	Field Survey Recommended to Confirm Boundaries	Field Survey Recommended to Confirm Significance	Survey Priority
WC0011	Okari Spit	Yes	Yes	High
WC0056	MacArthur Road Forest 1	Yes	Yes	High
WC0060	Municipai Road Forest	Yes	Yes	High
WC0063	Ruatapu Ross Road Forest	Yes	Yes	High
WC0067	Bird Road Forest	Yes	Yes	High
WC0075	Wanganui Flat Road Forest	Yes	Yes	High
WC0076	Wanganui Flat Road Forest 2	Yes	Yes	High
WC0077	Haddock Road Forest	Yes	Yes	High
WC0079	Adamson Road Forest	Yes	Yes	High
WC0080	Vickers Creek Forest	Yes	Yes	High
WC0081	Whataroa Flat Road Forests	Yes	Yes	High
WC0082	Dry Creek Forests	Yes	Yes	High
WC0083	Gunn Road Forests	Yes	Yes	High
WC0084	Dry Creek Forests 2	Yes	Yes	High
WC0086	Scally Road Forests	Yes	Yes	High
WC0087	Burrough Road Forests	Yes	Yes	High
WC0088	McCulloughs Creek Forest	Yes	Yes	High
WC0089	Whataroa River Forests	Yes	Yes	High
WC0091	MacDonalds Creek Forests	Yes	Yes	High
WC0092	Docherty Creek Forests	Yes	Yes	High
WC0093	Greens Road Forest	Yes	Yes	High
WC0095	Waiho Flat Road Forests	Yes	Yes	High
WC0096	Donavan Drive Forest	Yes	Yes	High
WC0097	Docherty Creek Road Forest	Yes	Yes	High
WC0098	Waiho Flat Road Forests 2	Yes	Yes	High
WC0100	Waihapi Creek Forest	Yes	Yes	High
WC0101	Docherty Creek Forest 2	Yes	Yes	High
WC0102	Cook River/Weheka Forest and Beach	Yes	Yes	High
WC0104	Cook Flat Road Forests	Yes	Yes	High
WC0105	Bullock Creek Forest	Yes	Yes	High
WC0108	Stony Creek Forest	Yes	Yes	High
WC0110	Karangarua River Beach and Forest	Yes	Yes	High
WC0116	Heretaniwha Point Beach and Forest	Yes	Yes	High
WC0123	Haast Highway Forest	Yes	Yes	High
WC0131	Hannah's Clearing Forest	Yes	Yes	High
WC0134	Jackson Bay Forest	Yes	Yes	High
WC0136	Sandrock Bluff Forest	Yes	Yes	High
WC0138	Callery Flat Forest	Yes	Yes	High
WC0139	Landsborough River	Yes	Yes	High
WC0140	Roaring Billy Walk Forest	Yes	Yes	High
WC0141	Cron Flat Forest	Yes	Yes	High
WC0142	Haast Pass Highway Forest	Yes	Yes	High
WC0143	Naihi River and Forest	Yes	Yes	High
WC0144	Bald Range Lowland Forest	Yes	Yes	High

Site Number	Site Name	Field Survey Recommended to Confirm Boundaries	Field Survey Recommended to Confirm Significance	Survey Priority
WC0145	Mt Alexander Lowland Forest	Yes	Yes	High
WC0146	Jacksons Creek Forest	Yes	Yes	High
WC0147	Taipo River Forest	Yes	Yes	High
WC0148	Ōtira River Forest 1	Yes	Yes	High
WC0150	Ōtira River Forest 2	Yes	Yes	High
WC0151	Styx River and Forest	Yes	Yes	High
WC0152	Samuel Spur Forest	Yes	Yes	High
WC0153	Middlebranch Road	Yes	Yes	High
WC0156	Whitcombe River and Forest	Yes	Yes	High
WC0168	Upper Grey River Forest	Yes	Yes	High
WC0169	Stephen Road Forest	Yes	Yes	High
WC0170	Snodgrass Road Forest	Yes	Yes	High
WC0227	Deadmans Creek Forest	Yes	Yes	High
WC0234	Upper Buller River Forest	Yes	Yes	High
WC0236	Upper Buller Gorge Road	Yes	Yes	High
WC0237	Lower Buller Gorge Road Forest	Yes	Yes	High
WC0252	Mc Murray Creek Forest 2	Yes	Yes	High
WC0261	Cronadun Forest 2	Yes	Yes	High
WC0264	Ogrady Road Forest	Yes	Yes	High
WC0266	Trennery Street Forest	Yes	Yes	High
WC0267	Maimai Valley Road Forest	Yes	Yes	High
WC0268	Crampton Road Forest	Yes	Yes	High
WC0284	Ikamatua Forest	Yes	Yes	High
WC0286	Carters Road Forest	Yes	Yes	High
WC0001	Tauranga Bay Road Forest	No	Yes	High
WC0005	Carters Beach Shrubland	No	Yes	High
WC0020	Orowaiti Forest	No	Yes	High
WC0021	Caledonian Road Forest	No	Yes	High
WC0023	Wilsons Lead Road Forest 2	No	Yes	High
WC0024	Buller River Forest 2	No	Yes	High
WC0027	Pororari Lagoon Forest	No	Yes	High
WC0028	Pororari River Forest	No	Yes	High
WC0030	Motukiekie Beach and Forest	No	Yes	High
WC0037	Māwheranui River Forest	No	Yes	High
WC0044	Taramakau River Forest	No	Yes	High
WC0045	Taramakau River Forest 2	No	Yes	High
WC0047	Hokitika Beach and Dune	No	Yes	High
WC0048	Little Houhou Creek Forest	No	Yes	High
WC0049	Lake Kaniere	No	Yes	High
WC0054	Camp Street Forest	No	Yes	High
WC0064	Gows Creek Road Forest	No	Yes	High
WC0065	Kowhitirangi Forest	No	Yes	High
WC0066	Doughboy Road Forest	No	Yes	High
WC0069	Doughboy Road Forest 2	No	Yes	High
WC0070	Station Road Forest	No	Yes	High
WC0071	Doughboy Road Forest 3	No	Yes	High
WC0073	Waitaha Road Forest	No	Yes	High
WC0074	Waitaha Road Forest 2	No	Yes	High
WC0117	Bruce Bay Forest	No	Yes	High
WC0121	Paringa Forest	No	Yes	High
WC0126	Copper Mine Creek and Forest	No	Yes	High
WC0127	Mt Clark Tussockland	No	Yes	High
WC0137	Lake Clark	No	Yes	High
WC0154	Vine Creek Forest	No	Yes	High

Site Number	Site Name	Field Survey Recommended to Confirm Boundaries	Field Survey Recommended to Confirm Significance	Survey Priority
WC0155	Hokitika River Forest	No	Yes	High
WC0158	Sheriff River Forest	No	Yes	High
WC0159	Rahu River Forest	No	Yes	High
WC0161	Springs Junction Forest	No	Yes	High
WC0162	Springlands Creek Forest 1	No	Yes	High
WC0163	Springlands Creek Forest 2	No	Yes	High
WC0164	Maruia River Forest	No	Yes	High
WC0165	May Creek and Forest	No	Yes	High
WC0201	Kahurangi Point Forest	No	Yes	High
WC0202	Otukoroiti Point Forest	No	Yes	High
WC0203	Seal Bay Forest	No	Yes	High
WC0204	Rocks Point Forest	No	Yes	High
WC0206	Wekakura Point Forest	No	Yes	High
WC0208	Koura Beach Forest	No	Yes	High
WC0213	Oparara Road Forest	No	Yes	High
WC0216	Kohaihai Road Forest	No	Yes	High
WC0241	Mc Donalds Road Forest 1	No	Yes	High
WC0242	Ingahua Station Road Forest	No	Yes	High
WC0244	Mc Donalds Road Forest 2	No	Yes	High
WC0245	Oweka Forest	No	Yes	High
WC0262	Maimai Valley Forest	No	Yes	High
WC0272	Rahu Saddle Forest 1	No	Yes	High
WC0287	Auld Street Forest	No	Yes	High
WC0002	Wilsons Lead Road Forest	Yes	No	Moderate
WC0003	Coast Road Forest and Turf	Yes	No	Moderate
WC0007	Brunings Road Forest	Yes	No	Moderate
WC0010	Addisons Flat Forest	Yes	No	Moderate
WC0014	Bucklands Park Road Forest	Yes	No	Moderate
WC0035	Dead Horse Creek Forest	Yes	No	Moderate
WC0215	Karamea River Forest	Yes	No	Moderate
WC0221	Little Wanganui River Forest	Yes	No	Moderate
WC0224	Waimangaroa Forest	Yes	No	Moderate
WC0226	Sergeants Hill Bay Road	Yes	No	Moderate
WC0238	Inangahua River and Forest	Yes	No	Moderate
WC0239	Inangahua Forest 1	Yes	No	Moderate
WC0240	Inangahua Forest 2	Yes	No	Moderate
WC0247	Coal Creek Road Forest	Yes	No	Moderate
WC0248	Inangahua Landing Forest 1	Yes	No	Moderate
WC0249	Inangahua Landing Forest 2	Yes	No	Moderate
WC0250	Landing Creek Forest	Yes	No	Moderate
WC0251	Mc Murray Creek Forest 1	Yes	No	Moderate
WC0254	Rotokohu Forest	Yes	No	Moderate
WC0255	Landing Creek Road Forest	Yes	No	Moderate
WC0256	Stoney River Forest	Yes	No	Moderate
WC0257	Awarau River Forest	Yes	No	Moderate
WC0258	Boatmans Road Forest	Yes	No	Moderate
WC0259	Boatmans Creek Forest	Yes	No	Moderate
WC0260	Cronadun Forest 1	Yes	No	Moderate
WC0263	Maimai Forest	Yes	No	Moderate
WC0265	Waitahu River Forest	Yes	No	Moderate
WC0277	Rahu Saddle Forest 2	Yes	No	Moderate
WC0278	Craigieburn Creek Forest	Yes	No	Moderate
WC0279	Big River Gully Forest	Yes	No	Moderate
WC0282	Shellback Road Forest 1	Yes	No	Moderate

Site Number	Site Name	Field Survey Recommended to Confirm Boundaries	Field Survey Recommended to Confirm Significance	Survey Priority
WC0283	Grey River Forest	Yes	No	Moderate
WC0285	Matai Road Forest	Yes	No	Moderate
WC0288	Mount Ajax Forest	Yes	No	Moderate
WC0290	Haupiri Amuri Road Forest 1	Yes	No	Moderate
WC0292	Crane Creek Forest	Yes	No	Moderate
WC0293	Haupiri Amuri Road Forest 2	Yes	No	Moderate
WC0294	Haupiri River Forest 1	Yes	No	Moderate
WC0295	Haupiri River Forest 2	Yes	No	Moderate
WC0296	Moonlight Creek Forest	Yes	No	Moderate
WC0297	Blackball Creek Forest	Yes	No	Moderate

APPENDIX 3

LIST OF POUTINI NGĀI TAHU LAND BLOCKS REMOVED FROM GIS LAYER BY REQUEST OF CLIENT

Block Name	SNA Site That Block Was Included In
Bruce Bay 777	WC0118
Bruce Bay 780	WC0114
Bruce Bay 783 Block and Section 785 Block X & XI Bruce Bay Survey District	WC0115
Bruce Bay 784	WC0115
Bruce Bay 786	WC0115
Bruce Bay 788	WC0114
Bruce Bay Blk X Sec 782	WC0118
Bruce Bay Blk XIV Sec 781A	WC0118
Bruce Bay Block XI Section 855A	WC0115
Bruce Bay Block XIV Section 781B	WC0118
Bruce Bay Blocks X and XI Sections 853, 854 and 855B	WC0115
Lot 1 Deposited Plan 2095 (Arahura River Bed)	WC0050
Lot 1 Deposited Plan 344397 (Claim)	WC0118
Lot 1 Deposited Plan 346435 (Claim)	WC0118
Lot 1 Deposited Plan 3882 (Claim)	WC0118
Lot 1-4 Deposited Plan 1308 and Subdivision 39 to 45 and Part Arahura 30 Maori Reserve	WC0050
Lot 2 and Lot 4 Deposited Plan 1308	WC0050
Lot 2-3 Deposited Plan 346435 (Claim)	WC0118
Lot 3 Deposited Plan 3882 (Claim)	WC0118
Lots 1-9 Deposited Plan 3876	WC0050
Ohinetamatea 13 Blk	WC0114
Part Rural Section 891	WC0114
Part Rural Section 900	WC0114
Rural Section 892 (Bruce Bay Blk VIII Sec 892)	WC0114
Rural Section 893	WC0114
Rural Section 894	WC0114
Rural Section 895	WC0114
Rural Section 896	WC0114
Rural Section 897	WC0114
Rural Section 898	WC0114
Rural Section 899	WC0114
Rural Sections 2499 and 2500	WC0114
Subdivision 28-30, Subdivision 32-33, Subdivision 35-37, Subdivision 37A, Subdivision 46-52, Subdivision 46A, Subdivision 47A, Subdivision 56-57, Subdivision 77, Subdivision 87, Subdivision 89-90 and Part Subdivision 38 Arahura 30 Maori Reserve	WC0050
Subdivision 34 and Subdivision 74A Arahura 30 Maori Reserve	WC0050
Open Bay Islands	WC0129
Waikohai 17	WC0100

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