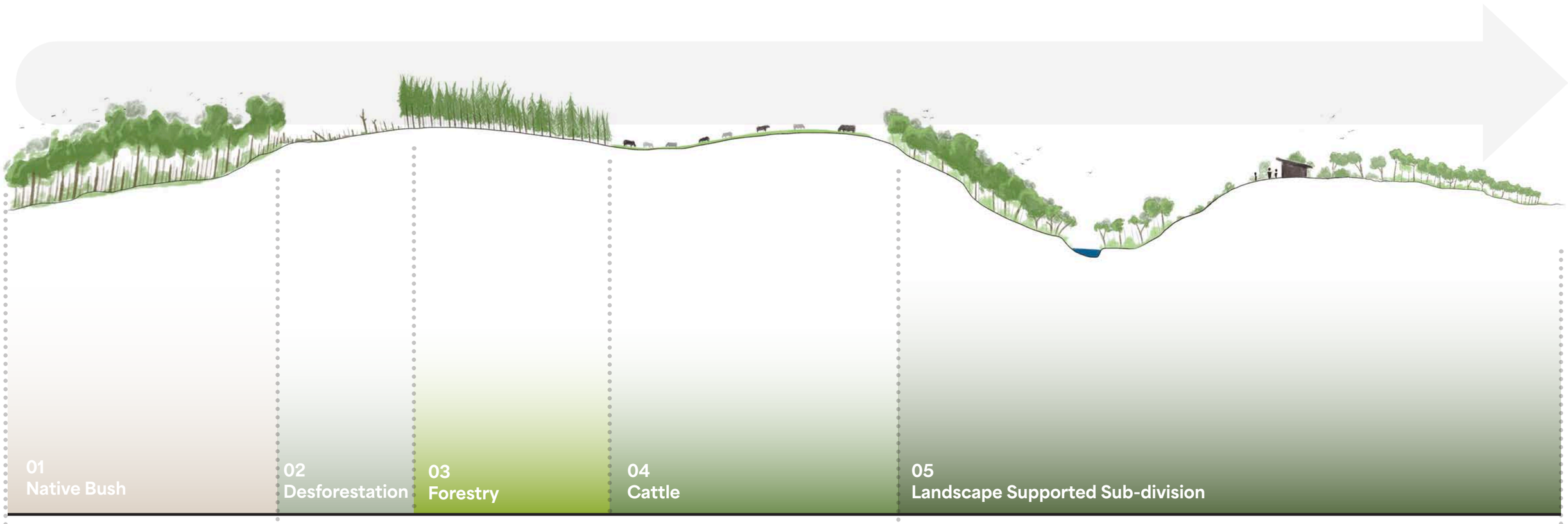
Significant Natural Area SNA (724F)

- Four-six kahikatea present, with evidence of some bark stripping and browsing of branching.
- Bases trampled.

Landscape Strategy

Waitui Farm Landscape Strategy & Plan

Landscape Timeline



Pre-settlement

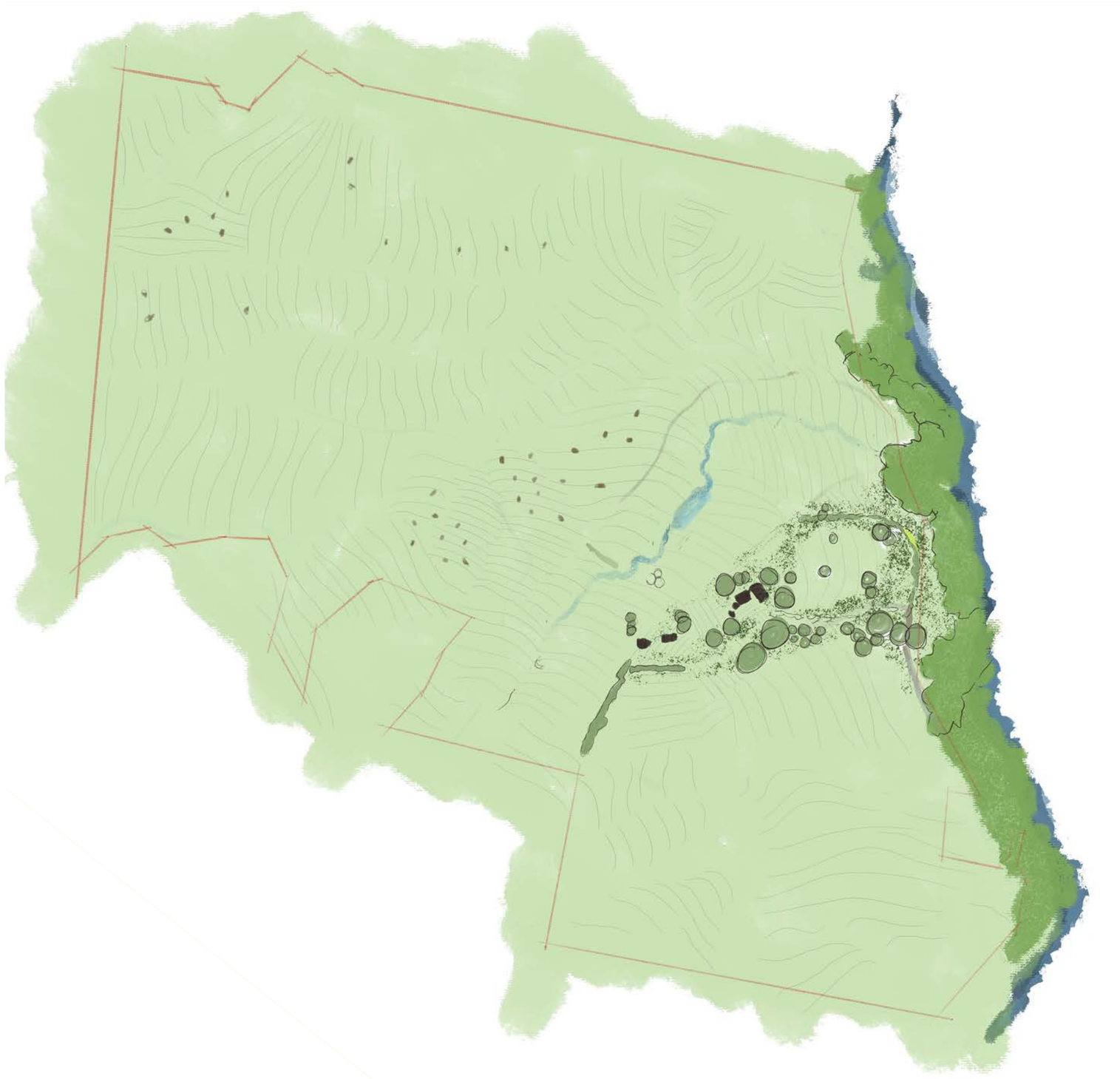
Native bush covered the landscape providing places of shelter and kai for people and nature.

A Changed Landscape

Forestry initially occupied this changed landscape, moving then into settlement and pasture-based agriculture. These uses of the land put more pressure on the quantity and quality of any remnant native vegetation.

A window into the Future

Another set of land-uses can now be imagined. A system where both people and nature can benefit through a nature-focused regenerative lifestyle block development.

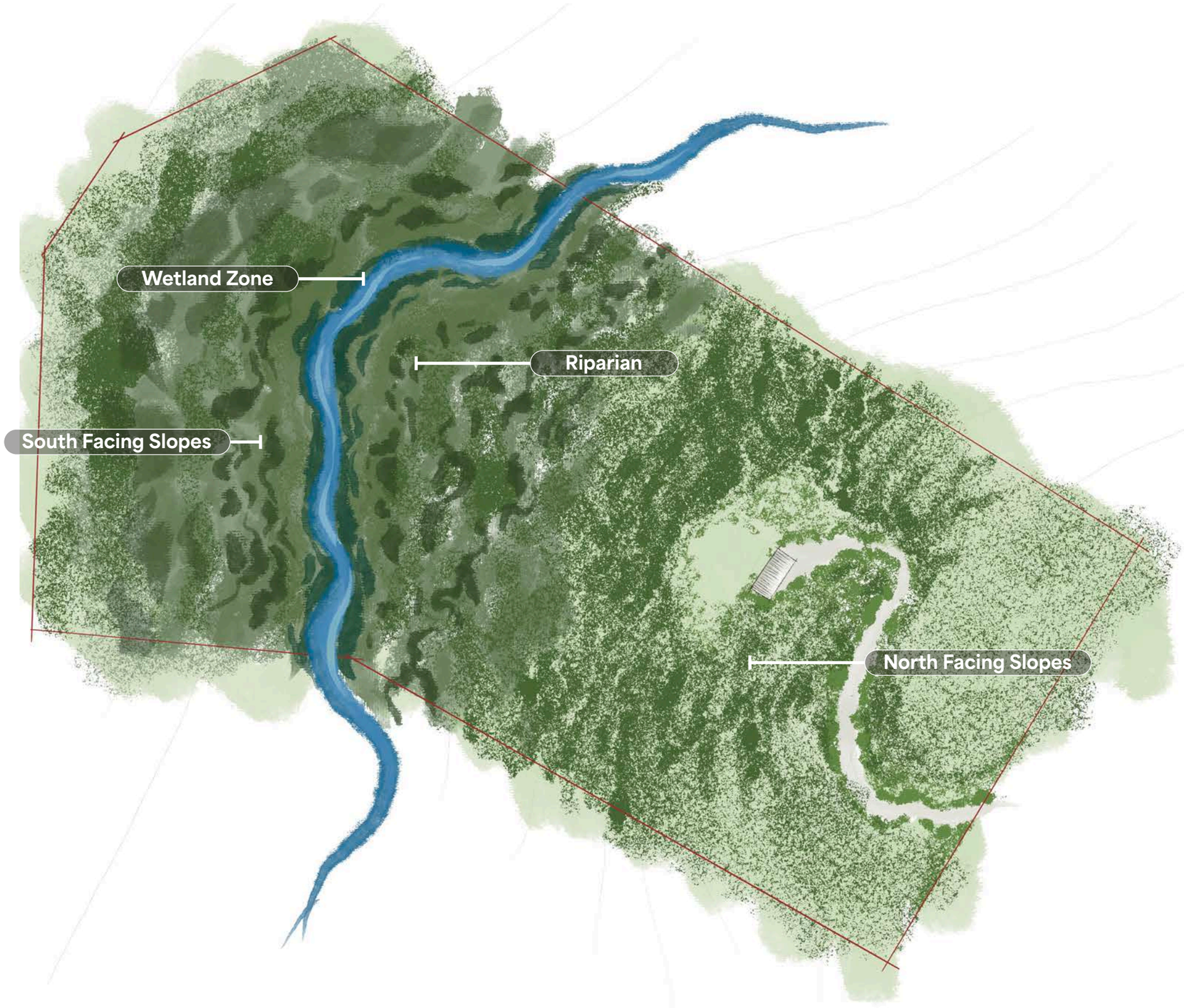


Present Conditions

There is much potential to enhance the surrounding Geraldine Downs landscape.

- Farming practices work the land in ways that seek to find a balance between the relative fertility of the land, and issues of drainage and waterlogging that can come from the rolling and at times steep nature of the farmland.

2 Hectare Block Plan View



Each section can provide ample free space (of at least 4000m2) while still allowing up to 80% of the land to be focused on native forest regeneration.

Bush/shrub margins between property boundaries allow for increased privacy and immersion with the natural landscape.

2 Hectare Block Section

Intent

- The landscape design for the 2ha blocks focuses on filling in the gullies and south-facing hillsides with the applicable identified ecosystem type plant mix.
- Each section will be part of the native restoration, making it a whole system rather than creating a gap between nature and living spaces.

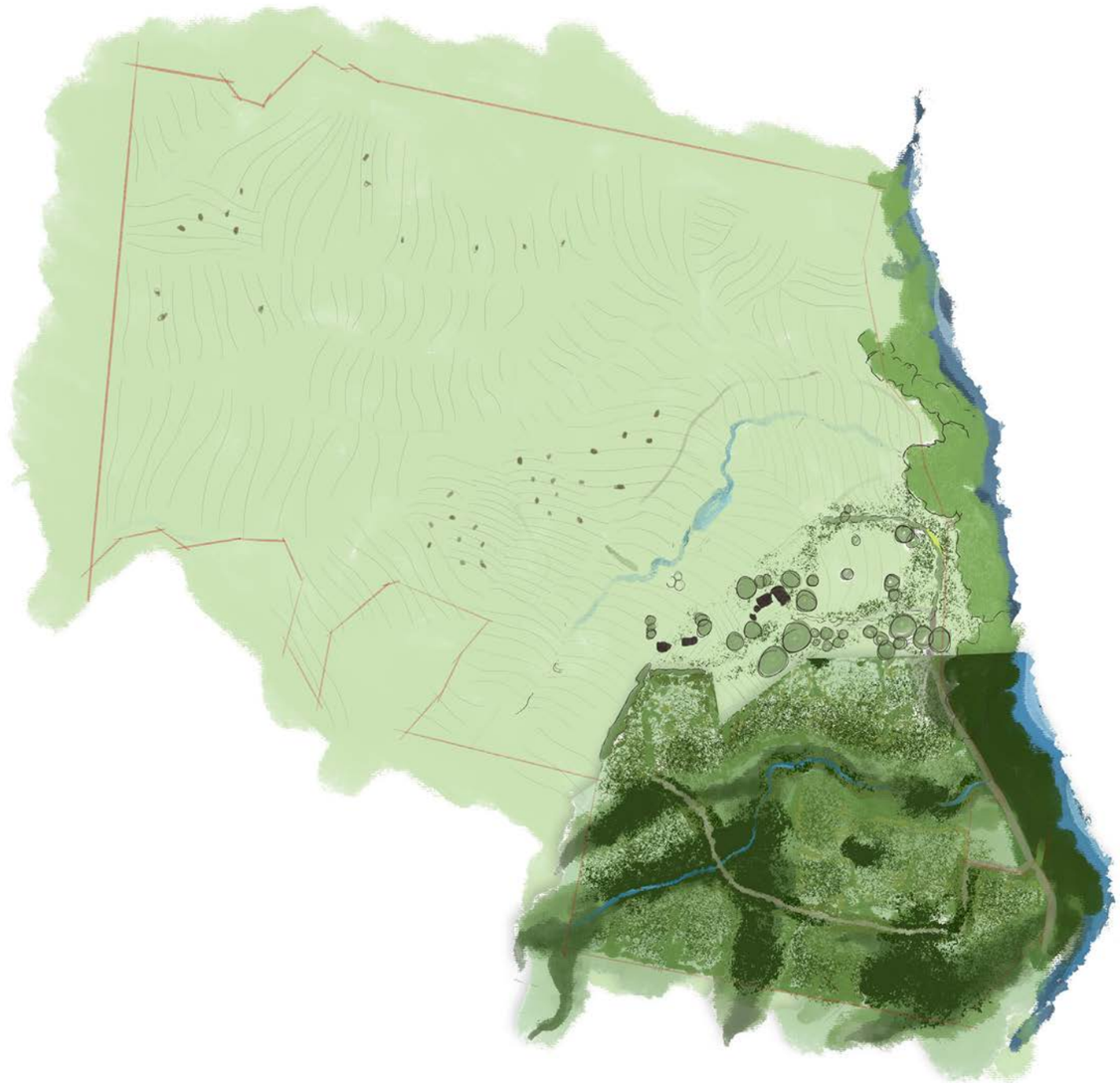
Opportunities

- This form of landscape design can foster for owners and the wider community values of native species restoration, and collectively working to strengthen and better protect the unique values of the forest at Talbot Forest Reserve.

Potential Planting Stages on Waitui Farm

Waitui Farm Area A (26.22ha) with a focus on regenerative native planting.

26.22 ha



Waitui Farm Areas A &B (67.22ha) with a focus on regenerative native planting.

67.22 ha

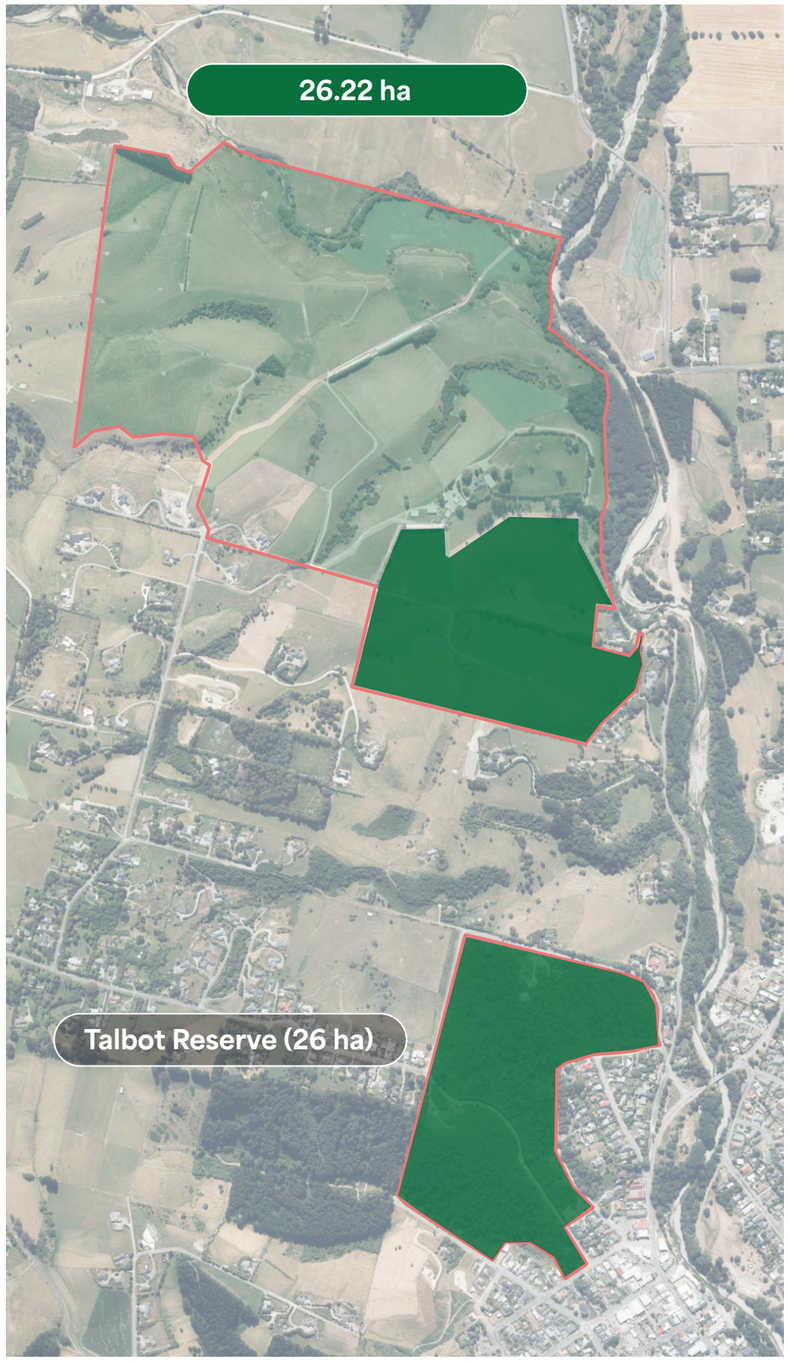
Reimagined Future for the Landscape of Waitui Farm

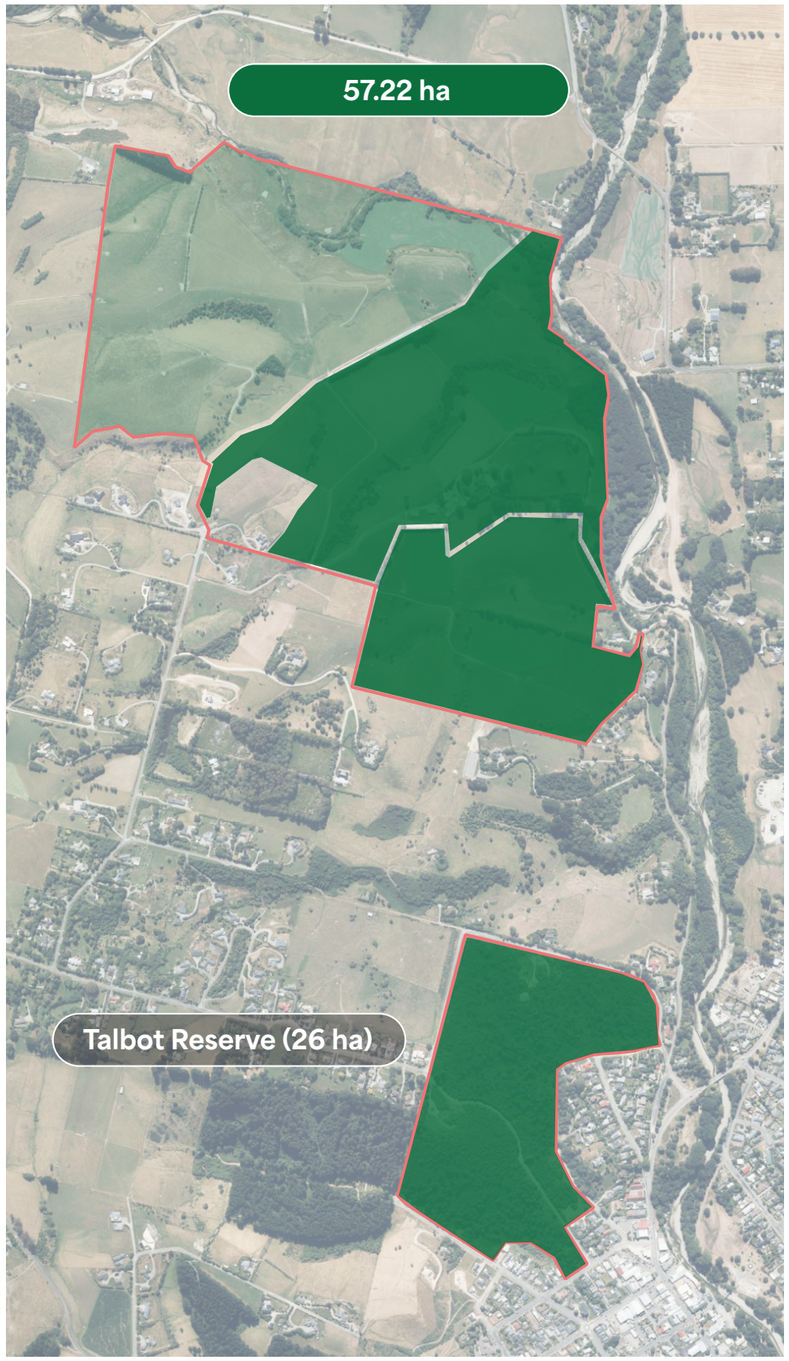
- Strategically placed 2ha blocks can provide optimal use of space to benefit both nature and people.
- Restored wetlands can provide crucial habitat for flora and fauna.
- Healthy riparian gully systems naturally filtering water into the Waihī River.
- Significant Natural Areas can be focus-sites where native forest is revitalised.
- A variety of ecosystems can be realised through specially selected planting strategies, tailored for specific environmental conditions

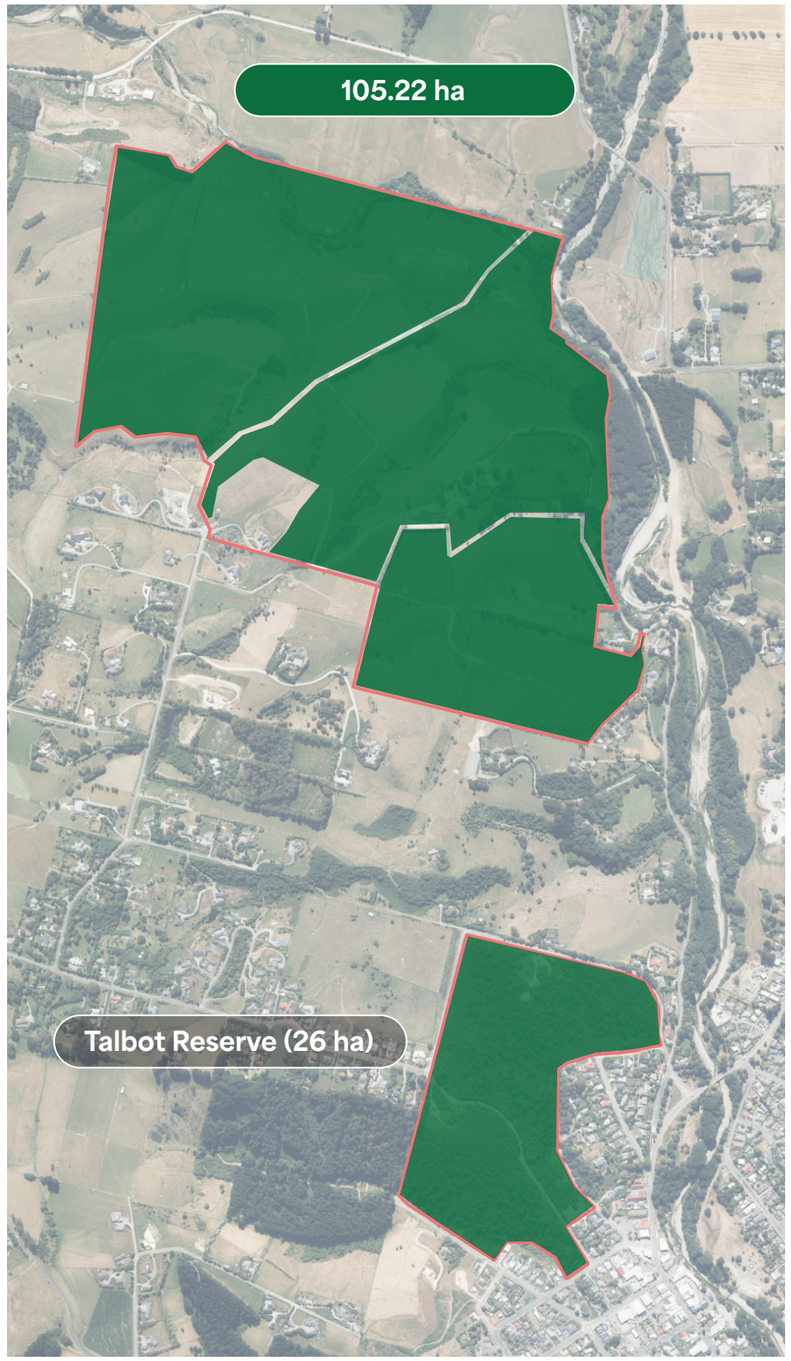
All areas of Waitui Farm with a focus on regenerative native planting.

115.22 ha

Total Hectares of Potential Native Planting on Waitui Farm

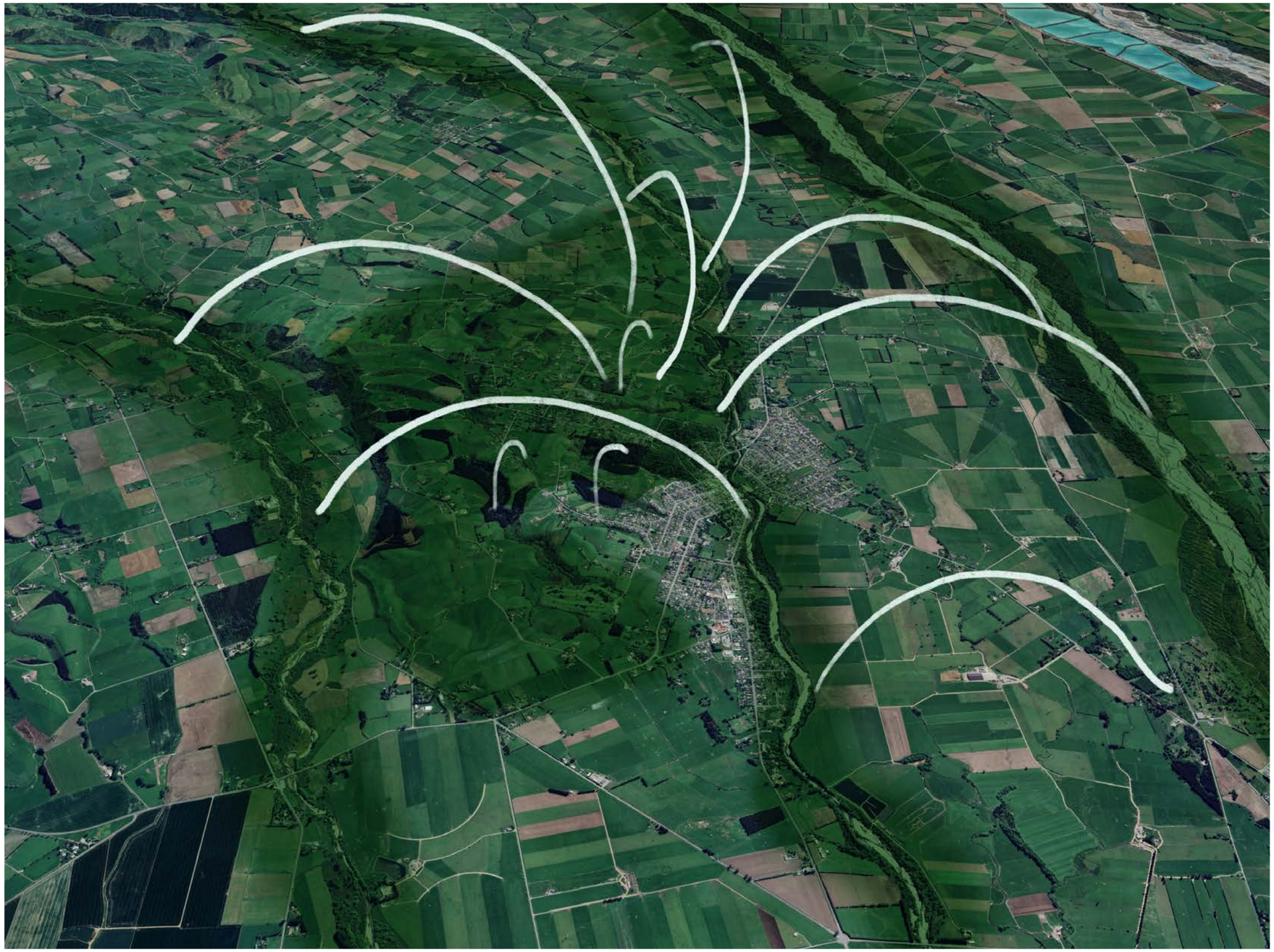






Potential of Waitui Farm to Provide Ecosystem Benefits to Talbot Reserve and other Native Plant Sites in the Geraldine Area

Strengthening Ecological Connections



Opportunities

There is strong potential for this proposal to provide regional scale benefits including:

- Provide connectivity for birds, invertebrates and other native species found at Talbot Forest Reserve.
- Provide connectivity for ECAN initiated projects that focus on waterway-based restoration projects.
- Through eco-sourcing of all plants used, create, in turn a future eco seed source for the region.
- Inspire other restoration projects in the Geraldine Area, and elsewhere across Canterbury

Restoring Forest Giants

Restoring a forest habitat that will support the forest giants found at Talbot Reserve.

Examples of these trees include:

Tōtara

Podocarpus totara

- Tōtara are incredibly long living with some over 1500 years old.
- Tōtara are remarkably strong and durable with the timber resistant to rotting.
- Māori refer to Tōtara as Rakau Rangatira - a chiefly tree - with its timber highly prized for making waka (canoes) and for carving.

Miro

Prumnopitys ferruginea

- Miro have bright red berries that are irresistable to Kererū who can eat up to 100 berries a day.
- Miro seeds even after being ‘processed’ by Kererū can take 18 months to 4 years to germinate.
- The gum that seeps out of Miro trunks and branches can be used as an antiseptic.

Matai

Prumnopitys taxifolia

- Māori drank the liquid (matai beer) obtained from the cracks in heart matai.
- Matai is renowned for high yields of clear heartwood timber that makes excellent flooring timber and window sills.
- Matai grows slowly in shaded forest, it may take 50 years to reach 2 metres.

Planting Zones Overview

Wetland Gullies

Northern Slopes

Southern Slopes

The planting scheme consists of five carefully selected ecosystem types, each tailored to the unique conditions and characteristics of the landscape. A range of plant species have been chosen to suit each ecosystem, ensuring ecological resilience and biodiversity. The selection is inspired by and sourced from Talbot Reserve, supporting habitat restoration and environmental sustainability.

Riparian Buffer

Flat Hilltops

Significant Natural Area (SNA)

Wetland & Riparian Restoration

Wetland Gullies

River Plain

Current Conditions

Gullies and river margins are populated with water-loving hawthorn and willow trees. Removal of these trees will allow for more successful establishment of native species such as harakeke/ flax, kahikatea and tōtara .

SNA & Hillside Restoration

Significant Natural Area

Future Establishment

Lowlying waterways and river plains occasionally flood throughout wet periods, creating ideal conditions for introducing native wetland species. The variety of sunny and shaded areas within north and south facing slopes provide excellent conditions for native trees and shrubs. These can increase the biodiversity of the area, help stabilise steeper slopes and encourage the return of native fauna.

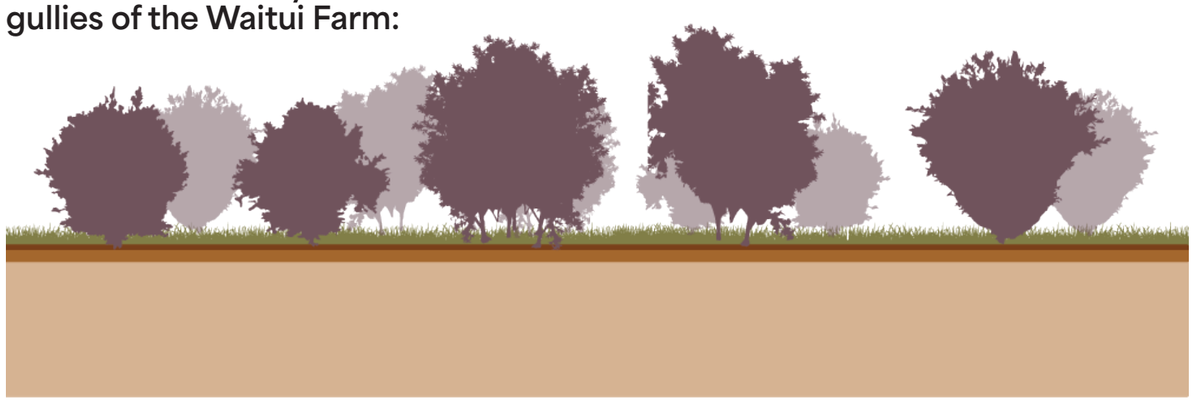
North/South Facing Slopes and Gullies

Underplanting Using Existing Exotics

Establishing native planting made up of a mix of riparian and wetland species with a stgaed strategy adopted for under-canopy planting.

- Wetland
- Riparian planting

Hawthorn currently dominates the gullies of the Waitui Farm:



Stage 1:
Underplanting beneath the hawthorn is a good strategy to nurse new planting with less exposure under the canopy of the hawthorn.

Stage 2:
Once well established, new native panting will begin to take over the gullies, replacing the hawthorn.

Restoring River Riperian Areas

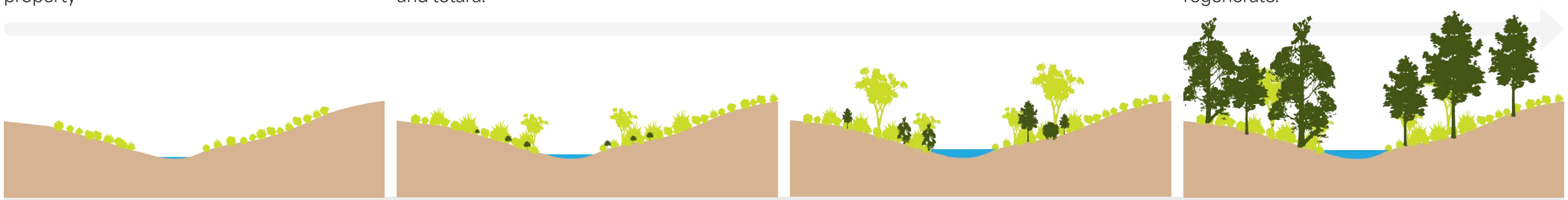
Establishing native planting made up of a mix of native forest and wetland species. A staged strategy of ecological restoration is adopted, including the use of eco-sourced seedlings.

- wetland
- riparian planting
- southern slopes
- northern slopes

Stage 1:
Establishing fast-growing plantings to colonise the moist south-facing slopes of the property

Stage 2:
Maturing plants provide shade for establishing canopy trees such as miro, matai and tōtara.

Stage 3:
Once canopy plants have established, a complete ecosystem within the gullies can regenerate.



Key

- Fast growing planting.
- Large canopy tree

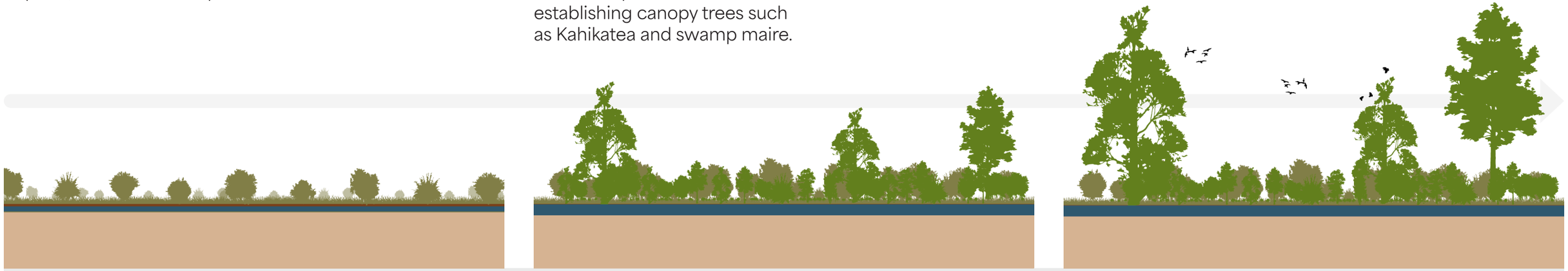
Restoring Wetland Swamp Environments

Establishing native planting made up of wetland species. Adopting a staged strategy of ecological restoration with the use of eco-sourced seedlings.

Lowlying areas that are prone to flooding, currently used for grazing and winterfeed.

Stage 1:
Establishing wetland planting such as pukio, flax wiwi and raupō.

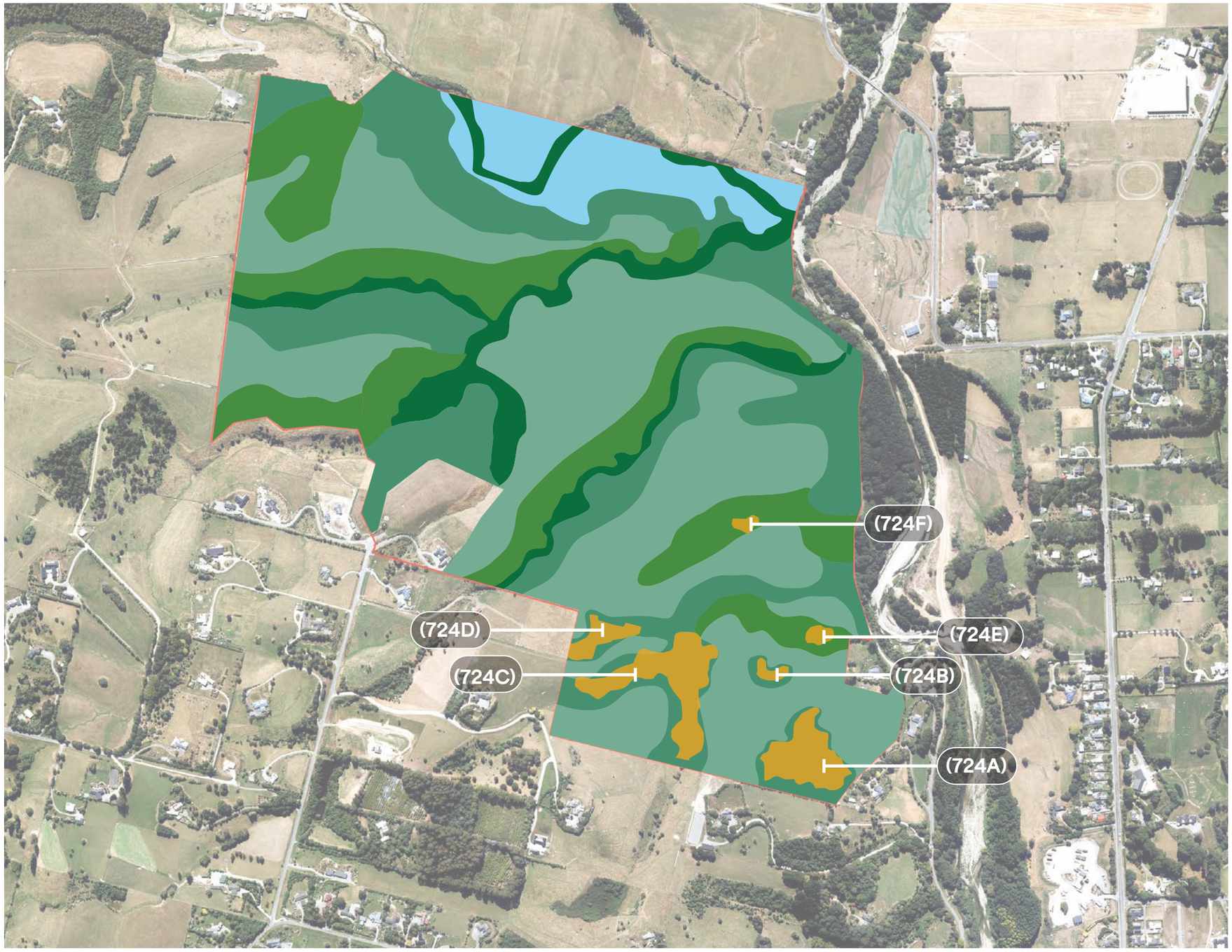
Stage 2:
Maturing wetland sedges and shrub provide shade for establishing canopy trees such as Kahikatea and swamp maire.



Planting Strategy

Waitui Farm Landscape Strategy & Plan

Ecosystem Types



Wetland Gullies

Lower elevation areas that are prone to flooding. Wetland plant mixes are suited to these areas.

Riparian Buffer

Areas adjacent to waterways, provide water-loving canopy and are ideal replacements to the invasive willow.

Southern Slopes

Less exposed slopes that are ideal for new planting.

Northern Slopes

More exposed slopes, subject to higher levels of sunlight and wind.

Flat Hilltops

Open tops also suitable for native planting.

Significant Natural Areas (SNA)

Remnant native vegetation onsite, labelled on the map from SNA 724A - SNA 724F.

Plant Schedule

								PB2, 1.0m centres	PB2, 1.0m centres	PB2, 1.4m centres	PB2, 1.4m centres	PB2, 1.4m centres	PB2, 1.2m centres
Latin Name	**Māori Name**	**Common Name**	**Food Source for Birds**	**Flowers for Pollinators**	**Slope Stabilising**	**Mahinga Kai Uses**	**Nurse Species**	**Wetland**	**Riparian**	**South Slopes**	**North Slopes**	**Tops**	**Around Buildings**
Coprosma propinqua	Mingimingi		✓	✓	✓		✓	✓	✓	✓	✓	✓	
Veronica salicifolia	Koromiko	Willow-leaf hebe		✓	✓	✓	✓	✓	✓			✓	✓
Cortarderia fulvida	Toetoe				✓	✓		✓	✓				
Carex secta	Pūrei				✓	✓		✓	✓				
Phormium tenax	Harakeke	Flax	✓	✓	✓	✓	✓	✓	✓				
Chionochloa rubra		Red tussock			✓	✓			✓				✓
Cordyline australis	Tī Kōuka	Cabbage tree	✓	✓	✓	✓	✓		✓				
Dacrycarpus dacrydioides	Kahikatea	White pine	✓		✓	✓			✓	✓			
Corokia cotoneaster	Korokio	Wire-netting bush	✓	✓	✓	✓	✓			✓	✓	✓	✓
Aristotelia serrata	Makomako	Wineberry	✓	✓	✓	✓				✓	✓	✓	
Hoheria angustifolia	Houhere	Lacebark	✓	✓	✓	✓	✓			✓	✓	✓	
Kunzea ericoides	Kānuka	White tea tree	✓	✓	✓	✓	✓			✓	✓	✓	
Myrsine australis	Māpou			✓	✓	✓	✓			✓	✓	✓	
Olearia avicenniifolia	Mountain akeake		✓	✓	✓	✓	✓			✓	✓	✓	
Pittosporum eugenioides	Tarata	Lemonwood	✓	✓	✓	✓				✓	✓	✓	
Coprosma crassifolia	Mingimingi		✓	✓	✓		✓			✓	✓		
Leptospermum scoparium	Mānuka	Tea tree	✓	✓	✓	✓	✓			✓	✓		

Plant Schedule

								PB2, 1.0m centres	PB2, 1.0m centres	PB2, 1.4m centres	PB2, 1.4m centres	PB2, 1.4m centres	PB2, 1.2m centres
Latin Name	**Māori Name**	**Common Name**	**Food Source for Birds**	**Flowers for Pollinators**	**Slope Stabilising**	**Mahinga Kai Uses**	**Nurse Species**	**Wetland**	**Riparian**	**South Slopes**	**North Slopes**	**Tops**	**Around Buildings**
Plagianthus regius	**Mānatu**	**Ribbonwood**			✓	✓				✓	✓		
Sophora microphylla	**Kōwhai**		✓	✓	✓	✓	✓			✓	✓		
Ozothamnus leptophyllus	**Tauhinu**	**Cottonwood**	✓	✓	✓	✓	✓					✓	✓
Coprosma robusta	**Karamū**		✓	✓	✓		✓					✓	
Melicytus ramiflorus	**Mahoe**	**Whiteywood**	✓	✓	✓	✓	✓					✓	
Pseudopanax crassifolius	**Horoeka**	**Lancewood**	✓	✓	✓	✓	✓					✓	
Pseudowintera colorata	**Horopito**	**Pepperwood**	✓	✓	✓	✓	✓					✓	
Poa cita		**Silver tussock**			✓	✓							✓
Veronica strictissima		**Banks Peninsula hebe**		✓	✓	✓	✓						✓
Carpodetus serratus	**Putaputawētā**	**Marbleleaf**	✓	✓	✓	✓	✓			✓			
Fuchsia excorticata	**Kōtukutuku**	**Tree Fuchsia**	✓	✓	✓	✓				✓			
Griselinia littoralis	**Kapuka**	**Broadleaf**	✓	✓	✓	✓	✓			✓			
Podocarpus totara	**Tōtara**		✓		✓	✓				✓			
Prumnopitys ferruginea	**Miro**		✓		✓	✓				✓			
Prumnopitys taxifolia	**Matai**		✓		✓	✓				✓			
Pseudopanax arboreus	**Whauwhaupaku**	**Five Finger**	✓	✓	✓	✓				✓			

Wetland Gullies

Sedge

Juncus gregiflorus
Wīwī /Common rush

Carex secta
Purei

Typha orientalis
Raupō

Shrub

Phormium tenax
Harakeke/ flax

Cortaderia fulvida
Toetoe

Leptospermum scoparium
Mānuka

Fern

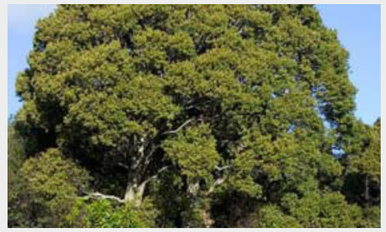
Blechnum chambersii
Lance fern

Blechnum fluviatile
Kiwakiwa / Creek fern

Tree

Dacrycarpus dacrydioides
Kahikatea

Cordyline australis
Cabbage Tree/ Tī Kōuka



Syzygium maire
Swamp maire/Maire tawake

Wetland Gullies

Ecosystem Description

The wetland gullies are low-lying areas prone to water retention, particularly after heavy rainfall. While they remain mostly dry for extended periods, intense rain events can lead to flooding and erosion. Currently, these areas are dominated by exotic water-loving vegetation, such as willows and hawthorn, which impact the natural hydrology and ecology of the site.

Opportunities

Restoring a wetland system in these gullies will help regulate water levels, stabilise topsoil, and reduce erosion along the lower banks. This regeneration will also enhance biodiversity in low-lying areas while reintroducing a vital ecosystem to the southern Canterbury Plains.

Riparian Buffer

Sedge

Juncus gregiflorus
Wīwī /Common rush

Carex secta
Purei

Typha orientalis
Raupō

Shrub

Coprosma propinqua
Mingimingi

Cortaderia fulvida
Toetoe

Phormium tenax
Harakeke/ flax

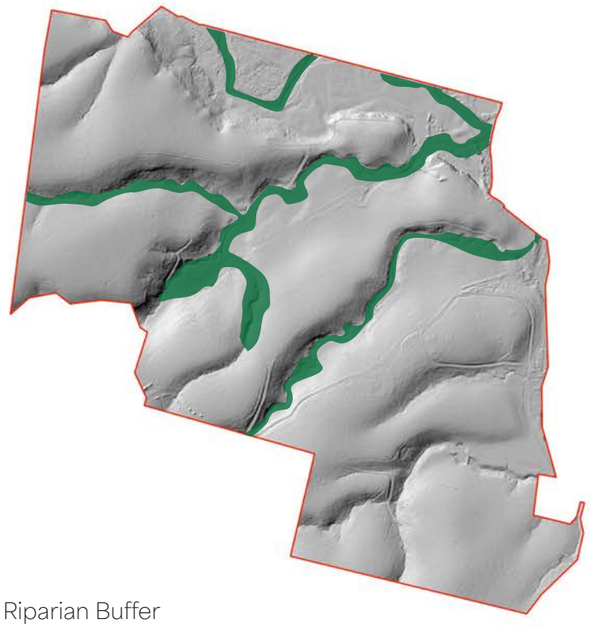
Tree

Pittosporum tenuifolium
Kōhūhū

Myrsine australis
Māpou

Pittosporum eugenioides
Tarata / Lemonwood

Cordyline australis
Cabbage Tree/ Tī Kōuka



Riparian Buffer

Ecosystem Description

The waterways of Waitui Farm are a defining feature of the landscape as well as a crucial ecological asset. Beyond their aesthetic appeal, these waterways play a vital role in the region's ecosystem. Restoring them and implementing effective buffers will help reduce farm and wastewater runoff, protecting the health of the adjacent Waihī River.

Opportunities

Establishing buffer planting along the site's waterways will help restore Waitui Farm to a more original natural state. This will improve water quality, reduce runoff, and create a healthier environment for both nature and people.

Southern Slopes

Shrub

Phormium tenax
Harakeke/ flax

Cortaderia fulvida
Toetoe

Leptospermum scoparium
Mānuka

Tree

Sophora microphylla
Kōwhai

Coprosma robusta
Karamū

Prumnopitys taxifolia
Matai

Podocarpus totara
Tōtara

Cordyline australis
Cabbage Tree/ Tī Kōuka

Dacrydium cupressinum
Rimu

Kunzea ericoides
Kānuka

Southern Slopes

Ecosystem Description

The southern slopes provide favourable conditions for plant establishment due to reduced exposure to harsh sunlight and increased moisture retention. Across the undulating site, these south-facing ‘ribbons’ create an ideal framework for planting within a subdivision development.

Opportunities

Restoring a podocarp/rimu forest on the southern slopes will significantly enhance ecological connectivity. By linking large waterways, Talbot Reserve, and surrounding marginal farmland, the southern slopes of Waitui Farm will play a vital role in revitalising biodiversity in the region.

Northern Slopes

Shrub

Phormium tenax
Harakeke/ flax

Ozothamnus leptophyllus
Cottonwood

Poa cita
Silver Tussock

Coprosma robusta
Karamū

Cortaderia fulvida
Toetoe

Corokia cotoneaster
Korokia

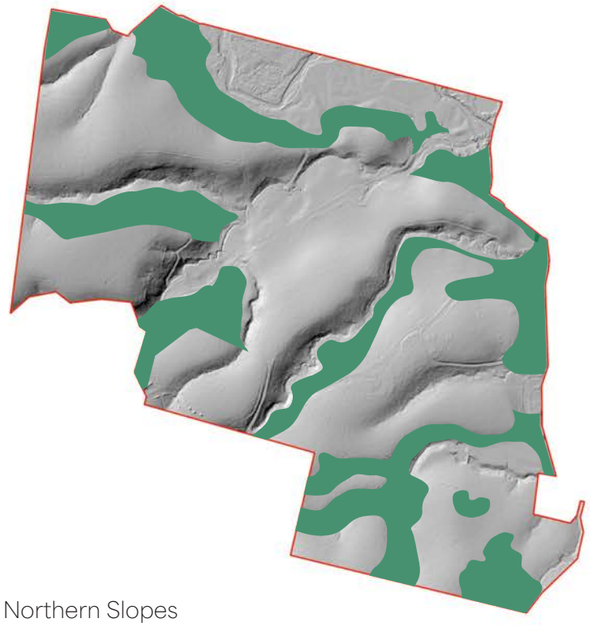
Tree

Sophora microphylla
Kōwhai

Cordyline australis
Cabbage Tree/ Tī Kōuka

Kunzea ericoides
Kānuka

Pittosporum eugenioides
Tarata / Lemonwood



Northern Slopes

Ecosystem Description

Northern facing slopes are predominantly harsher conditions for new planting. Longer sunlight hours and more wind and weather exposure make hardier planting more appropiate.

Opportunities

Extend regeneration up from the gullies, prodividing protection, privacy and green spaces for the residential areas.

Flat Hilltops

Shrub

Astelia fragrans
Bush flax

Muehlenbeckia complexa
Pohuehue

Cortaderia fulvida
Toetoe

Hoheria angustifolia
Narrow-leaved lacebark

Phormium tenax
Harakeke/ flax

Tree

Pittosporum tenuifolium
Kōhūhū

Pseudopanax crassifolius
Horoeka / Lancewood

Flat Hilltops

Ecosystem Description

The flat hilltops are the most exposed areas on the site, receiving full sun and occasional wind, though Geraldine experiences relatively mild prevailing winds. These areas are well-suited for development, offering stunning views of the Southern Alps and the surrounding hills and gullies. Planting on the hilltops will focus on hardy, low-growing species that can withstand the conditions without dominating the landscape.

Opportunities

To enhance the character of the currently pastoral grassland dominated hilltops, while ecologically connecting the gullies to develop the biodiversity on the Farm.

Significant Natural Area (SNA)

Shrub

Muehlenbeckia complexa
Pohuehue

Hoheria angustifolia
Narrow-leaved lacebark

Phormium tenax
Harakeke/ flax

Tree

Pittosporum tenuifolium
Kōhūhū

Pseudopanax crassifolius
Horoeka / Lancewood

Kunzea ericoides
Kānuka

Dacrydium cupressinum
Rimu

Podocarpus totara
Tōtara

Cordyline australis
Cabbage Tree/ Tī Kōuka

Pittosporum eugenioides
Tarata / Lemonwood

Leptospermum scoparium
Mānuka

Sophora microphylla
Kōwhai

Significant Natural Area (SNA)

Ecosystem Description

Remnant native patches are scattered across the southern end of the property. These patches are in poor condition, with some areas entirely dead due to prolonged exposure and grazing pressure from deer and cattle. The remaining vegetation is fragmented, struggling to regenerate naturally, and vulnerable to further degradation without intervention.

Opportunities

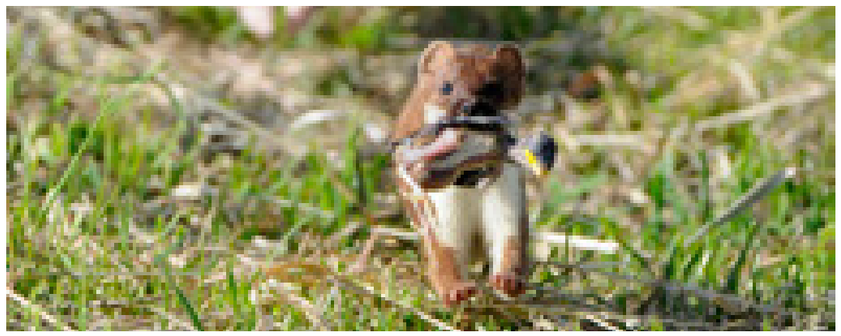
Restoring these remnant native patches will help re-establish ecological corridors, improve biodiversity, and provide habitat for native fauna. Protective measures such as fencing and pest control will allow vegetation to regenerate, while supplementary planting will strengthen the existing ecosystem. Over time, these patches can become self-sustaining, contributing to the wider ecological resilience of the area.

Predator Control Programs

Rabbit control by using bait stations

DOC weka-proof traps

Goodnature A24 trap



Stoat

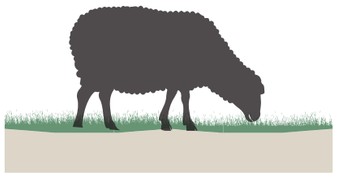
Rats and rodents

- Restoring nature and native ecosystems, and restoring the health of the soil.
- Incorporating a pest and predator control program to protect both flora and fauna species.
- Adopting a rabbit control program that includes employing bait stations.
- Employing DOC Best Practice monitoring techniques to identify target mammalian predators that will inform a trapping program, using 4-5 tracking tunnels focusing on monitoring rodents and mustelids.
- Establishing a trapping program using DOC 200 weka-proof and Goodnature A24 traps to provide durable and effective control measures.
- Locating rat traps using grid pattern techniques recommended by DOC.
- Locating stoat traps along the natural lie of the land, such as habitat perimeters, ridges, altitude contours, waterways and track edges that follows DOC's trapping protocols.
- Monitoring trapping outcomes to inform ongoing program operation.

DOC Best Practice Monitoring Guide. https://www.doc.govt.nz/globalassets/documents/conservation/threats-and-impacts/pf2050/pf2050-trapping-guide.pdf

Rabbit Control Options. https://www.boprc.govt.nz/media/395489/rabbit-control-options-a4-booklet-web-.pdf

Advised stages:

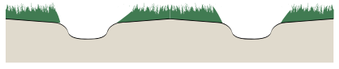


1. Managing livestock

Remove livestock from currently fenced paddocks. Wherever applicable, keep minimal number of stock to manage grass and weeds.

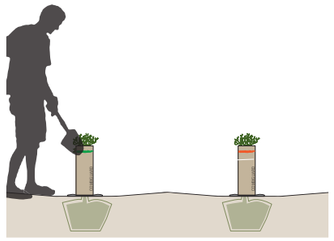
2. Spraying / Removing weeds

Spray planting spots and/or ripped paths with roundup.



3. Ripping / Digging

Rip lines for shelterbelt planting (at spacings according to spreadsheet) Use planter hole digger to drill a depth of 200mm for planting.



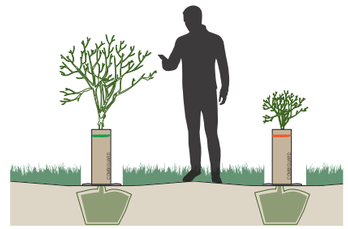
4. Planting*

Plant species according to pattern. Consider use of combiguards:

1. Take care to ensure tight fit so it doesn't flap as this will cause it to be blown away in high wind.
2. Snug fit at base so that subsequent spot spraying doesn't penetrate through to the plant.

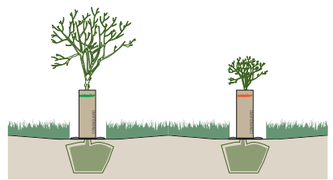
5. Ongoing: Spot spraying

Spot spraying plants with Gallant Ultra Herbicide as required to restrict growth and give plants best shot at survival.



6. Ongoing: Monitoring

Sample plants after 1 year in each area to re-evaluate planting and management methods.



7. Ongoing: Replacement

Wherever possible, replace failed plants in following autumn or spring.

Appendix

Waitui Farm Landscape Strategy & Plan

TALBOT FOREST SCENIC RESERVE PLANT LIST

Mike Harding

Mike Harding, Woodbury, mikeharding@ihug.co.nz

Talbot Forest Scenic Reserve protects the largest area of un-logged podocarp-hardwood forest on the downlands of South Canterbury. It covers approximately 26 ha at the western edge of Geraldine. The core of the reserve was first gazetted in 1886. It is administered by the Department of Conservation.

The reserve lies on moderately steep slopes, ranging in altitude from approximately 120 m at its eastern (Geraldine) boundary to approximately 190 m at its western edge on the Geraldine Downs. Small ephemeral streams drain the centre of the reserve and a larger stream flows through the southern edge of the reserve.

The underlying rock of the reserve is Geraldine basalt (Cox & Barrell 2007). This rock is covered at most parts of the reserve by a deep layer of loess (wind-blown silt). A small area of alluvial terrace lies within the southern part of the reserve (adjacent to Hislop Street). Annual precipitation at the reserve is approximately 750 mm.

Talbot Forest Scenic Reserve lies at the eastern edge of Geraldine Ecological District, within Pareora Ecological Region (McEwen 1987). It also lies in the "Downlands of South Canterbury and North Otago" (N3.1a) Level IV Land Environment (Leathwick et al. 2003), an "acutely threatened" Land Environment (Walker et al. 2005).

The Scenic Reserve supports areas of unlogged podocarp-hardwood forest at its core and regenerating indigenous forest at its margins (Fig. 1). Indigenous

Figure 1 Talbot Forest Scenic Reserve, December 2012.

vegetation has been planted at some of these reserve edges; at other locations the reserve edges support a number of naturalized exotic species.

All indigenous vascular plant species (except naturalised grasses and smaller herbs) recorded from a December 2012 survey and from an earlier (1971) survey of the reserve (Kelly 1972) are listed (Table 1, page 83). Naturalised species are indicated with an asterisk. Plant species names follow de Lange & Rolfe (2010) for indigenous species and Webb et al. (1988) and Popay et al. (2010) for naturalised plants.

Ninety-one indigenous vascular plant species were recorded during this 2012 survey of Talbot Forest Scenic Reserve. Species recorded are three podocarp trees, 18 hardwood trees, 17 shrubs, 13 climbers, two mistletoes, 19 ferns, five sedges/rushes, two grasses, one orchid and 11 herb species. Three of these species appear to be naturalised at the reserve: gossamer grass (*Anemanthele lessoniana*), karamu (*Coprosma robusta*) and lacebark (*Hoheria sexstylosa*).

Five other indigenous plant species were recorded during a 1971 survey of the reserve (Kelly 1972): one climber (*Parsonsia capsularis*), two herbs (*Haloragis erecta* and *Lemna minor*), one orchid (*Pterostylis graminea*) and one fern (*Hypolepis millefolium*).

Eighteen plant species recorded during this 2012 survey were not recorded by Kelly in 1971, inc luding two trees, two climbers, four shrubs or shrub hybrids, six ferns and four other species. Notable species among these are *Blechnum membranaceum* (Fig. 2), not recorded previously in South Canterbury, and the at risk *Brachyglottis sciadophila* (de Lange et al. 2013).

Figure 2 *Blechnum membranaceum*, Talbot Forest Scenic Reserve, December 2012.

Differences in the plant species recorded between these two surveys is likely to be due to differences in survey effort (Kelly spent only four hours at the reserve) and changes to the plant communities over the forty-year period between surveys. Species recorded by Kelly but not observed during this 2012 survey may still be present, but simply overlooked during this survey.

The number of plant species present in the reserve (90+) compares favourably with the number of plant species present at other areas of indigenous vegetation on the Geraldine Downs, as expected for a protected site containing original forest. The most diverse site surveyed during Significant Natural Area (SNA) assessments on the Geraldine Downs supports 66 indigenous vascular plant species, though SNA surveys were not as thorough as this survey of Talbot Forest. The average number of indigenous vascular plants at the 35 Geraldine Downs SNAs is 27.

Talbot Forest Scenic Reserve supports a number of locally uncommon species. Five species recorded in the 2012 survey have not been recorded in SNAs on the Geraldine Downs: *Australina pusilla*, *Blechnum membranaceum*, *Hypolepis rufobarbata*, *Lastreopsis glabella*, and *Nematoceras trilobum*. Two species have been recorded at only one other Geraldine Downs SNA: *Hypolepis millefolium* and *Microlaena avenacea*. Four species have been recorded at only two other SNAs: *Blechnum chambersii*, *Coprosma rubra*, *Pyrrosia eleagnifolia*, and *Ripogonum scandens*.

Identification of two Talbot Forest species was confirmed by Landcare Research staff at Lincoln (Allan Herbarium): the fern, *Blechnum membranaceum* (Plant ID No. 2012/0361), and a new *Berberis* naturalisation record in the *Berberis congestiflora* group (Plant ID No. 2011/0944).

Indigenous forest at Talbot Forest Scenic Reserve is the largest and most intact remnant in the lower rainfall zone (600 to 800 mm per annum) in South Canterbury. Other important indigenous forest remnants occur in the South Canterbury foothills, notably Peel Forest Park Scenic Reserve and Station Stream (Orari Gorge Station). However, annual precipitation at those locations is more than 1000 mm.

Acknowledgements

Funds for the 2012 survey of Talbot Forest were provided by the Department of Conservation (Lorraine Cook) and Timaru District Council (Mark Geddes). Ines Schönberger (Landcare Research), Jon Sullivan (Lincoln University), Nick Head (DoC), Colin Meurk (Landcare Research), Ines Stager and Peter Keller provided information about the location and identity of plant species at Talbot Forest. Colin Burrows provided helpful comments on an earlier draft. I thank these people for their assistance.

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Table 1 All indigenous vascular plant species (except naturalised grasses and smaller herbs) recorded from a December 2012 survey and from a 1971 survey (Kelly 1972) of Talbot Forest Scenic Reserve. Naturalised species are indicated with an asterisk.

Scientific name	Common name	Notes/Distribution
Acaena anserinifolia	bidibid	forest and track edges
*Acer pseudoplatanus**	sycamore	patchy, throughout
*Anemanthele lessoniana**	gossamer grass	one plant, NW corner (naturalized native)
Aristotelia serrata	wineberry	damper sites, throughout
Asplenium appendiculatum		throughout
Asplenium bulbiferum	hen and chickens fern	uncommon, possibly only hybrids
Asplenium flabellifolium	necklace fern	forest and track edges
Asplenium flaccidum	hanging spleenwort	uncommon (mostly hybrids)
Asplenium gracillimum agg.		abundant, throughout
Asplenium hookerianum		throughout
Asplenium richardii		uncommon, throughout
Asplenium x *Asplenium*	hybrid asplenium	several forms, throughout
Astelia fragrans	bush lily	throughout
Australina pusilla		southern terrace, track edges
*Berberis congestiflora** (?)		one plant, first naturalisation record in New Zealand
*Berberis darwinii**	Darwin's barberry	occasional, throughout
*Betula pendula**	silver birch	forest margins (planted?)
Blechnum chambersii		rare, damp gullies
Blechnum fluviatile		throughout
Blechnum membranaceum		rare, gullies, first record from South Canterbury
*Brachyglottis repanda**	rangiora	1971 only (planted?)
Brachyglottis sciadophila		rare, NW corner, track edges (at-risk species)

Calystegia tuguriorum	native convolvulus	abundant, throughout
*Calystegia silvatica**	great bindweed	occasional, forest edges
Cardamine debilis agg.	cardamine	throughout
Carex forsteri	sedge	throughout
Carex solandri	sedge	throughout
Carpodetus serratus	marbleleaf	damper slopes
Clematis foetida		throughout
Clematis paniculata	clematis	rare, southern terrace
*Clematis vitalba**	old man's beard	rare, NW corner
Coprosma areolata		throughout
Coprosma crassifolia		throughout
Coprosma propinqua agg.	mingimingi	mostly at forest edges
Coprosma propinqua x *robusta*		throughout
Coprosma rhamnoides		uncommon
*Coprosma robusta**	karamu	occasional, throughout (naturalised native)
Coprosma rotundifolia		throughout
Coprosma rubra		rare, southern terrace
Cordyline australis	ti/cabbage tree	throughout
*Crataegus monogyna**	hawthorn	forest edges
*Cytisus scoparius**	broom	forest edges
Dacrycarpus dacrydioides	kahikatea	older forest throughout
*Dryopteris filix-mas**	male fern	throughout
Elaeocarpus hookerianus	pokaka	older forest throughout
Euchiton audax	creeping cudweed	forest edges
*Euonymus europaeus**	spindle tree	throughout
*Fraxinus excelsior**	ash	mostly at forest edges
Fuchsia excorticata	fuchsia	throughout
Fuchsia excorticata x *perscandens*	hybrid fuchsia	throughout
Fuchsia perscandens	scrambling fuchsia	throughout
*Genista monspessulana**	Montpellier broom	forest edges, Davies Street, Tripp Street

*Glechoma hederacea**	ground ivy	one patch, Totara St track entrance
Griselinia littoralis	broadleaf	throughout
Haloragis erecta	toatoa	1971 only
Hebe salicifolia	koromiko	planted
*Hedera helix**	ivy	throughout
Hoheria angustifolia	narrow-leaved lacebark	older forest throughout
*Hoheria sexstylosa**	lacebark	naturalized from plantings
Hydrocotyle heteromeria	pennywort	damper sites, throughout
Hydrocotyle moschata	hairy pennywort	throughout
Hydrocotyle novae-zelandiae	pennywort	throughout
Hypolepis ambigua		throughout
Hypolepis millefolium	thousand-leaved fern	1971 only (may be *H. rufobarbata*?)
Hypolepis rufobarbata		rare, southern terrace
Ileostylis micranthus	mistletoe	occasional, throughout
*Iris foetidissima**	stinking iris	throughout
*Juncus articulatus**	jointed rush	damper sites
Juncus edgariae		damper sites
*Juncus effusus**	soft rush	damper sites
Korthalsella lindsayi	dwarf mistletoe	rare, southern reserve margin
Lastreopsis glabella agg.		throughout
Lemna minor		1971 only
Leptospermum scoparium	manuka	planted
Libertia ixioides		occasional, throughout
*Lonicera japonica**	Japanese honeysuckle	forest edge Totara Street
Lophomyrtus obcordata	rohutu	throughout
Mahonia sp.*		southern terrace, one plant (removed)
Melicope simplex	poataniwha	throughout

Melicytus micranthus	shrubby mahoe	older forest throughout
Melicytus ramiflorus agg.	mahoe	throughout
Melicytus ramiflorus x *micranthus*	hybrid mahoe	older forest throughout
Metrosideros diffusa	white climbing rata	throughout
Metrosideros umbellata	southern rata	planted
Microlaena avenacea	bush rice grass	southern terrace, track edges
Microsorum pustulatum	hound's tongue fern	throughout
Muehlenbeckia australis agg.	pohuehue	abundant, throughout
Muehlenbeckia complexa agg.	scrub pohuehue	occasional throughout
Myrsine australis	mapou	throughout
Myrsine divaricata agg.	weeping mapou	rare, southern terrace
Nematoceras trilobum agg.	spider orchid	rare, southern terrace
Nothofagus fusca	red beech	planted
Nothofagus solandri	black beech	planted
Parsonsia capsularis	native jasmine	1971 only (may be *P. heterophylla*?)
Parsonsia heterophylla	native jasmine	throughout
*Passiflora mollissima**	banana passionfruit	rare, NW corner
Pellaea rotundifolia	button fern	throughout
Pennantia corymbosa	kaikomako	older forest
Pittosporum eugenioides	tarata/lemonwood	throughout
Pittosporum tenuifolium	matipo	throughout
Plagianthus regius	lowland ribbonwood	planted
Podocarpus totara	totara	throughout
Polystichum neozelandicum	common shield fern	throughout
Polystichum vestitum agg.	prickly shield fern	throughout
*Potentilla indica**	Indian strawberry	track edges
Prumnopitys taxifolia	matai	throughout
*Prunus cerasifera**	cherry plum	occasional, throughout

*Prunus lusitanica**	Portugal laurel	forest edge Totara Street
Pseudopanax arboreus	five-finger	throughout
Pseudopanax crassifolius	lancewood	uncommon
Pseudowintera colorata	horopito	occasional, throughout
Pteridium esculentum	bracken	mostly at forest edges
Pterostylis graminea	orchid	1971 only
Pyrrosia eleagnifolia	leather-leaf fern	rare, forest canopy
Ripogonum scandens	supplejack	throughout
Rubus cissoides agg.	bush lawyer	throughout
Rubus fruticosus agg.*	blackberry	throughout
Rubus schmidelioides	lawyer	occasional, throughout
Rubus squarrosus	leafless lawyer	throughout
*Sambucus nigra**	elderberry	throughout
Schefflera digitata	pate	throughout
Senecio glomeratus agg.		forest edges
*Solanum chenopodioides**	velvety nightshade	throughout
*Solanum dulcamara**	bittersweet	throughout
Solanum laciniatum	poroporo	forest edges
*Solanum nigrum**	black nightshade	forest edges
Sophora microphylla	kowhai	throughout
Sophora tetrapetala	North Island kowhai	planted
*Sorbus aucuparia**	rowan	throughout
Stellaria parviflora		track edges
Streblus heterophyllus	turepo	abundant, throughout
*Taxus baccata**	yew	rare, southern terrace
*Tropaeolum speciosum**	Chilean flame creeper	throughout
*Ulex europaeus**	gorse	forest edges
Ulmus x *hollandica**	elm	occasional, mostly forest edges
Uncinia uncinata	hookgrass	throughout
Urtica incisa	nettle	throughout