

BEALE CONSULTANTS

Homestead Bay Terrestrial Ecology Assessment

**Prepared for John Edmonds & Associates on behalf of
RCL Henley Downs Limited**

June 2023



Contact Details

Name: Simon Beale
Beale Consultants Ltd
34 Waipuna Road, Springvale, RD 1,
Alexandra 9391
New Zealand

Mobile: 027 230 7788

Document Details:

Date: 12 June 2023
Reference: JEA04
Report No: 1
Status: Final

Prepared by:



Simon Beale | Senior Ecologist

Contents

1. Introduction.....	1
2. Methodology	2
3. Ecological Setting.....	2
4. Overview of Affected Vegetation Communities	2
4.1. Matagouri Shrubland	2
4.2. Mixed Indigenous – Exotic Shrubland	3
5. Assessment of Ecological Values and Ecological Significance	4
5.1. Assigning Ecological Values	4
6. Recommendations.....	8
6.1. Matagouri Shrublands	8
6.2. Mixed Indigenous – Exotic Shrublands	9
6.2.1. Northern Gully	9
6.2.2. Lakeside Faces	9
6.2.3. Southern Gully.....	9
7. Conclusions	9
Appendix 1: Site Plan.....	10

1. Introduction

The terrestrial ecology assessment has been undertaken for John Edmonds & Associates on behalf of RCL Henley Downs Limited in conjunction with a proposed plan change to the Proposed District Plan (PDP) to rezone and subdivide land at Homestead Bay. The affected land is outlined on Figure 1.



Figure 1: Land subject to proposed plan change.
Aerial imagery: Courtesy of QLDC.

The purpose of this assessment is:

- To identify areas of ecological value that may be affected by the proposed plan change and subsequent development;

- To provide recommendations for the enhancement of areas of ecological value potentially not affected by the development; and
- To assist with the Section 32 RMA evaluation for the rezoning of the land near Homestead Bay.

2. Methodology

The assessment involved a desktop review of literature and aerial imagery to determine the broad vegetation patterns and landforms and a site visit to confirm the composition and condition of the affected indigenous vegetation communities and associated habitats.

3. Ecological Setting

The property lies within the Shotover Ecological District and Lakes Ecological Region. McEwen (1987) describes the Shotover Ecological District as “*Steep, deeply incised schist mountains to 1991 m a.s.l., strong natural erosion, glacial outwash gravels, alluvium in valley floors, shallow to moderately deep droughty soil form loess over gravels on terraces, fans etc; small beech forest remnants only, elsewhere extensive fernland with naturalised exotic conifers, scrub, subalpine scrub and tussockland, alpine herbfield, barrens; much of district grazed.*”

The property lies predominately in LENZ Level IV Environment N5.1c which is described as rolling hillslopes and undulating plains with soils of variable drainage and of moderate fertility, derived from schist. The climate is characterised by cool temperatures, moderate solar radiation and moderate to high annual water deficits.¹

Under the Threatened Environment Classification² the percentage of indigenous vegetation remaining in Land Environment N5.1c at a national scale in 2012 was 2.7%. The small area of indigenous vegetation remaining categories Land Environment N5.1c as an acutely threatened land environment.

The original vegetation as determined by predictive modelling shows the area was covered predominately in shrubland and tussock grassland. The present vegetation cover as illustrated in Figure 1 is dominated by pasture with the indigenous vegetation restricted in fragmented areas of mature matagouri shrubland and regenerating areas of indigenous shrublands associated with the gullies towards the southern end of the property.

4. Overview of Affected Vegetation Communities

4.1. Matagouri Shrubland

Remnant small patches of matagouri shrubland occur on terrace risers near the western boundary of the property as shown on the site plan (Appendix 1). These shrublands are dominated by mature matagouri over 1.5 m in height but are in a poor condition with an open understorey dominated by exotic grassland. Some shrublands support occasional shrubs of the tree daisy (*Olearia odorata*), mingimingi (*Coprosma propinqua*) and porcupine scrub (*Melicytus alpina*).

¹ Leathwick, et al, 2003.

² The TEC combines data from three national databases; LENZ, the Land Cover Database (LCDBv4.0, based on 2012 satellite imagery), and a 2012 update of the national protected areas network.



Figure 4-1: Matagouri shrubland partially covering gully slope west of prominent pine shelterbelt.

4.2. Mixed Indigenous – Exotic Shrubland

Mixed indigenous – exotic shrubland occurs in two prominent gullies in the southern part of the property and across an intervening lakeside face as shown on the site plan (Appendix 1). The shrublands are of a variable size and density and comprise a mosaic of matagouri, mingimingi, kohuhu (*Pittosporum tenuifolium*) and wineberry (*Aristotelia serrata*) shrubs and small trees and vines of bush lawyer (*Rubus schmidelioides*) occurring in association with sweet briar, wilding conifers, hawthorn, broom, elderberry, cotoneaster and buddleia.



Figure 4-2: Shrubs of kohuhu growing amongst sweet briar in the northern gully beyond a radiata pine woodlot.

5. Assessment of Ecological Values and Ecological Significance

5.1. Assigning Ecological Values

The ecological value and significance of the affected indigenous vegetation and habitats of indigenous fauna encountered on the property has been assessed using the combination of the attributes/criteria set out in Table 4 of the Environment Institute of Australia and New Zealand (EIANZ 2018) Guidelines and in Policy 33.2.1.8 of the QLDC PDP.

The assessment matters and attributes used to assign values to the affected indigenous vegetation communities and habitats, and species are sourced from Tables 4, 5 and 6 of the EIANZ Guidelines and transposed in Tables 5-1, 5-2 and 5-5 below. Tables 5-3 and 5-4 set out the ecological values for each of the assessment matters relevant to the matagouri shrublands and mixed indigenous shrublands.

Table 5-1: Attributes to be considered when assigning ecological value and determining ecological significance of a vegetation community and habitat.

Assessment Matters	Attributes
Representativeness	Criteria for representative vegetation and aquatic habitats: <ul style="list-style-type: none">• Typical structure and composition• Indigenous species dominate• Expected species and tiers are present

	<ul style="list-style-type: none"> • Thresholds may need to be lowered where all examples of a type are strongly modified <p>Criteria for representative species and species assemblages:</p> <ul style="list-style-type: none"> • Species assemblages that are typical of the habitat • Indigenous species that occur in most of the guilds expected for the habitat type
Rarity/distinctiveness	<p>Criteria for rare/distinctive vegetation and habitats:</p> <ul style="list-style-type: none"> • Naturally uncommon, or induced scarcity • Amount of habitat or vegetation remaining • Distinctive ecological features • National priority for protection <p>Criteria for rare/distinctive species or species assemblages:</p> <ul style="list-style-type: none"> • Habitat supporting Nationally Threatened or At Risk species, or locally uncommon species • Regional or national distribution limits of species or communities • Unusual species or assemblages • Endemism
Diversity and Pattern	<ul style="list-style-type: none"> • Level of natural diversity, abundance and distribution • Biodiversity reflecting underlying diversity • Biogeographical considerations – pattern, complexity • Temporal considerations, considerations of lifecycles, daily or seasonal cycles of habitat availability and utilisation.
Ecological Context	<ul style="list-style-type: none"> • Site history, and local environmental conditions which have influenced the development of habitats and communities • The essential characteristics that determine an ecosystem's integrity, form, functioning, and resilience (from "intrinsic value" as defined in RMA) • Size, shape • Buffering function • Condition and sensitivity to change • Contribution of the site to ecological networks, linkages, pathways and the

	<p>protection and exchange of genetic material</p> <ul style="list-style-type: none"> Species role in ecosystem functioning – high level, key species identification, habitat as proxy Is important for indigenous fauna during some part of their life cycle.
--	--

Table 5-2: Criteria used in assigning ecological value to terrestrial plant and animal species under the rarity/distinctiveness assessment matter.

Ecological Criteria	Value
Nationally Threatened species. Found in the site either permanently or seasonally	Very high
Species listed as At Risk-Declining found in the site either permanently or seasonally	High
Species listed as any other category of At Risk found in the site, either permanently or seasonally	Moderate
Locally (ED) uncommon or distinctive species	Moderate
Nationally and locally common indigenous species	Low
Exotic species including pests and species having recreational value	Negligible

Notes:

Determination of the threat status of species is derived from the New Zealand Threat Classification System.

Table 5-3: Summary of ecological values assigned to the matagouri shrublands.

Assessment Matters	Ecological Value
<p>Representativeness:</p> <p>The matagouri shrublands are in a fragmented state due to previous land clearances and stock grazing. They lack a shrub sub-stratum with exotic grassland dominating the interior. The shrublands are relics and comprise mature specimens over 1.5m in height. They are representative of the original scrub and shrubland cover in the area.</p> <p>The shrublands are located in Land Environment N5.1c where much of the indigenous vegetation cover has been removed.</p>	Moderate
<p>Rarity and Distinctiveness:</p> <p>Matagouri has a threat ranking of At Risk-Declining.</p>	High
<p>Diversity and Pattern:</p> <p>The shrublands are mostly mono-specific lacking in diversity.</p>	Low
<p>Ecological Context:</p>	Low

Due to highly fragmented nature of the shrublands they do not to have the connectivity to contribute to movement of indigenous fauna via ecological corridors.	
--	--

Table 5-4: Summary of ecological values assigned to the mixed indigenous - exotic shrublands.

Assessment Matters	Ecological Value
<p>Representativeness:</p> <p>The shrublands contains a variable cover of indigenous small trees and shrubs amongst invasive woody weeds such as wilding conifers, hawthorn, sweet briar, cotoneaster and buddleia. In the southern gully especially, the shrublands are being outcompeted by woody weeds.</p> <p>The shrublands are in Land Environment N5.1c where much of the indigenous vegetation cover has been removed.</p>	Low
<p>Rarity and Distinctiveness:</p> <p>Matagouri which is a component of the shrublands has a threat ranking of At Risk-Declining.</p>	High
<p>Diversity and Pattern:</p> <p>The shrublands are of a moderate diversity with the more extensive and diverse shrublands encountered along the lakeside faces.</p>	Moderate
<p>Ecological Context:</p> <p>Due to discontinuous distribution of the shrublands they contribute to a minor degree to the movement of indigenous fauna.</p>	Low

Table 5-5: Criteria for assigning ecological value to vegetation communities and habitats.

Value	Description
Very high	Area rates High for 3 or all the four assessment matters. Likely to be nationally important and recognised as such
High	Area rates High for 2 of the assessment matters. Moderate and Low for the remainder, or Area rates High for 1 of the assessment matters. Moderate for the remainder. Likely to be regionally important and recognised as such.
Moderate	Area rates High for one assessment matter. Moderate and Low for the remainder, or Area rates Moderate for 2 or more assessment matters. Low to Very Low for the remainder. Likely to be important at the level of the Ecological District.
Low	Area rates Low or Very Low for majority of assessment matters and Moderate for one. Limited ecological value other than as local habitat for tolerant native species.
Negligible	Area rates Very Low for 3 matters and Moderate. Low or Very Low for remainder.

In accordance with the criteria set out in Table 5-5, the ecological value of the matagouri shrublands is moderate as the community rates high for one assessment matter and moderate and low for the remaining assessment matters. The ecological value of the mixed indigenous – exotic shrublands is moderate as the community rates high for one assessment matter and moderate and low for the remaining assessment matters.

The matagouri shrublands are ecologically significant as the representativeness and rarity/distinctiveness assessment criteria set out in Policy 33.2.1.8 of the PDP are triggered.

The mixed indigenous – exotic shrublands are ecologically significant as the rarity/distinctiveness assessment criteria set out in Policy 33.2.1.8 of the PDP is triggered owing to the presence of matagouri.

6. Recommendations

The following recommendations seek to enhance the biodiversity and ecological value of the affected shrublands owing to their degraded state.

6.1. Matagouri Shrubs

The matagouri shrublands should be interplanted to increase their diversity, ecological function and connectivity.

6.2. Mixed Indigenous – Exotic Shrublands

6.2.1. Northern Gully

The shrubland situated upgradient of the pine woodlot should be interplanted to increase diversity, ecological function and connectivity. Numerous grassy areas exist in the shrubland. The soil along the gully floor, toe slopes and lower gradient gully sides appears to be favourable for planting.

Staged removal of exotic woody weeds including sweet briar, elderberry, broom, hawthorn and buddleia is recommended.

Pine woodlot should be removed as this is a source of wilding conifers downwind. Eucalytus shelterbelt should be retained for seasonal nectar supply for tui and bellbird.

6.2.2. Lakeside Faces

Removal of wilding conifers and exotic woody weeds including sweet briar, elderberry, broom, hawthorn and buddleia from the shrubland is recommended.

6.2.3. Southern Gully

Removal of wilding conifers and exotic woody weeds including sweet briar, elderberry, broom, hawthorn, silver wattle and buddleia and the exotic herbaceous weed hemlock is recommended with the shrublands occupying the gully floor and gully sides.

7. Conclusions

The areas of indigenous vegetation and habitat of indigenous fauna that occur on the Homestead Bay property are matagouri shrublands and mixed indigenous – exotic shrublands. The indigenous elements to the mixed shrublands are localised in distribution, fragmented and likely to be outcompeted by invasive exotic weeds.

The matagouri shrublands are relics of a shrubland that was once widespread in the area.

The shrublands are assigned a moderate ecological value and are ecologically significant due principally to the threat classification of At Risk-Declining assigned to matagouri.

Measures are recommended to enhance the ecological value of the shrublands involve establishment of plantings to improve biodiversity and ecological function and involve control of exotic weeds. Exotic weeds have the potential to outcompete the indigenous plants that occur in the mixed indigenous - exotic shrublands if left unchecked.

Appendix 1: Site Plan

