Waitaki
DISTRICT COUNCIL
TE KAUNIHERA Ā ROHE O WAITAKI

I hereby give notice that a Hearings Committee Meeting

will be held on:

Date:	**Monday, 12 May 2025**
Time:	**10:45 am**
Location:	**Council Chamber, Third Floor** **Office of the Waitaki District Council** **20 Thames Street, Oamaru** **Livestream Link**

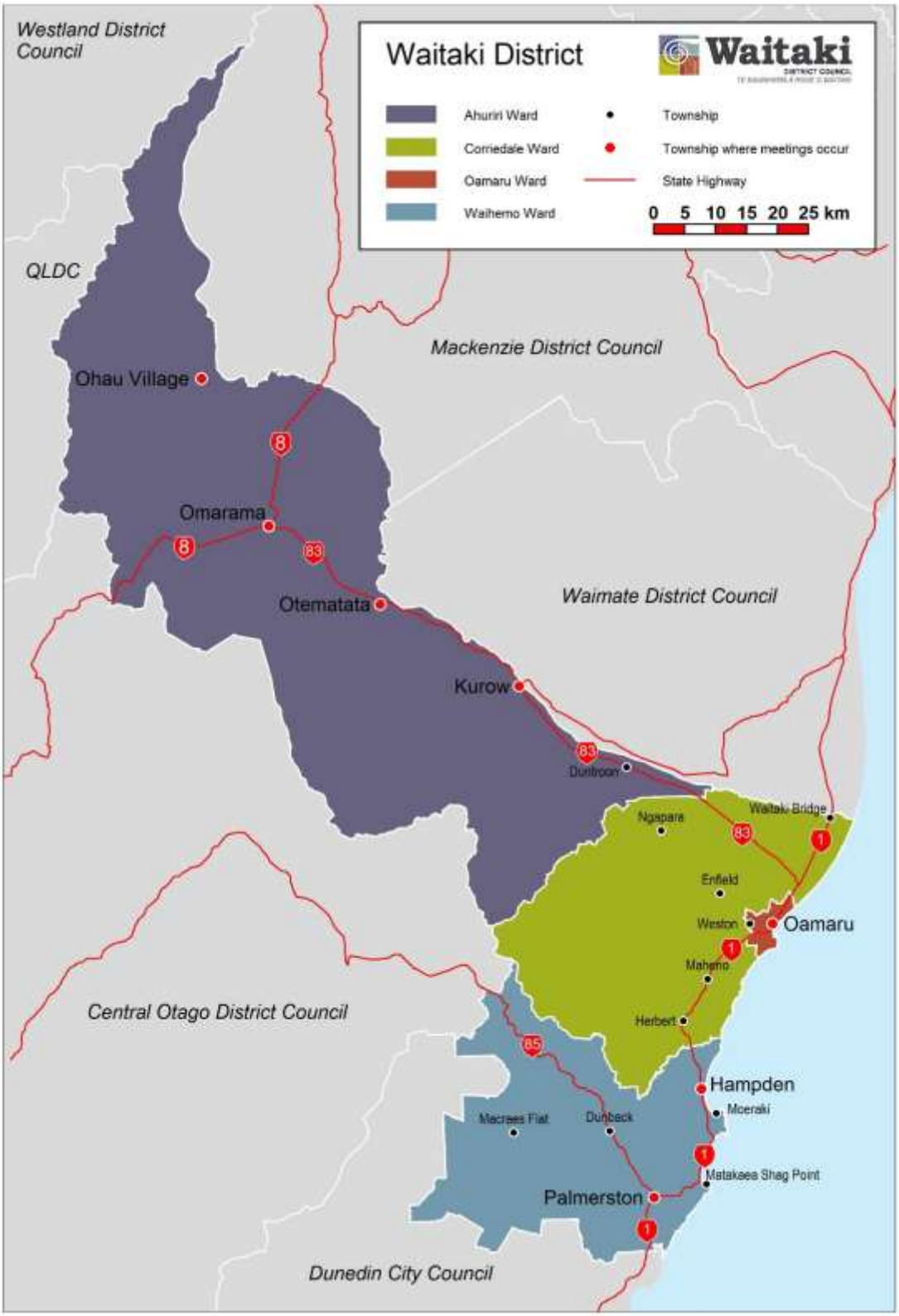
Agenda

Hearing of Public Submissions Application for Grazing Licence: Waihemo Recreation Reserve

12 May 2025

Alex Parmley

Chief Executive


Waitaki District
Waitaki
Ahuriri Ward
Corriedale Ward
Oamaru Ward
Waihemo Ward
Township
Township where meetings occur
State Highway
0 5 10 15 20 25 km
Westland District Council
QLDC
Mackenzie District Council
Waimate District Council
Central Otago District Council
Dunedin City Council
Ohau Village
Omarama
Otematata
Kurow
Duntroon
Ngapara
Waitaki Bridge
Enfield
Weston
Oamaru
Maheno
Herbert
Hampden
Moeraki
Macraes Flat
Dunback
Matakaea Shag Point
Palmerston


WAITAKI DISTRICT COUNCIL
STRATEGIC FRAMEWORK
value for money
EMPOWERING OUR PEOPLE AND PLACE TO THRIVE
community outcomes
QUALITY SERVICES
Robust core infrastructure and services
Community facilities and services we are proud of
PROSPEROUS DISTRICT
Attracting new opportunities
Supporting local businesses
Fostering a diverse and resilient economy
WAITAKI THE BEST PLACE TO BE!
STRONG COMMUNITIES
Enabling safe, healthy communities
Connected, inclusive communities
Promoting a greater voice for Waitaki
Celebrating our community identity
VALUED ENVIRONMENT
Protecting our diverse landscapes and water bodies
Meeting environmental and climate change challenges
Waitaki - Whenua taurikura. Whakapuāwai takata, Whakapuāwai whenua
strategic priorities
Develop our people and attract skills, for the benefit of our communities
Facilitate strategic relationships
Finish District Plan
Deliver Transformation Programme
Strengthen the community development role of Council
Establish Economic Development Agency
value for money
Waitaki
DISTRICT COUNCIL

Agenda Items

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1 APOLOGIES

2 DECLARATIONS OF INTEREST

3 DECISION REPORTS

3.1 WAIHEMO RECREATION RESERVE GRAZING LICENCE

Author: **Lindsay Hyde, Recreation Specialist**

Authoriser: **Roger Cook, Director Natural and Built Environment**

Attachments:
1. **Communication Channels**
2. **Public submissions - redacted**

RECOMMENDATION

That the Hearings Committee:

1. Receives the written and verbal submissions on the issuing of a grazing licence for the Waihemo Recreation Reserve.
2. Makes recommendations to Council on the issue of a grazing licence for the Waihemo Recreation Reserve.

DECISION OBJECTIVE

The Hearings Committee is not delegated by Council to make decisions under the Reserves Act 1977. Therefore, the objective of this hearing is for the committee to listen to submissions and make recommendations to a future meeting of the full Council - who will make the final decision.

SUMMARY

Council advertised its intent in issuing a grazing licence for part of the Waihemo Recreation Reserve.

It is required that we publicly notify this, which allows the community to have its say on this issue.

We received 112 submissions made during the consultation period. Of the submissions, 55 were for grazing and 55 were against, with 2 submitters not providing any view on this question. 15 of the submitters wish to speak to their submission at the hearing.

DECISION-MAKING EXPECTATIONS

Governance Decision-Making:	Provide recommendations to council which will inform a later decision report.
Operational Decision-Making:	Not applicable
Communications	Media Releases – contributed to by officers and Elected Members Media/public enquiries regarding governance decision-making topics above can be addressed by governance Media/public enquiries regarding operational decision-making topics above can be addressed by officers

SUMMARY OF DECISION-MAKING CRITERIA

	No/Moderate/Key		No/Moderate/Key

Policy/Plan	Moderate	Environmental Considerations	Key
Legal	No	Cultural Considerations	Moderate
Significance	No	Social Considerations	Moderate
Financial Criteria	No	Economic Considerations	No
Community Views	Key	Community Board Views	No
Consultation	Moderate	Publicity and Communication	Moderate

BACKGROUND

Waihemo Recreation Reserve has been grazed for over 100 years. Its current licence to occupy expired on 30 June 2024, however WDC has extended this on a month-by-month basis. On 25 February 2025, council agreed to issue a licence to graze part of the Waihemo Recreation Reserve, subject to public notification and consideration of any submissions.

This consultation is required as the land is subject to the Reserves Act 1977. Waihemo Recreation Reserve is a Recreation Reserve under this act, and as such covers a range of suitable activities. (see below)

Recreation reserves

(1)

It is hereby declared that the appropriate provisions of this Act shall have effect, in relation to reserves classified as recreation reserves, for the purpose of providing areas for the recreation and sporting activities and the physical welfare and enjoyment of the public, and for the protection of the natural environment and beauty of the countryside, with emphasis on the retention of open spaces and on outdoor recreational activities, including recreational tracks in the countryside.

(2)

It is hereby further declared that, having regard to the general purposes specified in subsection (1), every recreation reserve shall be so administered under the appropriate provisions of this Act that—

(a)

the public shall have freedom of entry and access to the reserve, subject to the specific powers conferred on the administering body by sections 53 and 54, to any bylaws under this Act applying to the reserve, and to such conditions and restrictions as the administering body considers to be necessary for the protection and general well-being of the reserve and for the protection and control of the public using it:

(b)

where scenic, historic, archaeological, biological, geological, or other scientific features or indigenous flora or fauna or wildlife are present on the reserve, those features or that flora or fauna or wildlife shall be managed and protected to the extent compatible with the principal or primary purpose of the reserve:

provided that nothing in this subsection shall authorise the doing of anything with respect to fauna that would contravene any provision of the Wildlife Act 1953 or any regulations or Proclamation or notification under that Act, or the doing of anything with respect to archaeological features in any reserve that would contravene any provision of the Heritage New Zealand Pouhere Taonga Act 2014:

(c)

those qualities of the reserve which contribute to the pleasantness, harmony, and cohesion of the natural environment and to the better use and enjoyment of the reserve shall be conserved:

(d)

to the extent compatible with the principal or primary purpose of the reserve, its value as a soil, water, and forest conservation area shall be maintained.

Farming and grazing on recreation reserves is allowed as referenced in Section 73 of the Reserves Act 1977.

This area is also subject to the 2014 Waitaki Reserves Management Plan.

The consultation period opened on 25 February and with submissions closing on 15 April. The submission period was initially for a month but was extended out by three weeks due to hard copies of the consultation document not being available at the council service centres. This was as a result of a request from the Puketapu Community Trust.

SUMMARY OF OPTIONS CONSIDERED

Option 1 – Receive and consider submissions and make recommendations to Council, which will inform a decision-making report to an upcoming council meeting. This is the preferred option.

Option 2 – There are no other legal options to consider regarding this matter.

CONCLUSION

The Waihemo Recreation Reserve is an important strategic asset for the Waihemo community. The proposed development of the walking track leading to the Puketapu Summit has been a catalyst for the community to further look at the entire reserve, which will help set the development of this area in the years ahead.

The community is split on its views around the issuing of the grazing licence; however many submissions have also discussed other issues in relation to the reserve. These views help support the purpose of recreation reserves so should be considered as part of the wider discussion.

ADDITIONAL DECISION-MAKING CONSIDERATIONS

Waitaki District Council Strategic Framework

Outcomes

Community Outcomes

Prosperous District

- Supporting local businesses
- Fostering a diverse and resilient economy

Strong Communities

- Enabling safe, healthy communities
- Connected, inclusive communities
- Promoting a greater voice for Waitaki
- Celebrating our community identity

Quality Services

- Community facilities and services we are proud of

Valued Environment

- Protecting our diverse landscapes and water bodies
- Meeting environmental and climate change challenges

Policy and Plan Considerations

Further consideration will be required in relation to the Reserves Act 1977 and the 2014 Waitaki Reserves Management Plan.

Community Views

The submissions process was longer than the statutory 1-month period. The Puketapu Community Trust were active in social media and on the ground in encouraging people to have their say. Some of the submitters also choose to comment on the Puketapu Walking Track, Biodiversity as well as financial considerations. Some of these are intertwined with the issuing of the licence. 51% of the submissions came from within the district.

Financial Considerations

Not issuing a licence for grazing will have a minor effect on income for the Waihemo community. If the land is not managed by a person/s or company under a licence of some form, Council may be liable for land management costs.

Environmental Considerations

Consideration is required around the biodiversity values of the reserve as this has been the driver to projects which are being worked on in this area.

Publicity and Community Considerations

The communication channels used by council are indicated in the attachment to this report. This issue garnered a great deal of attention through social media, and local events.

Waihemo Recreation Reserve Grazing Licence Communication Channels

The following provides the timeline and methods used for communicating the above grazing licence.

- Waitaki District Council Website via Have your say link.

Waihemo Recreation Reserve Grazing Licence | Let's Talk Waitaki

- Waitaki District Council via a news item and public notice.
- Waitaki District Council Facebook channels.
- Oamaru Mail on these dates 28 February, 7 March, 14 March and 11 April.

It was also included with the Eastern edition that's delivered on the second Friday of the month.

- Otago Daily Times – 1 March 2025.
- Copies of the Consultation document and submission form were available at Council Offices and Waihemo Service Centre.
- Waitaki Weekly E-Newsletter – 2 x.

Waihemo Recreation Reserve Grazing Licence Submissions Booklet

Verbal Submissions

Waihemo Recreation Reserve Grazing licence
SUBMISSION FORM

Have your say

Please ensure that your submission is with us by 5pm on 15 April 2025.

How to lodge your submission:

Fill in our online submission form on the Consultation page at letstalk.waitaki.govt.nz or

Email: consult@waitaki.govt.nz
Post: Waihemo Recreation Reserve Grazing Licence Consultation, Waitaki District Council, Private Bag 50058, Ōamaru 9444
Deliver: Council offices or service centres at 20 Thames Street, Ōamaru, Ōamaru Public Library 62 Thames Street, Ōamaru. or Waihemo Service Centre, 54 Tiverton Street Palmerston

Your contact details: (please print clearly)

Full name: Taranaki Smith

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ☑ Yes ○ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

Please see attached hand written submission

Taranaki Smith.

Phone 03 433 0300
Email service@waitaki.govt.nz
Address 62 Thames Street, Private Bag 50058, Ōamaru 9444

www.waitaki.govt.nz

Waitaki DISTRICT COUNCIL
TE KAUNIHERA A ROHE O WAITAKI

1/6

SUBMISSION AGAINST THE WAITAKI DISTRICT COUNCIL FOR A GRAZING LICENCE ON THE WAIHEMO RECREATION RESERVE

15/4/25

PRESCRIPT

* The Council must take into account that there have been no household deliveries of the Oamaru Mail in Palmerston for the last three issues.
* Delivery to rural post boxes has continued as normal by the rural mail service.
* Consequently townspeople have been poorly informed about the proposal to continue grazing the WRR.
* This is in spite of leafleting and Facebook conversations which have been carried on in the rural and urban areas
* The situation is inequitable and the resulting numbers of submissions from Palmerston residents will not be a true representation of the concerns of the town's residents.
* This is particularly unfair in regard to the concerns of town residents who are likely to be more affected (either for or against the proposal) than the rural community.

Tawanaki Smith.

4

Submission to Waitaki District Council on proposal for continuance of deer farming on the Waihemo Recreation Reserve, Palmerston Otago :

I wish to make the following observations and suggestions regarding the WDC intention to continue grazing on the Waihemo Recreation Reserve :-

(1) The Reserve was set up many years ago in order to provide a recreational area for the residents and visiting public of this district. Its use ~~of~~as farmland has been a denial of its intended purpose, to the detriment of community life in Waihemo and the wider Waitaki District for over 100 years.

(2) The Council has an obligation to promote the preservation and enhancement of biodiversity in the Waitaki District. In this regard deer grazing of bush remnants is a blatant disregard of Council objectives —

* see the WDC commissioned "Waitaki District Natural Area Surveys : Site 523 Puketapu Treeland" of May 2014, 1 INTRODUCTION P 1.

Why is the Council promoting biodiversity on private land but failing to do the same on land for which it has responsibility ?

The Council obligations referred to in Puketapu Treeland report, mentioned above, are not merely opinions of its author, but come under the provisions of the Resource Management Act 1991.

5

3/6 ~~2/4~~

(3) The Council makes much of its consultation with its communities on important initiatives. Why is Council going through the motions of consultation but failing to respond to the many enquiries seeking information, coming from residents of the Waihemo Ward and Puketapu Community Trust?

Promises to respond were volunteered by councillors and council officers under the provisions of the Official Information Act, at the Community Board meeting on 2/12/24. These promises have not been honoured. Similarly my letter to Mayor Kircher (late 2024) has not received a reply.

(4) The Council assured the Puketapu Community Trust and the wider ~~of the~~ Waihemo Ward that it approves of the concept of 24/7, 365 days of the year, permanent legal access to the summit of Puketapu. This presumably included the recommendations of the Feasibility Study (jointly funded by WDC and PCT.) Why, then, is Council paying so much attention to deer farming on the Reserve?

Continuing to ravage the remaining vegetation on the Reserve is the worst type of ecological degredation of all pastoral practices. The Council is very slow to remedy this most damaging type of all animal grazing, to say nothing of denying public access to the Summit of Puketapu.

(5) Council has encouraged the Trust to inform the public about the Reserve and the re-establishment of the 1862 route to the summit, but has not fulfilled its stated intentions to provide access to the WRR or allowed pest control and forest restoration to begin.

6

4/6 ~~3/4~~

(6) From a financial point of view it is not economical to erect deer fencing across the Reserve to partition it for continued grazing, even if the WDC ~~there are~~ has fears that the area is too large for management by PCT and the Runaka and the community ~~to manage~~.

If the area is to be grazed at all it should be restricted to sheep only. Deer grazing a Reserve is an absolute travesty and does no favours to the deer industry's international market reputation.

In addition why shackle the proposed management team with further negotiations for eventual public access to the whole of the Reserve, none of which should ever have been grazed by any animals in the first place?

(7) Validation and retention of UNESCO status for The Waitaki Whitestone Geopark is very important. Council is very slow to implement the necessary initiatives to assist the Waihemo Community to fulfill the potential benefits of the Geopark. Why is Council not doing everything it can to promote the Geopark? If WDC does not wish to promote its own agenda, what is its agenda?

(8) In conclusion it is fair to say that the Waihemo Ward residents are very unhappy at being poorly treated by the Oamaru-centric District Council. Finance is not the problem. Council reluctance to promote and enable community led projects in the Waihemo Ward is definitely a most frustrating and inhibiting difficulty.

Please free the whole 52 hectare WRR now!

Taranaki Smith 9/4/25

7

Footnote 5/6 ~~4/4~~

Council concern about weed growth on the Reserve if the whole area is returned to the community in one unstaged release ~~action~~ does not take into account the experience and preparedness of the Trust. Our chairman is, himself, a deer farmer of many years of farming experience in the industry as well as being active is the conservation movement and the Hakapupu riperian planting project.

Mana whenua Trustees on the committee have much practical experience and academic ecological qualifications. Others have years of building experience and have worked in the draughting, surveying and farming industries. Some have equestrian, track construction, administration, teaching, medical and mining industry qualifications as well as local authority and chamber of commerce experience.

We have already engaged with East Otago High School in planting days on the Craig St zig-zag in preparedness for similar activity on the Waihemo Recreation Reserve. Our chairman is knowledgeable about predator control and predator traps and runs his own plant nursery.

Our Trust is a well prepared and experienced organisation. The Council does not need to worry about weeds or out of control grass growth on the Reserve, and we already have the funds from the O.R.C. Ecofund to support pest and weedcontrol on the Reserve.

The Otago Regional Council has sponsored much of the riparian planting with great community support. Please see - POSTSCRIPT

T. Lisk.

8

6/6

SUBMISSION AGAINST PROPOSAL
TO CONTINUE GRAZING THE
WAIHEMO RECREATION RESERVE

15/4/25

POSTSCRIPT

Care of the Reserve

Otago Regional Council support for re-forestation of the WRR is evident from their conservation projects already completed, but ongoing, in the Waihemo Ward, as well as their allocation of $50,000 to the Puketapu/WRR project.

Community volunteers are ready and waiting to engage in planting and land care on the Reserve. They have already demonstrated their ability and willingness to be involved, for instance the Hakapupu Project on SH1 and predator trapping and weed eradication at Ikaroa/ Mt Watkins.

It is ironic that Council which has allowed so much environmental degradation on the Waihemo Recreation Reserve, has the audacity to express concern about who will "look after" the Waihemo Recreation Reserve.

The Trust (PCT) has the backing of Kati Huirapa Runaka and is represented by two of its members on its committee. They have already (from seeds) propogated seedlings from the Reserve in their plant nursery at Kaitane.

We wish to work in good faith with WDC. We ask that WDC demonstrates the same intention.

Tamanati Shaw.

I am not currently a Trustee of PCT but still much involved.

Waihemo Recreation Reserve Grazing license
SUBMISSION FORM

Have your say

Please ensure that your submission is with us by 5pm on 15 April 2025.

How to lodge your submission:

Fill in our online submission form on the Consultation page at letstalk.waitaki.govt.nz or

Email: consult@waitaki.govt.nz
Post: Waihemo Recreation Reserve Grazing Licence Consultation, Waitaki District Council, Private Bag 50058, Ōamaru 9444
Deliver: Council offices or service centres at 20 Thames Street, Ōamaru, Ōamaru Public Library 62 Thames Street, Ōamaru. or Waihemo Service Centre, 54 Tiverton Street Palmerston

Your contact details: (please print clearly) 30-3-25

Full name: NEVILLE RAYMOND QUESTED

Organisation (if applicable): QUESTED BUILDERS LIMITED

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ☑ Yes ○ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I WOULD VERY MUCH LIKE TO SUPPORT THE CURRENT GRAZING LICENSE HOLDERS THEY ARE VERY PROUD OF THIS BLOCK OF GROUND AND I KNOW THEY HAVE AND WILL CONTINUE TO MAINTAIN AND IMPROVE THIS LAND. THEY HAVE FENCED OFF AND PLANTED NATIVE PLANTS EXTENSIVELY ON THE LAND IN QUESTION AND ADJACENT BLOCKS.
THERE ALREADY IS PLENTY OF RESERVE LAND AROUND THE COUNTRY AND NEW ZEALAND NEEDS PRODUCTIVE LAND TO HELP WITH VALUABLE COMMODITY EXPORTS!

Phone 03 433 0300
Email service@waitaki.govt.nz
Address 62 Thames Street, Private Bag 50058, Ōamaru 9444

www.waitaki.govt.nz

Waitaki DISTRICT COUNCIL
TE KAUNIHERA Ā ROHE O WAITAKI

10

[redacted]

mail [redacted]

15/4/24

Submission on the future of the Waihemo Recreation Reserve.

We submit that the Puketapu Community Trust should be ceded total management and control of the entire 52 ha reserve immediately.

Over 30 years ago my wife & myself walked up to and through the reserve from the back road. We had our first child in her backpack on her first major outing. A friendly old farmer gave us a ride on the old trailer of his old tractor. We had a wonderfull day, however we were shocked at the degraded state of the native vegetation. We were even more shocked to learn that for the past 30 years this bush remnant has been grazed by deer this guarantees further destruction and no regeneration whatsoever. The Waitaki District Council has obligations under law to protect this bush remnant and yet the very opposite is happening.

Councillor Jim Thomson has conection to the local family managing the rese We believe he should have excused himself from the discussion, instead he is leading it. The chief executive won't answer any questions on the past lease and revenues and seems to be ignoring The Pelketapu Trust alltogether as he talks of issuing a new lease for part o the land. The three stage proposal put forward by council staff is a disaster, it simply obstructs public access and preve restoration and should be consined to the where it belongs / Singed [redacted]

11



Submission re. Waiheno recreation reser

6142237

Name	Manaia Pearmain-Fenton
Speaking	Yes
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes

Submission

Tēnā koutou,

I am an ecologist with a background in environmental restoration, and I strongly oppose the renewal of the grazing licence for the Waihemo Recreation Reserve. This public land, set aside for recreation and conservation, has suffered significant ecological degradation due to prolonged deer grazing. Immediate withdrawal of grazing is necessary to begin the process of restoring biodiversity and ensuring public access. The continued presence of deer is inconsistent with the Reserves Act 1977, which mandates the protection of scenic, historic, and ecological values. The reserve has been inaccessible to the public due to deer fencing, violating its original purpose. Allowing grazing to continue would further delay restoration efforts and exacerbate soil degradation, biodiversity loss, and the suppression of native regeneration.

Restoration should be prioritised over subsidising private commercial gain on public land. Instead of investing in unnecessary infrastructure such as subdivision fencing and water sources for stock, the Council should redirect resources towards the rapid ecological recovery of the reserve. A cost-effective and efficient approach would involve planting fast-growing native species such as ribbonwood and ngaio to create shelter for slower-growing trees and naturally occurring seedlings. This method accelerates forest regeneration, stabilises the soil, and fosters ecosystem resilience.

Concerns about invasive weeds following the removal of grazing can be addressed through targeted pest control and staged native planting, rather than prolonging environmental damage caused by deer. The proposed restoration plan, supported by the Puketapu Community Trust, presents a sustainable pathway to protect the reserve's ecological and cultural values.

In summary, I urge the Council to:

1. Decline the renewal of the grazing licence for the full 52 hectares of the reserve.
2. Redirect funds towards ecological restoration rather than continued grazing infrastructure.
3. Implement immediate replanting of fast-growing native species to support biodiversity recovery.
4. Ensure public access to the reserve for recreation, education, and cultural connection.

Protecting and restoring the Waihemo Recreation Reserve is a crucial opportunity to uphold conservation values and enhance the environmental and social benefits of this public land.

Ngā mihi nui,

Manaia Pearmain-Fenton

Manaia Pearmain-Fenton
[redacted]
13/03/2025

To: Waitaki District Council
Re: Submission on Grazing Licence Renewal – Waihemo Recreation Reserve

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4. **Ensure public access to the reserve for recreation, education, and cultural connection.**

Protecting and restoring the Waihemo Recreation Reserve is a crucial opportunity to uphold conservation values and enhance the environmental and social benefits of this public land.

Ngā mihi nui,

Manaia Pearmain-Fenton

6156144

Name	Malcolm Charles Ross Mackay
Speaking	Yes
Organisation	
Email	winenwheels@xtra.co.nz
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission Please see 9, Uploaded file of two pages.	

Submission on the Waihemo Recreation Reserve on Puketapu

By Malcolm Mackay, [redacted]

Purpose
To oppose the renewal of a grazing licence for any of the 52-hectare of Waihemo Recreation Reserve and to support the return of the reserve on the south-eastern side of Puketapu to its native habitat and to be available to the public.

Benefits to the community, cultural and environmental values
The reserve was originally intended for the recreational use of the community. That community has gone without the free use of the reserve for well over our lifetime and more. If the Waitaki District has any interest at all in the community in and around Palmerston, the very least it can do is to not only allow the reserve to be made available for public access, but to also encourage interested parties to restore the native flora and fauna.

There is also the cultural value of Puketapu (Sacred Hill). Allowing native flora and fauna to return will help restore some of the respect that Puketapu deserves.

Environmental value is also created by providing a natural habitat for native bird life. Added to this are other native forest habitats that will help complete a corridor for the birds.

Fencing
Should there be a staged retirement of grazing, this would require additional fencing or fencing to be removed and relocated. It would therefore be desirable that lease on the entire 52-hectare reserve is **not** renewed.

Access
Where there is a Paper Road from Goodwood Rd to the Waihemo Recreation Reserve, the public have a right of access to and from the reserve without obstruction from fences or structures. The boundaries should be clearly defined.

Weed Control
Although fast growing natives in open spaces are desirable to contain weed growth, the use of exotic Tree Lucerne should not be discounted, if anything, it should be seriously looked at. Tree Lucerne attracts native birds, self-seeds easily and has been used successfully in other native forest restoration work. The Forest and Bird, and the Department of Conservation (DOC) were involved in a major native planting programme in the Tutira Regional Park in Hawkes Bay. This included planting many Tree Lucerne. I was fortunate to be part of that programme over the years and enjoyed return visits to see the progress of growth. As the native plants grow and can start providing good ground cover, the Tree Lucerne can be pruned back to allow sun light in. Tree Lucerne itself likes to have sun light and will die off when it is shaded, plus it has a relatively short life.

Planting
There is the opportunity for community groups to be involved with planting. This could involve school groups, who in later years will have the pleasure of seeing the results of their work and having a sense of ownership of the work done.

Personal involvement
East Otago has been my home for the past 14 years. Prior to that I was in Hawke's Bay. For several years, I was on the committee of the Napier Branch of the Royal Forest and Bird Protection Society. In 1990, I studied "New Zealand's Natural Heritage" extramurally with Massey University. These days, I'm not as physically active as I was, although I do have an extensive garden with natives, plus a potting shed. I can use the potting shed to help raise plants for planting in the reserve. I have already made a start with gathering seeds from Tree Lucerne should plants be wanted.

6191144

Name	Ngaire Joyce
Speaking	Yes
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I wish to give my full support to the reserve grazing licence.
In the current volatile economic time, it would be irresponsible for the council to take on another project that is not a necessity.
Not permitting the grazing would have a major impact on the Oliver family. I believe it would be unfair to the Oliver's who have been custodians of this ground for the past 100 years and maintained this land to a great standard.
The council would have to spend valuable time and resources and are relying on Puketapu Community trust to maintain such a vast area with volunteers, when currently this is being maintained at no cost to rate payers but is producing funding for council.
Puketapu Community Trust is also relying on an ORC eco-grant (refer Oamaru mail 11/04/25 front page story) which is more rate payer money being spent on a nice to have not a must have.
As you are aware obnoxious weeds don't take long to establish are extremely expense to eradicate on vast area of ground. What is initially thought of as a good community space could quickly turn expense. Can you guarantee that in 5 years it won't become an overgrown wasteland / fire risk needing dealt with at significant cost to the rate payer?
Therefore, I believe re-granting the grazing lease to the Oliver's is the best course of action for both the rate payers and the Oliver's.

6192128

Name	Henrik Moller
Speaking	Yes
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission Please see letter uploaded in the previous section.	

Waitaki District Council
Oamaru.

11 April 2025.

Tēnā koe

SUBMISSION REGARDING Notice of intention to grant a grazing licence over Waihemo Recreation Reserve legally described as Section 74 Blk:IVSD Moeraki.

I request that there is no renewal of grazing licence for any of the 52h of Waihemo Recreation Reserve. Further, I urge that Waitaki District Council (WDC) to invest money earned in the past from the lease of the land (for private gain) into accelerating restoration of ecological and amenity values of the Waihemo recreational reserve (for general public good).

I would like to speak in person during your hearing about this matter.

Personal interest and expertise to advise

My interest and recommendations are based on the following considerations:

1. I make this request as a nearby part time resident of Tūmai Beach Farm Park at the entrance of Te Hakapupu (Pleasant River) estuary mouth.
2. I am a Professor Emeritus at the Centre for Sustainability: Agriculture, Food, Energy, Environment (Kā Rakahau o te Ao Tūroa) at the University of Otago (Ōtākou Whakaihu Waka) in Dunedin – Ōtepoti. I speak from the University, but not for the University.
3. I have researched ecological restoration of ecosystems, forests and coastal ecosystems for the past 45 years, including 15 years on research of pastoral farming ecosystem services and sustainability.
4. Together with my wife and other Tūmai Farm Park residents, I have been involved in restoring 16 hectares of coastal forest in retired farmland. This experience has been at all stages of ecological restoration: design, planning, grant writing, planting and follow-up monitoring[1].
5. I have visited the site and walked to the top and would like to have that opportunity to continue, and to be facilitated as I get older and slower on hills.
6. The 'ecosystem services approach'[2] is a useful way of structuring my rationale for my recommendation because it considers the full range of benefits and costs associated with decisions that affect, or are affected by, ecosystems. This framework is designed for integration and balancing of multiple objectives including the social, economic, and environmental aspects of land management.

[1] Described in Moller et al. (2013) and Tūmai Beach Environmental Enhancement Group (2021, 2024), Formal citations are listed in the reference section at the end of this submission.
[2] The Millennium Ecosystem Assessment (2005).

Ecological considerations

7. Biodiversity restoration through managed ecological succession will provide ecosystem regulating services, include regulation of climate through the storing of carbon and control of local rainfall, the removal of pollutants by filtering the air and water, and protection from disasters such as landslides and storms. Supporting services are essential to the functioning of ecosystems and therefore indirectly responsible for all other services. Examples are the formation of soils and the processes of plant growth.
8. Removal of grazing by deer and other farm stock will trigger significant natural regeneration at no added cost for restoration (albeit incurring a loss of income to WDC from the cessation of the lease for deer farming). The existing isolated trees are vulnerable to elimination in the longer run unless regeneration can be reinstated.
9. Some seed sources are already available in the vicinity for dispersal by birds, but additional planting will accelerate this natural regeneration.
10. Planned possum control will accelerate ecological restoration by stimulating flowering and seeding and improving survival of seedlings.
11. Bioregional considerations emphasise that reforestation of the entire Waihemo Reserve will make a particularly important contribution to New Zealand's Biodiversity Strategy[3] compared to other afforestation initiatives of similar size. The critical biogeographical gap nationally is the absence of coastal forest between the Catlins in the south and Kaikoura in the north i.e. with the exception of Horomaka (Banks Peninsula), extensive tracks of coastal forest have been largely removed to make way for farming. These coastal lands are warmer and have fertile soils compared to inland and upland sites where biodiversity reserves are more common. Warmth and fertility will drive increased biodiversity and faster restoration in lowland sites like Puketapu and the Waitaki coastal zone.
12. Allen & Wilson (1991) analysed species lists from 86 forest remnants in East Otago to describe six 'Forest types'. Forest type for a given site was identified from (i) distance from the sea, (ii) exposure to onshore wind, (iii) rainfall, and (iv) geology (measured on a coarse scale). Puketapu, with its elevation, variety of aspects and relative proximity to the sea will therefore regenerate its own unique and different ecological community compared to the surrounding landscape. Landscape ecological resilience will be improved.
13. The existing draft management plan for the Waihemo Reserve[4] is comprehensive and logical, but I do not agree that the proposed three-stage retirement of farming is required for any ecological reasons. The costs of native forest restoration are obviously mitigated by the voluntary labour input, and the concern that the community group is undertaking too big a challenge led to a suggestion of staging the areas that are retired from farming.
14. Staging by area brings added expenditure for fencing and crucially delays delivery of the ecosystem services benefits outlined in my submission by decades. Instead I

[3] Department of Conservation (2020).
[4] Croew (2024).

support the Puketapu Community Trust proposed strategy of staging by species and plant spacing to reduce pressure on finance and other resourcing, as described in the next paragraph.

15. The Puketapu Community Trust proposes a staged revegetation programme within which widely spaced planting of fast growing and broadly crowning species (especially Ngāio and Ribbonwood) will create cover for later enrichment planting. This is the same approach as being taken by the Tūmai Beach Restoration Trust nearby at the mouth of Te Hakapupu (Pleasant River). Staging the planting saves cost and sets in motion a natural succession by (i) first cutting the effects of wind, (ii) supressing introduced grass cover that would otherwise stall natural regeneration, (iii) beginning to build litter, (iv) aiding ground moisture retention, and (iv) attracting birds to disperse seeds of native trees and shrubs. In the long run this reduces expenditure by first fostering pioneer species followed and later backfilling with less resilient and slower growing species when ecological conditions have been ameliorated
16. The Waitaki District Council 'Agenda Addendum' to support the Waihemo Community Board Meeting (2 December 2024) stated (p4) that "*Concern has been expressed that retiring the entire block in one go would result in invasive pest species such as gorse and broom. In addition, uncontrolled grass could present a fire danger particularly if the community is unable to manage the entire block*". I am extremely sceptical that this risk is significant and entirely confident that should gorse or broom spread, it can be quickly and easily be contained by standard and ecologically safe methods. Biennial search and destroy should be a good enough strategy to maintain the area scrub weed free. Some natural regeneration of native forest can be expected under gorse, but it differs in diversity and direction compared to under kanuka and manuka[5], the equivalent native 'nurse stands'.
17. Once a resilient and stable receiving habitat has been restored, control of introduced small mammals can follow to further enhance the ecological value of the reserve and people's enjoyment of it. It is logical to prioritise habitat restoration ahead of the predator control, but trapping of rats, mice, stoats, ferrets, feral house cats and possums later will have a synergistic effect on restoring a full suite of ecosystem services in the 10 to 20 year time frame.
18. Successful ecological restoration is assured. The methods are proven and honed by literally hundreds of community groups around Aotearoa, and several local initiatives like Toitū Te Hakapupu and the Tūmai Beach Restoration Trust. The local community group stands ready to do the work for the benefit of the local community and visitors to the Waitaki District. Several local plant nurseries can provide high quality and eco-sourced plants for the restoration project.

[5] Sullivan et al. (2007).

Cultural services

19. An 'ecosystems services' approach recognises several intangible but fundamentally important reasons for environmental care and restoration. 'Cultural services' contribute to wider needs and desires of society, and therefore to people's willingness to pay for conservation. They include the spiritual value attached to particular ecosystems and the aesthetic beauty of landscapes or geological formations that attract tourists.
20. Puketapu is an iconic landmark, seen for miles around and enjoyed by many. Covering it with a fully functioning native forest will be an important aesthetic and spiritually important gain that symbolises community-led land care at a landscape level.
21. Public enjoyment of Puketapu will be enhanced by revegetation and provision of facilitated public access and recreational activity.
22. A powerful combination of cultural, historical, ecological attractions come together in this place – so there is something there for everyone and the restored puke will attract a diverse group of visitors.
23. A community-led project like that proposed for Puketapu will deliver intangible values to all those who become involved. Making a difference to one's local place and being trusted with its care builds 'environmentality'[6].
24. Providing opportunity for public involvement in biocultural restoration will have long-term benefits for WDC and its relationships with its constituents by fostering environmentality[7]. It will become something that Palmerston and the whole Waitaki community can be proud of.
25. The Puketapu Community Trust has invited partnership with mana whenua to share responsibility and opportunities through restoration of the reserve. If that role is wanted and accepted by mana whenua, partnership between the kaitiaki and Tangata Tiriti will drive 'Biocultural Restoration' to deliver long term and broader benefits for everyone[8]. Sustainability and action for environment is all dependent on a social contract of group effort for a shared space and intergenerational benefit. The Puketapu project has all that opportunity for a diverse public and inviting their participation delivers extra social benefits which transcend the immediate ecological gains from restoring the ecosystem.
26. Proposed involvement of local school children will be superb. This sows seed for later environmental action by the children as they mature into adults and voters.

[6] Agrawal (2005).

[7] Environmentality refers to the ways in which environmental issues and concerns shape governance, politics, and social norms. It encompasses the practices, beliefs, and policies surrounding environmental governance, highlighting how individuals and societies internalize environmental considerations into their daily lives and decision-making processes. The term often examines the intersection of environmentalism with socio-political frameworks, looking at how concepts of nature and environment influence identity, power relationships, and policy initiatives. Environmentality can involve the role of government regulations, grassroots movements, and individual behaviors regarding environmental sustainability. In essence, it reflects the awareness and actions taken by individuals and societies to engage with environmental issues, emphasizing the cultural and political dimensions of environmental practices.

[8] Lyver et al. (2018), Akins et al. (2019).

Involvement of families accelerates development of environmentality and connection to our local places.

Provisioning services

27. The ecosystems services framework also recognises the need for a resilient economy and immediate and sustained benefits for the people living in a place. A clear monetary value, such as timber from forests, medicinal plants, and food and fibre is sometimes involved but in the Puketapu project the provisioning outcomes are indirect, multiple and will almost entirely come from 'non-extractive' uses like eco-tourism and recreation.
28. The more reasons for visitors to stop, eat and sleep in the vicinity the better it will be for the local economy and many of Palmerston's and Waitaki's small businesses. A restored Puketapu can be used to promote this local tourism.
29. Eco-tourism is a growing opportunity for the south Waitaki region and will accelerate if and when a Marine Reserve is created on the adjacent coast[9].
30. Hedonic pricing studies throughout the world have demonstrated that land values increase in the vicinity of natural areas (especially forests, rivers, and shorelines)[10]. A restored forest ecosystem and improved recreational amenities will indirectly raise land prices around Palmerston and help build the rating base for WDC's wider work.
31. Removal of grazing by deer is the one detrimental outcome from the proposed Puketapu restoration project. This will be hard for the family that has enjoyed over 100 years of using land for their personal gain. However, the amount of high-quality land available for biocultural and ecological restoration effort is relatively limited compared to land available for private farming in the landscape.

Dereliction of WDC duties

32. The land in question here was designated to be a recreational reserve for the benefit of the public, not land for farming for private benefit. The Waitaki Reserves Management Plan (2014) sets out outcomes and policies for biodiversity in section 5.2.2. Outcome 24, which states that "Significant ecosystems, communities and species in our reserves are identified, protected, restored and cared for to ensure their ongoing viability". It is time to put this original intent and WDC plans into action.
33. Active management to care for shared land, water and air are core duties of local government. This is especially important for publicly owned land like Puketapu.
34. Instead WDC has presumably accepted funds for the land and broadly neglected their duties to their wider constituents. A copy of the lease is now available but with the monetary exchange for the lease redacted. This undermines trust in the WDC as managing the land on the public's behalf and does not allow our citizens the full information to make their own mind up about the pros and cons of future land use

[9] South-East Marine Protection Forum (2018).
[10] Moller (2012).

and investments by WDC in caring for the site. Nor is free public access to the area possible for the public to see first-hand what is happening on their land. Nor are there provisions in the existing lease for weed suppression, erosion control or broader land care.

35. I request that WDC conducts a thorough fire risk assessment and instigates a fire management plan to mitigate any risks identified. Rank grass and gorse may pose a fire risk early in the succession to mature native forest. Plan considerations include how prevalent is fire in the district, how do they start typically? Is the risk of a fire starting in this reserve any greater than elsewhere in the district? What signage and educational initiatives can be taken to reduce the risks.
36. The WDC pine plantation on the western boundary is very gorse infested and is growing over the boundary fence as is portrayed in several of the photos on Face Book. The NW corner closer to Palmerston has another very gorse infested forestry block. I request that gorse is controlled assiduously in these neighbouring blocks to reduce the risk of spread into the reserve.
37. The population of New Zealand and tourism have grown greatly since the original Waihemo Reserve was established. Degradation of our rural ecological landscapes is ongoing, especially from water quality and biodiversity loss. There is therefore now even more need for public spaces that restore ecosystems and provide for public access, like that proposed at Puketapu.
38. I request that WDC conducts a thorough review of all its lease agreements over the entire district and shows its ratepayers whether there are any similar diversions of the public interest into private land use businesses.
39. I request that the total amount of revenue received from the lease of Puketapu so far be declared and some portion of that (less WDC costs) now be returned to serve their duty of care to the property. If substantial, those funds can be invested in accelerating the restoration of the land and reduce any perceived risks of the new land use.
40. For me it is a matter of natural justice and legislated duty that the land be speedily returned to its original designated purpose. The question for me is not whether a private farming interest should now be denied ongoing benefit – it is more a question of why this situation has been permitted to continue for over 100 years.

Conclusion

Restoration of diverse and important forest ecosystem and enhanced recreational opportunities at Puketapu will deliver a wide suite of ecosystem services for the benefit of the broader community and WDC. Success is assured because the methods are straightforward, and a committed local community group stands ready to facilitate the work for us all. Investment by WDC to accelerate biocultural and ecological restoration can safeguard us all against perceived (in my view exaggerated) risks of this project failing. This investment and support from WDC will give effect to its legislated duty to create and maintain a healthy environment, economy and enhance the wellbeing of its community.

Thanks!

Many thanks for this opportunity to have my say. I would like to speak in support of my submission and answer any of your questions should space be available during your hearing,

Yours sincerely

Henrik Moller
Professor Emeritus, Centre for Sustainability: Agriculture, Food, Energy, Environment – Ka Rakahau o te Ao Turoa (CSAFE)
University of Otago - Otakou Whakaihu Waka
PO Box 56, Dunedin - Otepoti
Aotearoa - New Zealand

[redacted]
Email: [redacted], [redacted]

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6193326

Name	Robin Quigg
Speaking	Yes
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

My name is Robin Quigg. I am a Certified Resource Consent Commissioner (2022-), I have a doctorate from Ōtākou Whakaihu Waka – the University of Otago (2010), and a Master of Applied Science in Resource Management (1993) and a Bachelor of Parks and Recreation (1991), both from Lincoln University. I am employed as a Pūkenga Matua, a Senior Lecturer in Public Health at Ōtākou Whakaihu Waka. One of the areas in which I research is about parks and reserves, in urban and rural areas, for hauora and health.
I oppose the grazing licence proposal for part of Waihemo Recreation Reserve.
I submit the following points to support my opposition:

1) The background section of the public notification consultation document leads with the statement that the reserve has been grazed for over 100 years. This does not make it right. It makes the lease and its subsequent alienation of mana whenua and the broader public from the land, a persistent contravention of the reason for the reservation of the land for over 100 years.

2) I disagree that the Reserves Management Plan permits or facilitates grazing of reserves, as stated in the public notification consultation document "Grazing is included in the Reserve Management Plan for this reserve" (p.2). The only management plan for this reserve that I can find is the 2014 Waitaki Reserves Management Plan (WRMP) (https://www.waitaki.govt.nz/files/assets/public/v/2/files/our-council/plans-reports-and-strategies/other-plans-and-reports/waitaki-reserves-management-plan-2014.pdf). I am not averse to this whole of district approach to reserve management planning, as I initiated the concept in New Zealand when I was the Recreation Planner for the Dunedin City Council in the 1990s. The 2014 WRMP lacks, however, a specific section for specific policies and regulations for Waihemo Recreation Reserve that would specifically allow for grazing. The plan is silent on grazing as a policy although it does specify that G Oliver has a formal licence for grazing for the reserve(p.88).

3) I appreciate that the grazier would like to continue grazing but 100 years of grazing is enough for this land. It has suffered enough. It is valuable land, recognised as a Significant Natural Area in the draft District Plan. It is not specified in the Reserves Act that any impact on their farming operation can be considered. Further, business owners who must rely on short-timeframe licences must also be expected to have planned for that as a significant risk to their business, along with drought, flood, changes in international and domestic markets, interest rates and other parts of normal farming.

4) The consultation document also states that "rapid retirement of the land from grazing could result in an increase in invasive pest species" (p.1). There is little detail in this statement about which pests, and it is only 'could'. Dealing with the pests is a better approach for the land, than a short-term continuation of grazing by deer.

5) Although the Reserves Act 1977 reflects past attitudes that ignored Māori values, and despite the requirement to consider the principles of the Treaty of Waitangi (Conservation Act 1987), my final point in this submission is that the entire reserve is important. The name of Waihemo, for the reserve is a strength, and the Council and its predecessors are to be commended for this. Waihemo was also a kāinga mahinga kai, food-gathering place (https://kahurumanu.co.nz/atlas). I look forward to a new management plan that acknowledges explicitly these hundreds of years of its history, not just its 100 years of grazing and demonstrates the partnership approach laid out in Te Tiriti o Waitangi.

6) Thank you for your time in reading my submission.

6193680

Name	Megan Curry
Speaking	Yes
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes

Submission

My attached prosposal is from an visitors perspective and someone has visisted a number of times. I support retaining the grazing licence at the Waihemo Recreation Reserve. The current use of the land is well-managed and contributes positively to the area. Proposed changes to the track offer limited benefit in comparison to the disruption they may cause—both to the grazier's livelihood and to community cohesion. I believe that time, energy, and funding would be better directed toward revitalising Palmerston's town centre, supporting local businesses, and preserving the rural character of the region.

To Whom It May Concern,

I believe the grazing licence in the Waihemo Recreation Reserve should be retained by the current grazier.

My reasons for this view are outlined below:

Maintaining the Status Quo

As someone from outside the region who has enjoyed the Puketapu Track on several occasions, I've found the area - both the track and the parking facilities - to be well-maintained, thoughtfully managed, and a pleasure to visit. In my opinion, the proposed changes or extensions to the track do not offer enough added value to justify the impact they would have on the grazing operation or the significant funding required for such a project.

Division Within the Community

It is unfortunate that this proposal has caused unnecessary division and tension within a small community. Rural areas across New Zealand have already experienced a decline in community cohesion, and a project like this may place further, unwarranted pressure on affected local businesses. From an outsider's perspective, Palmerston's main street appears to be in noticeable disrepair. Rather than allocating time and resources to expanding the Puketapu Track—which is already functioning well - I believe those efforts would be better directed toward revitalising the town centre.

Redirecting investment toward the heart of Palmerston would help attract visitors to local businesses that need support. In contrast, enhancing the track risks diverting people behind the township, allowing them to bypass the main street entirely. This could ultimately undermine the intended benefits of the project, offering little improvement to the town's struggling commercial centre.

Introducing a project that creates polarising opinions risks damaging that sense of unity and trust, which can be difficult to rebuild once lost. While differing views are a natural part of community growth, the level of stress and conflict this proposal has stirred seems disproportionate to the benefits it might bring. Instead of fostering progress, it may deepen rifts and place emotional and financial strain on local residents and business owners who are already working hard to maintain the vibrancy and resilience of their town.

A useful example of what can be achieved with this type of focus is Reefton, on the West Coast. With similar traffic, population, and economic drivers, Reefton has revitalised its town centre, successfully attracting visitors with charming tearooms, restaurants, and shops.

Future of the Grazier and Land Stewardship

Recent property sales in the area surrounding the reserve suggest long-term commitment and investment in the local grazing operation. The well-maintained infrastructure, tidy appearance, and quality fencing and buildings are all indicators of responsible stewardship and a desire to care for the land into the future. This kind of continuity is valuable and worth supporting.

Summary

In summary, I support retaining the grazing licence at the Waihemo Recreation Reserve. The current use of the land is well-managed and contributes positively to the area. Proposed changes to the track offer limited benefit in comparison to the disruption they may cause—both to the grazier's livelihood and to community cohesion. I believe that time, energy, and funding would be better directed toward revitalising Palmerston's town centre, supporting local businesses, and preserving the rural character of the region.

Kind regards,

Megan Curry

[redacted]

6194608

Name	Jamie Hickling
Speaking	Yes
Organisation	Rising Cloud Conservation Ltd.
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission See attached Document.	

Submission on the Notice of Intention to Grant a Grazing Licence over Waihemo Recreation Reserve

To: Waitaki District Council
From: Jamie Hickling
Rising Cloud Conservation - Director

Project/Volunteer Coordinator for the Hikaroroa / Mt. Watkin Conservation Group
Professional conservationist with expertise in pest control, ecological restoration, and community consultation
Contact: [redacted]
Date: 14 April 2025

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1. Introduction and Representation My name is Jamie Hickling. I submit this letter in my professional capacity as a conservation practitioner. I also act as the project coordinator for the Hikaroroa / Mt. Watkin Conservation Group, as well as in a personal capacity as a community member who has spent years restoring East Otago's unique dry coastal forest ecosystems. Additionally I am a Dunback local.

Our conservation group operates at Hikaroroa / Mt. Watkin Scenic Reserve, a coastal mountain near Palmerston with ecological and cultural features similar to Puketapu. We work alongside landowners, mana whenua, volunteers, and council partners to coordinate pest control and biodiversity monitoring across public and private land. I have direct experience working to restore dry coastal forest under heavy ungulate pressure and understand the transformative power of meaningful public access and restoration.

I wish to speak to this submission.

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2. Submission Context This submission is in regard to the public notification of intention to grant a grazing licence over Waihemo Recreation Reserve, legally described as Section 74 Blk: IVSD Moeraki.

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3. Submission Position I strongly oppose the renewal or granting of any grazing licence for any part of the 52-hectare Waihemo Recreation Reserve.

I ask the Council to decide:
No grazing licence is to be renewed for any part of the Waihemo Recreation Reserve.

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4. Reasons for Opposition

a) Ecological Restoration Potential The Waihemo Recreation Reserve holds immense potential for dry coastal forest regeneration. Based on my work at Hikaroroa, I have seen how quickly kanuka, ribbonwood, ngaio, kowhai, totara and other native species can regenerate into healthy forest when protected from deer and livestock. Grazing by deer is incompatible with these outcomes and contradicts the goals of regeneration, especially in what the draft District Plan identifies as a future Significant Natural Area.

b) Critically Under-Represented Forest Type Lowland dry forest is one of the most under-protected and heavily reduced ecosystems in Aotearoa New Zealand. Across Otago, vast areas of native broadleaf, kowhai, and ngaio forest once covered the coastal and inland hill country — but these forests have been almost entirely cleared for agriculture. The mature native trees at Puketapu represent rare surviving remnants of this forest type. Their survival offers both a genetic reservoir and a structural foundation for ecological restoration. To allow continued grazing in such a site would be to neglect a nationally rare ecological heritage that still persists here, against the odds.

c) Incompatibility with Reserves Act The continued grazing of deer contradicts multiple provisions of the Reserves Act 1977, particularly Section 17(2) which prioritises:

- Public freedom of access
- Conservation of scenic and ecological values
- Soil, water, and forest protection

The current arrangement fails all three. Deer grazing prevents native regeneration, accelerates erosion, degrades soils, and poses risks to public safety and access. The reserve has been fenced and effectively privatised for over 100 years. The renewal of a grazing licence would prolong this misalignment with the Act.

d) Public Benefit and Access The Waihemo Reserve was set aside for public benefit. Currently, the community cannot safely or meaningfully access the area. The Puketapu Community Trust has proposed the development of walking tracks and low-density restoration plantings. This vision directly fulfills the reserve's intended purpose and offers far greater public and ecological value than ongoing commercial grazing.

e) Cost Inefficiencies of Staged Retirement A staged retirement is economically and ecologically wasteful. Constructing a 680m internal deer fence through the reserve is not only costly (at an estimated $13,600 minimum) but also visually disruptive and undermines the integrity of a whole-ecosystem approach to restoration. These funds would be better invested in planting 4,000+ native trees, establishing shelterbelts, and enabling community involvement in restoration.

f) Restoration Now, Not Later Every season of continued grazing delays healing. Without intervention, erosion, invasive species, and biodiversity loss will only worsen. I urge Council to act now so the current generation — and the next — can witness the rebirth of Puketapu.

5. Final Statement The Waihemo Recreation Reserve is not being taken away from anyone. It is being returned to its original intent: a public landscape for nature, people, and connection. This is not the removal of a private right, but the restoration of a public one. With community will, ecological knowledge, and public backing, Puketapu can again become a beacon for biodiversity and place-based wellbeing.

Decision Requested:
That no grazing licence be renewed or granted for any part of the Waihemo Recreation Reserve.

Thank you for considering this submission. I am happy to speak to it in person and share restoration lessons from Hikaroroa to support the future of Puketapu.

Jamie Hickling

Rising Cloud Conservation Ltd.

Project / Volunteer Coordinator, Hikaroroa / Mt. Watkin Conservation Group

6195186

Name	Nicky & Greg Oliver
Speaking	Yes
Organisation	Puketapu Park Limited (PPL)
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission As per upload	

To: Waitaki District Council

Submitter Details	
Name	Puketapu Park Limited (PPL)
Address for Service	G.H. & N.J. Oliver [redacted]
Submission on	A proposed licence to graze part of the Waihemo Recreation Reserve pursuant to the Reserves Act (1977)

1. Introduction

1.1 This submission is lodged on behalf of Puketapu Park Limited (**PPL**) by directors Greg and Nicky Oliver

1.2 This submission relates to the grazing of the Waihemo Recreation Reserve (the **Reserve**) by PPL which has been notified for submissions under the Act. Waitaki District Council is proposing to issue a licence to graze part of Waihemo Recreation Reserve

2. Submission

2.1 Puketapu Park Ltd *suppor*ts the Proposal for the continued grazing of part (approx. 31ha) of the Reserve. Loss of the lease to graze would have a significant impact on both our income and current farming operation.

3. Puketapu Park Limited

3.1 The full area of the Reserve (52 hectares) has been farmed and cared for by the Oliver Family for over 100 years (since 1920) and as such there is a deep connection with this land. For three generations our family have been caretakers of the Reserve, ensuring it's future viability through responsible farming practices and ensuring it is healthy and productive for future generations. We have grazed hinds there in conjunction with our adjoining property. The Reserve provides a perfect location with the hinds fawning there in the summer. It has been an integral part of the Oliver family farming operation for decades.

4. Grazing

4.1 Sustainable grazing and our strategic application of herbicide around its margin has maintained the quality of the Reserve for decades. We graze 300 hinds with a fawning rate of 90% and do no graze stags which may damage the existing native vegetation. It is clear from *Fig 2 & 3* that over 16 years of this management 2023 there has been no impact on the visual extent of the native vegetation. If no grazing occurred and our strategic control of gorse around the margins of the Reserve was discontinued gorse would steadily establish from the large thick stands of gorse in the forestry block as well as the seed source remaining in the soil of the Reserve *Fig 4 & 5* photos (below). The potential for gorse infestation is of major concern.

5. The Proposal

5.1 The Reserve is crucial to our farming operation. However, a reduction in grazing area from the full area of 52 hectares to approximately 31 hectares could be reasonably accommodated by PPL and would provide land for the Puketapu Community Trust to begin restoration and construction of the track to the summit on the other 21 hectares.

5.2 PPL are concerned that the funding and logistical capacity of the Puketapu Community Trust are not sufficient to take on the large undertaking of restoring the full 52 hectares of the Reserve.

5.3 The current financial position of the Puketapu Community Trust is unclear. The Trust has not filed their return to 31 March 2024 with the Charities Register. In the previous four years their Statement of Resources and Commitments shows a static balance in the vicinity of $45,000.

5.4 PPL are also concerned that there is no full plan and budget for restoration of the Reserve. A budget for full restoration of 52 hectares is likely to run into the hundreds of thousands.

5.5 A partial restoration of the Reserve would give the Puketapu Community Trust the opportunity to demonstrate they are able to make this first stage of restoration a logistical and financial success.

5.6 PPL point out that funding for habitat restoration and plantings of native vegetation is more limited than in recent years. For example, the Ministry for Primary Industries' One Billion Trees Programme is no longer available, the New Zealand economy is less buoyant, and the Waitaki District Council has other competing demands for its resources such as the maintenance and construction of infrastructure for flood protection and pedestrian access around Palmerston.

5.7 Complete removal of grazing from all 52 hectares would also include removal of the deer fencing instated by PPL. In the event restoration was not proceeding as intended by the Puketapu Community Trust, grazing could not readily be resumed to control gorse and manage the grass which would become a fire risk.

5.8 PPL have previously offered to support the partial restoration of the Reserve by building deer fencing to split off the area that would still be grazed.

5.9 PPL point out that communications from Waitaki District Council regarding the Licence to Occupy have been inadequate. For the last twelve months PPL's meetings and extensive communications with both the Waitaki District Council (WDC) and the Waihemo Community Board were made in an attempt to renew the Licence to Occupy. It was shocking when, in late 2024, the Puketapu Community Trust, (and **not** the Waitaki District Council), conveyed to PPL that we no longer had a lease on the Reserve.

5.10 We were then told recently (March 2025) that PPL was in a "*holding over period" with 30 days notice given by either party.* (Suzanne Clark, Property Officer WDC). Lindsay Hyde (Recreation Specialist WDC), informed us via a phone call **(**26 March 2025**)** that a Memorandum of Understanding (MOU) had been signed granting the Puketapu Community Trust approx.21 ha of the Reserve and that the MOU had been signed three months prior in December 2024. The WDC had not notified us until three months after the fact. We had a verbal agreement after our last meeting with the Waitaki District Council to have the LTO until the end of January 2025.

5.11 We continue to utilise a range of weed and pest control strategies as part of an established and robust programme to control gorse and possums and rabbits. Pest control management plays a vital part in maintaining a TB free deer herd (current status as C10). If the licence to graze is not granted to us, and weed and pest control was to lapse, the result would be potentially catastrophic to the land and livestock on our adjoining farm and also impact on the neighbouring farming properties

5.12 Council regulations state that gorse and broom are to be controlled to ten metres from the boundary and ragwort to fifty metres (ragwort being toxic to cattle, deer and horses). If the Licence to Occupy is not granted PPL are concerned that the Puketapu Community Trust lack the funds and logistical capacity to meet these regulations.

5.13 It is disappointing that during a (still open) submission stage this polarising and unbalanced media coverage has occurred. Refer *Oamaru Mail Friday 11 April 2025* front page headline, *"Trust Wants Puketapu Now".* We note that there was invited comment from the Waitaki Mayor, Waihemo Ward Councillor, Jim Thomson, and the Puketapu Community Trust Chairman. There was no contact made with PPL for comment.

6. Outcome sought

6.1 Puketapu Park Ltd (PPL) seek the following decision from the Council that:

(a) The Proposal be granted in its entirety (approx. 31ha)

(b) Alternatively, that the current (approx.31ha) Proposal is rejected and re notified with a larger proposed area

(c) If the MOU (approx.21 ha) with Puketapu Community Trust fails to meet the conditions of the agreement, then Puketapu Parks Ltd (PPL) be considered for first option to graze this piece of land in its entirety (approx. 52ha)

6.2 Puketapu Park Ltd (PPL) wish to be heard in support of this submission and would appreciate the opportunity to provide more comprehensive detail

Puketapu Park Limited (PPL)
Greg and Nicky Oliver (Directors)

Dated 15 April 2025

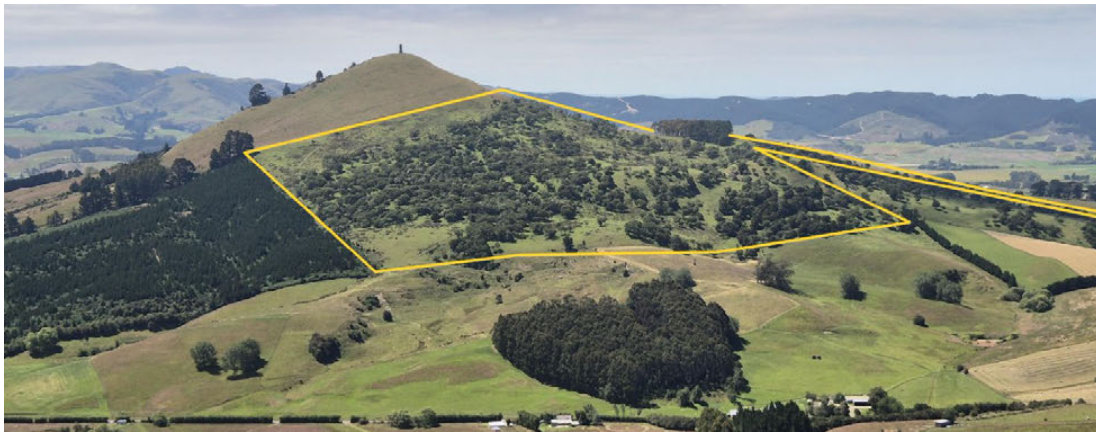


Figure 1. Waihemo Recreation Reserve



Grazing of the block between in the 16 years between 2007 and 2023 has not had a significant impact on the visual extent of the forest.



Figure 2. Forest remnants on Puketapu 2007



Figure 3. 2023



Figure 4. Gorse in the forestry block adjacent to the reserve, acting as a seed source to the reserve controlled by grazing.



Figure 5. Gorse along the boundary between the Waihemo Recreation Reserve and adjacent forest block

6196175

Name	Peter Lobb
Speaking	Yes
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

The staging of the restoration should be over a very large timescale. I believe that the Recreational Trust wouldn't have the capacity and resources to successful manage pests, weeds and any other issues all at once.

The current lessee is doing a great job with keeping all of those potential issues under control. This has been done consistently over a large period of time and it is naïve to think that speeding this process up would be beneficial to the landscape.

Non-Verbal Submissions

Waihemo Recreation Reserve Grazing license
SUBMISSION FORM

Have your say

Please ensure that your submission is with us by 5pm on 15 April 2025.

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Fill in our online submission form on the Consultation page at letstalk.waitaki.govt.nz or

Email: consult@waitaki.govt.nz
Post: Waihemo Recreation Reserve Grazing Licence Consultation, Waitaki District Council, Private Bag 50058, Ōamaru 9444
Deliver: Council offices or service centres at 20 Thames Street, Ōamaru, Ōamaru Public Library 62 Thames Street, Ōamaru. or Waihemo Service Centre, 54 Tiverton Street Palmerston

Your contact details: (please print clearly)

Full name: Cameron Grubb

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

Money could be spent on better things that people would see in the town and there is already a walking track there for people to use. Money could be better spent on things like the old railway station or all the empty shops down the main street.

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Your contact details: (please print clearly)

Full name: Sam Porter

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

no point in putting in a walking track that will not get used or maintained

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Your contact details: (please print clearly)

Full name: ROGER FORREST

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

NO POINT - PUTTING IN WORKING TRACK THAT WOULD NOT BE USED AND/OR MAINTAINED. THIS MONEY COULD BE SPENT ON BETTER THINGS IN THE TOWN.

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Your contact details: (please print clearly)

Full name: Karen Oldham

Organisation (if applicable):

Postal address: [redacted]

Email [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I believe money would be better spent in the township where everyone would benefit

The grazing of stock is very important

I fully support the Olivers and the lease they have.

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Your contact details: (please print clearly)

Full name: Alan Oldham

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

The town is looking very run down at present so I think the money would be better spent there.

There are plenty of places to walk around our area.

Looking after stock is very important so I support the Olivers

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Your contact details: (please print clearly)

Full name: Thomas Broadbent

Organisation (if applicable): IPSOS wealth management

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes (●) No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I wish to support the olivers in their grazing, given that I feel that the proposed money to be spent on a walkway track could be better spent elsewhere. For example sports facilities for children, support for rural elderly residents. Given the relatively low existing tourist estimates and the length of existing walk to the monument a walkway track is in my opinion is a waste of money. Skills development, bus service and sport for yo

or investment in a fund would make more sense.

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Your contact details: (please print clearly)

Full name: Maihi Andrew Douglas

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I Think money will be better spent else where, like the Palmerston domain cricket sheds, Making Palmerston main street look more attractive. The Olivers have looked after these areas for years the native trees are gorgeous.

It will not be well kept if random people are trying to walk up there.

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Your contact details: (please print clearly)

Full name: Tame Paora Cook

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I wish to support the Olivers in grazing the native block, there is already a walking track [redacted] to get up Pukitapu, they have been grazing it for the last 100 years, and think its a [redacted] ugly move taking of them. when there is alot of other places the money could be spent in palmerston. like upgrading the waterways to prevent flooding during heavy rains, and tidying up the main street.

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Your contact details: (please print clearly)

Full name: Grant Watson

Organisation (if applicable):

Postal address: [redacted]

Email: Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I can't see the point in putting another walking track in as there is already one there, also the current farmers have been taking care of the land ie: Spraying gorse etc, will there be a maintance plan for this? I highly doubt it? I think there is more places the money spent else where.

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Your contact details: (please print clearly)

Full name: Zach Strange.

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

no point in putting another walking track in when there already is one there that is hardly used. and also the current farmers have been taking care of the land. ie pest and weed control.

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Your contact details: (please print clearly)

Full name: Daniel alan Oldham

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

There is already a walking track there so don't see why they need another one

Money could be spent on better things that are visible in the township

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Your contact details: (please print clearly)

Full name: JESSE CHURCH.

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

NO POINT HAVING ANOTHER WALKING TRACK THAT NOBODY USES. MONEY COULD BE SPENT ELSEWHERE MAKING IMPROVEMENTS TO THE COMMUNITY.

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Your contact details: (please print clearly)

Full name: Corbyn Gibbs

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

Money could be well spent elsewhere in palmerston instead of wasting money on a Walking track

I Support the Oliuers and there lease Why change something that Works

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Your contact details: (please print clearly)

Full name: Nick Terry

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I Fully Support the Offers & the Grazing that has taken Place for the last 100 Years.

This Money Could be better Spent else where ie Main Street of Palmerston.

The Chairman of the trust Supporting this is a prime example of What happens when land is Not looked after.

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Your contact details: (please print clearly)

Full name: Oscar Weston

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I know the Olivers and dont see why ~~they should give~~ there should be a track put through ground they have leased for over 100 years. Seems like a waste of money that could spent elsewhere

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Deliver: Council offices or service centres at 20 Thames Street, Ōamaru, Ōamaru Public Library 62 Thames Street, Ōamaru. or Waihemo Service Centre, 54 Tiverton Street Palmerston

Your contact details: (please print clearly)

Full name: michael Conijn

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I think the land Poaposed should Stay as grazing land! I believe the money Should be Spent on expanding the local medical facility so all can benifit!

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Waitaki DISTRICT COUNCIL TE KAUNIHERA Ā ROHE O WAITAKI

Waihemo Recreation Reserve Grazing licence
SUBMISSION FORM

Have your say

Please ensure that your submission is with us by 5pm on 15 April 2025.

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Your contact details: (please print clearly)

Full name: Bronwyn Judge.

Organisation (if applicable): HH Group.

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ◉ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

It is wonderful a group has been formed to plant out & look after this rese for the Community. Such an opportunity should be taken advantage fo The landowner has had benefit of this land for many years and althoug he wishes to continue grazing it, it should be pointed out until grazi is removed there is no hope of natural restoration to occur. Seedlings take 3 years at least before they germinate and become apparent and one must assume if the land has been grazed for 100 years or more that the remnants are extremely old and near the end of their life. The kowhai lives to around 100 to 200 years. Broadleaf somewhat longer so no time is to be lost in reestablis the reserve forest. It takes 5-10 years for kowhai to mature and start

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Or indeed whilst rabbits are kept in check with protectors and long grass, sheep and deer will munch the tops off plants and browse all seedlings not protected.

Notice of Intention to grant grazing licence over Recreation Reserve - Waihemo

PURSUANT TO SECTION 54(2) RESERVES ACT 1977 The land described in this Notice (the land) is vested in Waitaki District Council (Council) as Recreation Reserve.

The reserve is legally described as Section 74 Blk: IV SD: Moeraki.

Council is proposing to issue a licence to graze part of Waihemo Recreation Reserve. Council has obligation to publicly notify its intention to grant such lease by way of this Notice.

What we would like you to do

Any person or organisation may support or object to the Council granting the licence referred to above or make submission with comments on the lease.

If you would like to make a submission on this proposal, use the attached form or go to the Consultation page at **www.letstalk.waitaki.govt.nz/waihemo-reserve-grazing-licence** to make an online submission. Make your submission before 5pm, 15 April 2025.

If you have any questions or want more information please contact Lindsay Hyde, Recreation Specialist:

03 433 0300 **consult@waitaki.govt.nz**

Waihemo Recreation Reserve Grazing license
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Your contact details: (please print clearly)

Full name: Campbell Ronald Weston

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes (X) No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

The Waihemo Recreation reserve has been farmed for over 100 years yet it was set aside as a recreation reserve. Has it ever been allowed to serve this function. It is noted the reserve has unique vegetation but the current useage, grazing deer, is not as being incensistent with the biodiversity values including biodiversity restoration. From the board minutes it is written grazing deer is incompatible with the biodiversity values

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Further notes

Members of the Waitaki District Council & Waihemo Community Board

Where is the unique vegetation noted in your publication?
Gone due to grazing

Is the biodiversity able to restore to it former status?
No the ongoing grazing suppresses this happening

Will the noted vegetation return to it ~~former~~ uniqness?
We will never know while its grazed

Which missing species of plant would make up the unique vegetation?
We will never know while its grazed

Will the pest species take over the reserve ie gorse + broom?

The Collins Dicitionary defins a pest as anything that has a negative effects on humans. It can be an unwanted plant .... or even a deer.
Yes even the Collins dictionary notes a deer can be a pest. In this case it is an allowed pest and must be removed

The Recreation reserve was set aside for recreational useage not long term leasing

attributed to the reserve noting deer suppress the vegetation regeneration and damage the existing native vegetation. It is also noted the useage with fawning hind enjoy the cover the reserve offers yet, due to their action + those of 100 years of farming the cover is now only 14% of that which it may have been when the reserve was designated. This shows no sign of the regeneration that a reserve may be expected to show if set aside for the purposes it was set up for.

In the coucil documents available it is also noted that the presence of deer has decreased and if fact eliminated the recreational access to the reserve and the monument beyond. Yes there is an existing track up the northern face to the monument. This is very steep and not easily negotiated as a result.

If a reserve is set asidly for recreation why should one family benefit from it for so long. The community should be able to access their reserve to enjoy whatever recreational activities the reserve may offer and not be degnied. Again in Council/board documents it is noted the deer using Ballon. is inconsistent with the cultural values that can be attributed to a recreational reserve.

Surely it is time for this precious reserve to be returned to the public and with help the unique vegetation and biodiversity values be aided to return with a gentle graded track opened to allow many more visitors to enjoy the 360° views from the Mackenzie memorial.

Please do not continue the lease and return the Reserve to the people

To Waitaha District Council

name Deirdre Newall e-mail —— phone

date 15-April 2025

I oppose deer farming on the Waihemo Recreation Reserve

Because

* It is a native bush reserve
* It is public land
* It is a bush remnant
* Council is breaking its own regulations regarding protection of native forests
* Council is denying public access
* Council is favouring private interests over community well being
* Council is setting a bad example
* Council does not care about Waihemo or Palmerston.
* Council spends up in Oamaru and pleads poverty in Palmerston.

Waihemo Recreation Reserve Grazing license
SUBMISSION FORM

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Your contact details: (please print clearly)

Full name: JULIE ANN MARR

Organisation (if applicable): –

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I would love to see the reserve returned to the people of Palmerston and be administered by the Puketapu trust and volunteer members of our community. It would be fantastic for our community to have an obvious entryway to the top of Puketapu with formed walkways and designated carpark with information boards etc. I believe many people would stop in our town to do a 'walk to the top' if there was a proper pathway bringing visitors to our local shops and to enjoy the countryside and vista around East Otago.

Waihemo Recreation Reserve Grazing license
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Your contact details: (please print clearly)

Full name: Rodger Braun

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I think it is great idea to regenerate the bush and cess farming and Let the trust manage the reserve.

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Your contact details: (please print clearly)

Full name: Jackson Michael Pritchard

Organisation (if app[redacted]

Postal address: [redacted]

Email: [redacted] Phone [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ◯ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

- Full public access
- Stop deer farming

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Your contact details: (please print clearly)

Full name: Clare Crafar

Organisation (if ap[redacted]

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

See attached.

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I do not agree that a staged Retirement of this Reserve is warrented.

Further Deer grazing is in no way commensurate with protection of the Native Reserve.

There are monocultures of Gums Pines and stock aplenty on Puketapu and the 52 Hectares set asiele for Public access could & should be embraced full heartedly. I'm sure if this attitude prevailed it would be the best outcome for the Reserve which has awaited protection long enough.

I would like to draw attention to the Lake Rotakare Reserve example, 230 ha set aside by a dairy farmer, all at one

.. it is a thriving Reserve with predator fencing, biodiverse and a great asset to the surrounding denuded landscape that produces all our lovely butter cheese and milk. Balance is important but I do not see the relevance in the case of our Waihemo Reserve of chopping it in half so the present leasee has time to plan. How much time is required. 5, 10, 15 years? Farming operations are important to be considered but surely this does not mean this current farming operation will be put at risk simply because they cannot use a native Reserve for Deer farming. If this is the case it would surely reflect that not a lot of planning or foresight has taken place up to this point. Leased land is exactly that, leased.

In issuing a licence to occupy to Deer grazing, in itself the most destructive thing to Native flora, the council is not adherring to the longer term Reserve values. That is unless it enters into a partnership with the leasee to manage that part of the Reserve with these goals in mind.

If the Council is being cautionary in its approach by not willing to Retire all of the Reserve until it can prove to itself, in partnership with the Rukeţapu Trust, that it can manage the portion retired (that means Protecting it) etc then perhaps its only option is to lease it to some less destructive grazing and enter a regular monitoring process. The proposed terms are very one sided about where the onus lies. It is not the

Supporters of the Reserve being returned to its intended purpose that have caused damage to it, it is the deer grazing and yet they dont have to prove anything.

There was also no notification to the public that, I could see, about fencing cost in leasing out part of the Reserve or altenative water source. Would this cost be to the Ratepayer? If it is I would rather it be spent more wisely.

a Reserve would be a great assett to this town and add a lot to its health and welfare. It is a trucking town, quite noisy and this will only increase into the future. Surely 52 Hectares retried now is better as it could slip through our fingers gain for another long holding period.. Time is always of the essence for good enviroments.

75

Waihemo Recreation Reserve Grazing licence
SUBMISSION FORM

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Your contact details: (please print clearly)

Full name: IAN PETER LEEDEN

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

If this land was designated as land for public use originally then why has it been allowed to be used for grazing for so long? This country has lost so much - and is set to lose a lot more of its natural beauty. Here is a chance to reclaim a tiny bit back.
It would be great for Palmerston and the general area to be able to use it - a nature reserve on our doorstep! And in time, when the bush has regenerated it could be a great attraction for visitors.
Please give it back to the people!

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Your contact details: (please print clearly)

Full name: Katrina Marie Dodd

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes (✓) No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

That the reserve be returned to the community, for recreation by the community, WITHOUT DELAY. It is unacceptable that the leasee has been allowed to degrade the reserve without condemnation, or oversight, for financial benefit, at the expense of the original intention for that land. This being the provision of a place of native and natural beauty, peace and tranquility, given to the residents of our place in Waitaki.

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Waitaki DISTRICT COUNCIL

Request for information confirmation sheet

Request for information

Submitted on	15 April 2025, 2:29PM
Receipt number	LGOIMA192
Related form version	16

Your contact details

First name	Katrina
Last name	Dodd

How do you want to be contacted?

Preferred contact method	Email

Email address

We will send the response to your email address	[redacted]

Your information request details

Type of request	LGOIMA (official information request)
Please enter the details of your request below. Please provide as much information as possible. You can also attach supporting documentation	Under the Official Information Act, I request a copy of the contractual agreement between the lessee Greg Oliver and/or his entities, and the lessor Waitaki District Council, over the land comprising the Waihemo Recreation Reserve - Sec: 74 Blk: IV SD Moeraki. In it's intention to issue a license to occupy, it is untruthful for WDC to decide the Reserve is not required for it's designated purpose, which was to recognise the value of the land by setting is aside as a Recreation Reserve for the community. There are few easily accessible places in the Waitaki district for people to enjoy native bush and a 360 degree view, which is possible from Puketapu. To continue to deny this when it was explicitly allowed for by our forebears so long ago, is an affront to those to live, work and visit here.

Note: Lease information will be handled through LGOIMA

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Your contact details: (please print clearly)

Full name: Susan and Philip Lee

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

Our Submission is to leave the Reserve as it is now.
Our Concerns if the lease is retired how is this to be maintained in future years.
It is our understanding that the Puketapu Community Trust is run on a mainly voluntary basis. They may have enough money and grants to get the project up and running, however what happens in ten, twenty Fifty plus years from now when it is hard to get the funding or free labour to maintain the Reserve.

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g. M. Cohen 14-4-25.

Your contact details: (please print clearly)

Full name: JEANETTE (JAN) COHEN

Organisation (if applicable): —

Postal address: [redacted]

Email: ..... Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I am against the renewal of a grazing licence under any circumstances on Puketapu Reserve. From what I've read in the papers, the Community Trust have done their homework and done their forward planning and seemed to have everything under control to restore our recreation reserve to the local people instead of living the pocket of a local farmer who has obviously no respect for the environment.

g. M. Cohen 14.4.2

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Your contact details: (please print clearly)

Full name: Dena (Andrea Linda) Henderson

Organisation (if [redacted]

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

Waihemo Recreation Reserve should be returned to the pub

I am sorry that the farmer will have to re-organise his farming operation but he must realise that rented land is always likely to be re-claimed!

The use of this land to facilitate climbing Pukeiapu is a great idea. This hill and the climb unit is the town's only tourist attraction. A cycle trail was planned but stymied by farmers who dislike change. Don't let it happen again

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Your contact details: (please print clearly)

Full name: Dianne Everitt

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ✓ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

A recreation reserve should be exactly that. Whilst this reserve is being farmed it not accessible for the public to enjoy. ~~The~~ Recently I asked around for information on somewhere to walk in the Palmerston area, and the closest thing was the BMX tracks in Brough St. Yes walkers can use these but its boring pine trees. Any area that can be reverted back to native bush is an asset & something for future generation to enjoy. ~~It~~ It seems like the time for this farmer to relocate his operation, maybe ~~the~~ have had it too good for too long, its ~~soo~~ time for other people to be able to get back to nature & enjoy this significant parcel of land that actually belongs to all the public, and should be accessable to a

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Your contact details: (please print clearly)

Full name: JOYCE WHITEHEAD

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ⊘ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I strongly support the recreation reserve being restored to its intended use.
I cannot understand how one farmer has been allowed to graze his stock on an area which I understand contains important and possibly unique vegetation. I believe it is important to save what is left of it and allow it to regenerate.
It can only benefit Palmerston to have this area restored and maintained for everyone's enjoyment and well-being.
Please, Council, remember we are in Waitaki - don't let us down!

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SUBMISSION FORM

Have your say

Please ensure that your submission is with us by 5pm on 15 April 2025.

How to lodge your submission:

Fill in our online submission form on the Consultation page at letstalk.waitaki.govt.nz or

Email: consult@waitaki.govt.nz
Post: Waihemo Recreation Reserve Grazing Licence Consultation, Waitaki District Council, Private Bag 50058, Ōamaru 9444
Deliver: Council offices or service centres at 20 Thames Street, Ōamaru, Ōamaru Public Library 62 Thames Street, Ōamaru, or Waihemo Service Centre, 54 Tiverton Street Palmerston

Your contact details: (please print clearly)

Full name: Nicholena Alice Pine

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

- This block of land has been SET ASIDE AS A RESERVE.
- When its purpose as a reserve is reinstated it will enhance biodiversity and create an ecological and recreational green zone thereby positively influencing the health and well being of our community. The value of this cannot be underestimated.
- There was a working plan in place for this time last year to manage pests and retire the block from grazing. (This was reneged).
- Therefore the leasee is well aware that the time for retirement is overdue.
- Retiring only part of the block is not cost effective.
- The logical action is to retire it NOW from grazing and restore it to its DESIGNATED PURPOSE OF A RESERVE.

Phone 03 433 0300
Email service@waitaki.govt.nz
Address 62 Thames Street, Private Bag 50058, Ōamaru 9444

www.waitaki.govt.nz

Waitaki DISTRICT COUNCIL TE KAUNIHERA A ROHE O WAITAKI

SUBMISSION OPPOSING THE RENEWAL OF ANY GRAZING LICENCE OR LICENCE TO OCCUPY ON THE WAIHEMO RECREATION RESERVE

Section 74 BLK IV SD Moeraki

Submitter: Puketapu Community Trust

Address: The Old Courthouse, 22 Stronsa Street, Palmerston 9430

Secretary: Maria Barta

Email: puketapu.waihemo@gmail.com

Lead author: H D McFarlane, Chairperson, Puketapu Community Trust

Address: [redacted]

Email: [redacted]

Phone: [redacted]

The Puketapu Community Trust wishes to speak to its Submission.

THE OUTCOME WE WOULD LIKE FROM THIS SUBMISSION PROCESS IS THAT NO GRAZING LICENCE OR LICENCE TO OCCUPY IS RENEWED OR ALLOWED ON THE WHOLE 52 HECTARES OF THE WAIHEMO RECREATION RESERVE.

WE SEEK THE ABOVE OUTCOME FOR THE REASONS THAT FOLLOW THE BACKGROUND INFORMATION.



Executive summary

Waihemo Recreation Reserve is a remainder of a unique forest that has survived the fires of hundreds, if not thousands, of years. It has done so likely because of its aspect, situation and isolation. The tree species are at the lower end of the flammability index.

Europeans have a documented record of endeavouring to protect it because of its value as a soil, water, and forest conservation area. And for the beauty of its natural environment and landscape, and the accessibility for public enjoyment and public activities.

It has been progressively degraded over the years. It recent times this has happened against the Gazetted administrators own Reserves Management plan, its own Biodiversity Strategy, the requirements of the RMA and especially the 1977 Reserves Act.

There has been clear and easily understood information of the effect of deer in large numbers on forest health and sustainability in New Zealand since at least 1910. The understanding has become much better with more scientific knowledge in subsequent years. In 1996, with a now paucity of records to show the actual decision-making steps and consultation with the public, a request to deer fence the Reserve has been allowed. There appears to have been some consideration of public access, but Waitaki District Council has not stood up for the rights of the public as a gazetted administrator under the 1977 Reserves Act should. This action was repeated in 2003 with the closing of a paper road accessing the Waihemo/Shag River mouth. Also under the 1977 Reserves Act, with the abundant knowledge of the effects of deer in large numbers on forests at that time, Council appears not to have considered its responsibilities towards the effects that allowing deer into the Reserve in a farmed situation would have on indigenous flora and fauna.

Despite the facts and wide spread understanding of the effects of deer in large numbers on forests, the requirements of the various acts and regulations that a gazetted administer of Crown Land must abide by, the Waitaki District Council has proceeded to issue a Licence to Occupy in 2016 exclusively for deer grazing, two years after creating their own Reserves Management Plan in 2014, their own Biodiversity Strategy, also in 2014. These documents clearly point towards the realisation of the need to protect indigenous vegetation and biodiversity.

Waitaki District Council has also failed to administer properly its own Licence to Occupy, when dozed tracks appeared in this landscape in 2019. As well it appears to have little knowledge of other fences or dams and ponds being created within the Reserve. The Licence to Occupy that was signed in 2016 states very clearly in clause 9: “This agreement may be terminated by either party giving one month’s notice in writing to the other.” There is no other responsibility inferred towards the occupier in regard to the ending of the agreement. The agreement has in fact ended. It has expired.

Allowing the continuance of deer farming in any portion of the Reserve, thus allowing damage to continue and access to be restricted, while using ratepayers’ money for an unknown return and on a stated temporary basis, makes no sense at all. Especially in consideration that money, time and effort must all be spent to restore that section.

As well, any efforts are chronologically behind where they could be with restoration possible across the whole Reserve in one tranche. Better use could be made of this public money for that restoration. Council could allocate the amount of revenue that has been

returned to rehabilitate the damage that has been caused by the deer, especially since 1996 when the Reserve was deer-fenced.

Forest function, restoration and protection is clearly understood in 2025. The role of long grass and other plant material decaying is long known to be part of soil building. Control of weed species, animal pest species and a change of appearance are all part of forest restoration. Management techniques are varied and can be tailored to fit both the site and the funding.

Fire risk and fire management are well understood in 2025. There are no ignition sources within the Reserve. Good processes and strategies can be developed for working inside the Reserve and managing fire risk. You can never account for human behaviour whether it is simply careless or malicious. There will be the same or less fuel load within the Reserve as in surrounding areas. The plant species in the forest are at the lower end of the flammability index. Short flight times for helicopters with monsoon buckets and the surrounding road network would aid firefighting should it be nessacary.

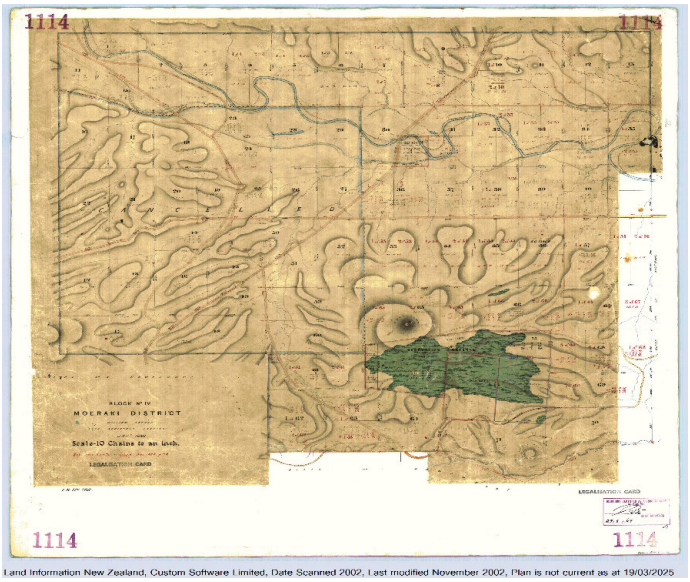
It is important that the public can access and recreate on Crown Land that is reserved for that purpose. That is why it has been reserved. The public should be able to partake in its environment with the formation of tracks that are both formal and informal. The administrator of that Crown Land should ensure at a minimum that it is possible for the public to do so, as is required by the Reserves Act.

It is a matter of principle and competence that a regulator should ensure its own management plans, strategies and government legalisation should be followed and enforced on its own lands and land that it is gazetted to administer on behalf of the Crown. Public expectation is that the administrating body will lead by example. To not do so sets a precedence and causes a difficulty in administering and enforcing the plethora of other legislation and regulation that are involved in the successful and beneficial managing of New Zealand society, its infrastructure and resources.

Not renewing a Licence to Occupy or a grazing licence on any of the Waihemo Recreation Reserve, considering its own reserve management plans, biodiversity strategies and New Zealand Government Acts and legalisation would be the correct actions of a disciplined and respected Regulator.

Background Information

The Waihemo Recreation Reserve has been a reserve since at least 1860. It first appears on a survey map as part of a larger isolated patch of forest which often has been referred to as Puketapu Bush. To the north has been forest in the Trotters Gorge area. And to the south there was Goodwood bush on the eastern and southern slopes of Mt Royal. These were the only forest remnants in this immediate vicinity. The rest was scrub lands and tussock country. Likely the area was constantly burnt through the centuries and has not been able to regenerate because of the fires and subsequent lack of shelter and protection in what can be a very harsh climate. As well, over the centuries, the natural seed bank would likely have diminished.



These patches of forest had survived the fires that occurred before human arrival and the subsequent increase in fires once humans had arrived. Likely the southern aspects that they grew on helped, by being cooler and damper. Possibly the northern slopes by more frequent burning in effect became fire breaks without having enough fuel to carry and ignite the damper heavier forest. Maybe a timely northeast or southerly sector coastal wind turned the fires back inland.

There was no forest to clear in this area when the Europeans arrived in the early 19th century.

This has been a unique forest remnant. It would have been teaming with bird life. Those that could only walk, and those that could fly. There would have been Weka and Kiwi. Trotters Gorge was one of places that the New Zealand Laughing Owl was last seen and that was not so long ago…early 1900s.

People involved with conservation talk of creating corridors for birds to move along. This would have been a huge "dining room" and would have connected to Trotter's Gorge to the north and Goodwood to the south via scrub filled gullies of flax, coprosma species, Cabbage trees, carex secta and the like with its distinctive pedestals and dropping tussock-like tops.

The hills would have been covered in tussock of different sorts, dry rocky ridges covered in "grey scrub" (matagouri, coprosma, myrsine, porcupine scrub, aciphylla (Spaniards of various sorts) Astelia, native broom, and Kowhai with Mahoe and Ngaio growing above the frost line and connecting to Goodwood. It would have also been teaming with invertebrates, skinks, geckos, and also bats, fungi, orchids, and mosses. There was a much greater range of plant and animal species that are now absent but could be shown to have been present.

A description of the Goodwood Bush can be found in Eileen Foote's book "Roadway to the Rushes" in which a Mrs Murdoch describes in the 1860's "*the bush is so dense and thick, that it seems almost impossible that it could ever be cleared except with immense labour. We saw a great variety of beautiful ferns — some hanging from the trunks of trees at a great height from the ground. We saw an enormous black pine (Matai), the largest tree I think, I ever saw — the very branches were as thick as large trees".*

These forest pockets were isolated as the 1862 survey map shows. To reinforce this idea, another extract from the book "Roadway to Rushes" in reference to men mining in the 1860s in Deep Dell (Macraes area) *"their closest wood was at Puketapu, except for a little Totara. In fact, James Crombie stated that he and another had carried timber from Goodwood Bush to Hamilton's Station".* They recognised its importance, likely, firstly as a timber resource.

But subsequently, they were also interested in maintaining it as a healthy forest. As demonstrated by the Domain board Inspector's report in the *Otago Witness* 20th April 1904 …"*The bush in its natural state looked very healthy. The young Goai and Totara looking particularly well, but needing thinning out...***"**



Certainly not the case in this photo, taken autumn 2024.
There are no seedlings evident whatsoever. And there is significant stock damage to the tree in the foreground.

Also to demonstrate this further —

The 1920 lease Clause 7 states:"That the lessee shall with the permission of the said Waihemo Domain Board have the right to cut and sell firewood PROVIDED that no Kowhai, Totara or Broadleaf trees shall be cut or injured in anyway".

And then in November 1933 in a letter from the Domain Board solicitors to the Commissioner of Crown Lands: "[The lessee] has always been careful to preserve the native bush growing on the place".

There has been a history of endeavouring to protect the remnant forest. Stocking it accordingly to allow seedling trees to grow.

It should be kept in mind that heavy stocking and intensification is a very recent practice in New Zealand farming. This has been brought about in part by the use of fertilisers and modern grazing management and modern animal health remedies and advances in science. New Zealand farms have much higher stocking rates now than pre-World War 2. Also in the intervening years, because of good science and improvement of genetics we now also have a much higher production per animal.

The Gazettals of Waihemo Recreation Reserve

- On 18th November 1886 Section 74 BlkIV SD Moeraki was permanently reserved for recreation — Gazette notice 1886/1469.

- This was more recently confirmed on 13th December 1979 when Waihemo Recreation Reserve was classified for recreation purposes — Gazette Notice 1979/3840.

Waitaki District Reserves Management Plan

From page 9 Waitaki District Reserves Management Plan 2014, which is **a repetition of the Reserves Act in a planning document**. This re-occurs in various documents.

Context 2.0

The general purpose of the Reserves Act is set out in Section 3, summarised as:

- Providing for the preservation and management of areas for the benefit and enjoyment of the public.
- Ensuring, as far as possible, the survival of all indigenous species of flora and fauna.
- Ensuring, as far as possible, the preservation of access for the public.
- Providing for the preservation of representative samples of all classes of natural ecosystems and landscape.
- Promoting the protection of the natural character of the coastal environment and the margins of lakes and rivers.

3.1 Reserves Act management principles

The majority of reserves in the Waitaki District administered under the Reserves Act are classified as either Recreation or Local Purpose Reserve, with two classified as Scientific Reserve (see Appendix 1).

3.1.1 Recreation Reserves

Section 17 of the Reserves Act 1977 states that Recreation Reserves are to be managed primarily for the purpose of:

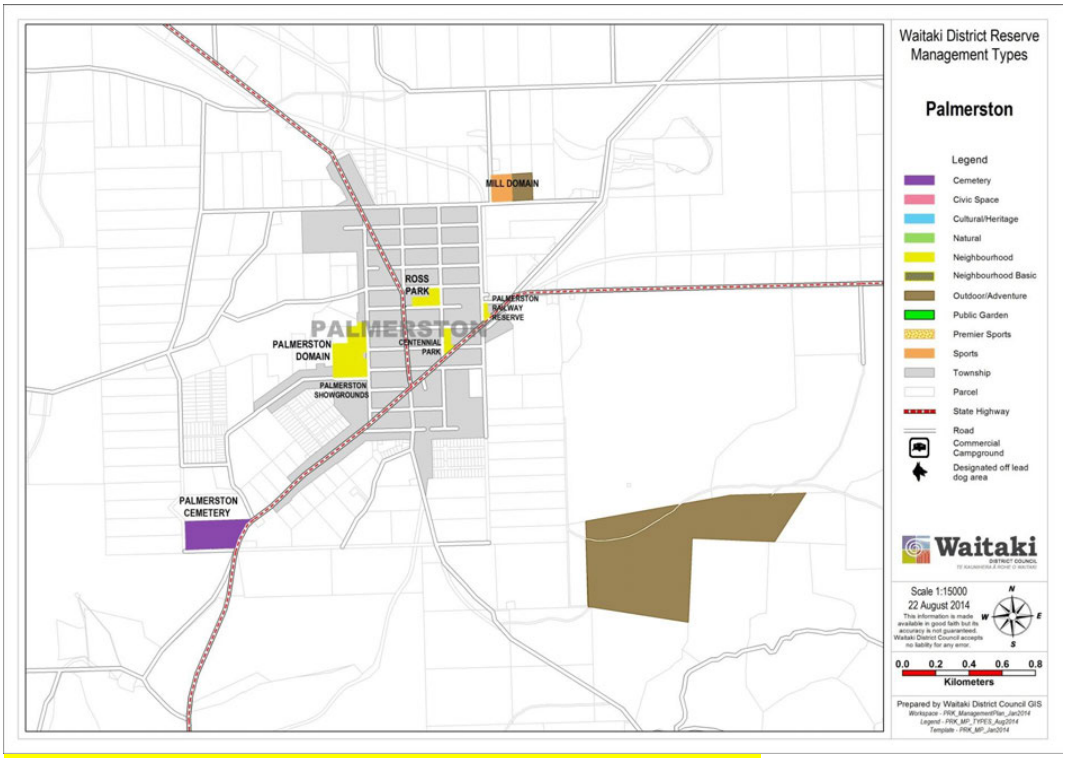
"...providing areas for the recreation and sporting activities and the physical welfare and enjoyment of the public, and for the protection of the natural environment and beauty of the countryside, with emphasis on the retention of open spaces and on outdoor recreational activities, including recreational tracks in the countryside."

4.3 Allowed activities

Outcome 1
Activities and uses allowed as of right in our reserves are sustainable, compatible with the reserve's primary purpose and do not compromise reserve values.

Policy 1
The following activities are allowed to be undertaken by individuals or groups in Waitaki's reserves, but may be subject to certain conditions and temporary restrictions:

Casual walking, running, jogging.



Waihemo Recreation Reserve is designated for Outdoor/Adventure

Leases, licenses, easements and other agreements

Policy 29
All applications for the long-term of use of reserves (including signage – see section 5.2.7 of this Plan) will be assessed as a discretionary activity.

Policy 30

Long-term leases and licences or other agreements will be reviewed at least three months before expiry to ensure that the activity or use of the reserve:

a. Is consistent with the primary purpose and legal classification of the reserve as defined in the Reserves Act
b. Is consistent with the management category of the reserve
c. Is in accordance with the outcomes and policies of this Plan
d. Does not detract from the use of the reserve
e. Provides benefit to the general public
f. Is located in an appropriate location
g. Does not compromise any future contemplated use of the reserve as identified in any Council approved development plan.

SO we have to ask – was any of the above done in 2016 before the licence was signed?

And if so, how did it conclude that continued grazing by large numbers of deer fitted with the above requirements?

And if so, how did it conclude that access requirements were met?

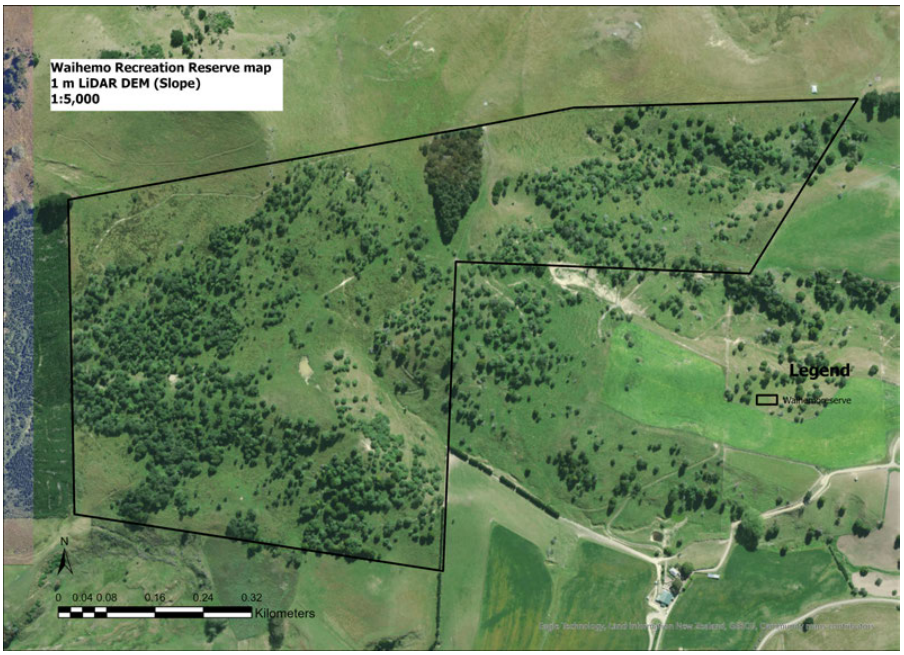
Policy 31

Applications for the renewal of long-term leases and licences, easements or other agreements will be assessed on a case-by-case basis subject to the criteria defined in Policy 30 of this Plan, and consideration of the performance of the lease-holder.

In 2019, a dozed track appears in the landscape.

Our questions to the consultation team were:

1. Was this an allowable activity? Approval should have been sought.
2. Was permission granted by council? We have no record of any permission being sought or given.
3. Was any action taken in relation to this? There is no record of any action.



5.0 General outcomes and policies

The general management policies ensure that reserves are managed in a consistent manner across the district. They have been divided into the following three parts:

- **Administration** (the way we administer and manage our reserves);
- **Looking after reserve values** (the protection and management of the heritage, cultural and natural environment values of our reserves); and
- **Partnering with the community** (engaging and partnering with external agencies e.g. community boards, community groups, other stakeholders, iwi and individuals).

Reserves in the Waitaki District cover a wide range of ecosystems and natural habitats unique to the area.

Council lands may contain significant indigenous vegetation and/or significant habitat for indigenous fauna, or could be used for re-vegetation and/or restoration to counterbalance continuing biodiversity losses resulting from agriculture.

5.2.2 Biodiversity intensification and urbanisation

The Waitaki District has suffered substantial biodiversity losses, mainly due to the impacts of human land use and introduced pest species. Scientific evidence shows that damaging loss trends are accelerating, particularly in urban areas and farmland which is subject to landuse intensification. Waitaki District Council's draft Biodiversity Strategy complements and informs the Waitaki District Plan in dealing with these issues.

As identified in Landcare Research's 2002 'Threatened Environment Mapping', most of Waitaki's lowlands and low hill country have less than 20% remnant vegetation (that is, are under the recognised extinction threshold). Much of this has less than 10%, meaning that remnant biodiversity in these areas cannot be assumed to be stable, and is at a real extinction risk. Some intensively developed landscapes have as little as 1% of their indigenous vegetation remaining.

Maintenance of biodiversity means ensuring that sub-catchments have a minimal 20% indigenous vegetation cover, requiring strong protection and/or re-vegetation in most developed landscapes. Waitaki's most heavily cleared sub-catchments will require substantial restoration planting to maintain the District's indigenous biodiversity. In areas known to support significant indigenous vegetation and/or habitat, public use should be managed to have minimal adverse impact on any natural habitat areas within the Council reserves, or alongside tracks and waterways and wetlands.

The draft Waitaki District Biodiversity Strategy sets out as a priority the protection and maintenance of remaining indigenous vegetation.

Outcome 24
Significant ecosystems, communities and species in our reserves are identified, protected, restored and cared for to ensure their ongoing viability.

Outcome 25
Priority ecological connections within and across reserves and adjoining public land are identified, protected and enhanced, restored and/or maintained.

Policy 98
Council will work across departments and with other relevant external agencies to identify, maintain and/or restore ecosystems, communities and species with important ecological values in the district's reserves.

Policy 99
Restoration plans will be progressively developed and implemented for all nationally, regional or district-wide significant ecosystems or species that are located on reserves.

Policy 101
Council will ensure that all indigenous re-vegetation activities within reserves are appropriate to the location, and where practical, will use locally-sourced plant species from relevant and adjacent Ecological Regions.

5.2.3 Climate Change

EXPLANATION
As identified in the Canterbury Biodiversity Strategy 2008 it is predicted that climate change has the potential to affect ecosystems and biodiversity and may result in:

- an increase in average temperatures;
- fewer extreme cold temperatures;
- more high temperature episodes;
- changes to average rainfall patterns;
- reduced areas with snow cover;
- shorter seasonal snow cover;
- snowline rise;
- heavier and/or more frequent extreme rainfall; a rise in sea level.

The main potential effects on biodiversity include:
- gradual change in habitat; changes in species' distribution;
- increased threats from pests and disease due to changes in disease vector distribution and habitat suitability.

Outcome 26
The effects of climate change are mitigated and adapted to through resilient ecosystems.

Policy 102
Council will seek to improve the resilience of Waitaki's reserves to the likely impacts of climate change through:

a. Gaining a better understanding of the current conditions and specific risks to Waitaki's reserves
b. Improving the capacity of natural ecosystems to adapt through appropriate restoration planting and riparian management
c. Ensuring new infrastructure is appropriately located and designed
d. Undertaking effective pest plant and pest animal control programmes.

5.2.4 Plant/animal pest control

EXPLANATION

There are many plant and animal pests across the district that, if left uncontrolled, can have detrimental impacts on the viability and survival of indigenous plants or animals, and the sustainability of natural ecosystems, ecological processes and biological diversity. The Canterbury Regional Pest Management Stratyegy 2011 – 15 provides a framework for the efficient and effective management of pest plants and animals.

Examples of some animal and plant pests that may occur in Waitaki's reserves include:

Pest animals: possums, mustelids (ferrets, weasels, stoats), rats, feral cats, rabbits, Bennetts wallaby, feral goats, feral deer, thar and chamois, feral pigs, wasps, magpies, sheep and deer (if grazed on reserves with indigenous vegetation);
Pest plants (terrestrial): banana passionfruit, bell heather, boneseed, Darwin's barberry, hieracium, old man's beard, wilding conifers, wild thyme, Mexican daisy, grey willow, broom and gorse, blackberry, ivy, boxthorn; Freshwater pests: didymo, egeria, lagarosiphon.

Protection and restoration of indigenous biodiversity is critically dependent on effective pest control. The Council as a land manager is required to manage and minimise the impact of such pests within their sites of biodiversity significance, as part of basic protection and maintenance measures.

This applies to farming deer within Waihemo Recreation Reserve. It is in the Waitaki District's Management Plan for goodness sake! This was done in 2014! A licence to occupy was granted two years later in 2016 — doing the very thing Council's Management Plan suggests should not be allowed!.

There is also benefit in Council collaborating with regional government and community organisations to attract external funding for prioritised work.

Outcome 27
Introduced plants and animal pests are appropriately controlled and/or eradicated on reserves.

Policy 103
Pest plants and animals will be identified and controlled as necessary to aid recovery of any ecosystem significant at the national, regional or district level.

Policy 104
Council will liaise, support, assist and co-operate with the Otago Regional Council, Environment Canterbury and the Department of Conservation to provide for the detection and control of pest plants and animals.

Policy 105
Council will prioritise all pest control programmes on reserves according to:

a. The pests and animals that have the ability to significantly impact on the environmental health and sustainability of the district's reserves; and
b. Council has a legislative requirement for control.

Policy 106
Council will take all practical steps to prevent the introduction of new introduced plants and animals that may adversely affect the natural health and sustainability of our reserves.

5.2.6 Sustainable land management

EXPLANATION
Council is required to promote the sustainable management of natural and physical resources as written in the Resource Management Act 1991. This includes its own operations as a major land manager within the Waitaki District.

Outcome 29
Reserves are managed to ensure the efficient use of resources.

How does farming deer within the Waihemo Recreation Reserve comply with this requirement?

Waitaki District Council, under Section 6 (c) of the Resource Management Act 1991, must recognise and provide for the protection of areas of "significant indigenous vegetation and significant habitats of indigenous fauna" on land it administers as a matter of national importance.

RESERVES ACT 1977

17 Recreation reserves

1) It is hereby declared that the appropriate provisions of this Act shall have effect, in relation to reserves classified as recreation reserves, for the purpose of providing areas for the recreation and sporting activities and the physical welfare and enjoyment of the public, and for the protection of the natural environment and beauty of the countryside, with emphasis on the retention of open spaces and on outdoor recreational activities, including recreational tracks in the countryside.

2) It is hereby further declared that, having regard to the general purposes specified in subsection (1), every recreation reserve shall be so administered under the appropriate provisions of this Act that —

b) the public shall have freedom of entry and access to the reserve, subject to the specific powers conferred on the administering body by sections 53 and 54, to any bylaws under this Act applying to the reserve, and to such conditions and restrictions as the administering body considers to be necessary for the protection and general well-being of the reserve and for the protection and control of the public using it:

b) where scenic, historic, archaeological, biological, geological, or other scientific features or indigenous flora or fauna or wildlife are present on the reserve, those features or that flora or fauna or wildlife shall be managed and protected to the extent compatible with the principal or primary purpose of the reserve: provided that nothing in this subsection shall authorise the doing of anything with respect to fauna that would contravene any provision of the Wildlife Act 1953 or any regulations or Proclamation or notification under that Act, or the doing of anything with respect to archaeological features in any reserve that would contravene any provision of the Heritage New Zealand Pouhere Taonga Act 2014:

b) those qualities of the reserve which contribute to the pleasantness, harmony, and cohesion of the natural environment and to the better use and enjoyment of the reserve shall be conserved:

b) to the extent compatible with the principal or primary purpose of the reserve, its value as a soil, water, and forest conservation area shall be maintained.

It was realised as early as 1910 that deer had become a menace in forest areas, causing widespread damage to the forest, both by directly damaging trees, eating everything on the forest floor and setting up the conditions for rapid and unnatural erosion of hillsides. In the 1930s the New Zealand government began a culling programme in recognition of this and then in 1956 the Noxious Animals Act was passed as well, further recognising the issue.

There is no mystery as to the effect of deer in large numbers to forest health.

The issue of deer and forest health is explained nicely in this following article.

An extract from a QE2 article November 2021

Systems change. When a non-native animal is introduced to a new ecosystem, the effects can be massive. Some negative effects can be seen straight away, while others can take longer to unfold. Changes to carbon and water cycles, soil bacterial and fungal communities, and loss of a forest's ability to regenerate can be very long lasting and difficult to reverse. Deer can severely pug soils on forest floors causing disturbance and compaction which slows the establishment of seedlings and can lead to increased erosion. Mosses and bryophytes on the forest floor can hold significant amounts of water and slowly release it later – these plants are fragile and are easily trampled by deer and goats. Research shows forests with high levels of ungulates have less bacterial and fungal diversity in their soils, affecting nutrient cycling and storage. There is a strong relationship between native fungi living in soils and the ability for native trees to establish and thrive. Recently, there has been more research into the impact that pest animals have on the climate. A Forest and Bird report found that the average deer produces 410kg of CO_2 emissions per year, the average goat produces 250kg. This report suggests that feral browsers in New Zealand could be responsible for an equivalent CO_2 output of up to 60% of that produced by road transport in New Zealand in 2018. Removing four deer saves the equivalent of one average year of CO_2 emissions from the family car. Deer and goats focus their browsing on the most succulent vegetation, with small variances in preference. Goats will eat plants closer to the ground and plants with tougher/spikier stems. Once a forest has had the most palatable plant stripped out, recovery can be held back by an occasional ungulate moving through, feeding on new growth. If other ecological processes are not properly functioning, such as bird distribution, then seed dispersal can be hindered, which will also affect re-establishing the forest. In severe cases, feeding by ungulates can cause the death of mature trees, leading to canopy collapse. Slow-growing and long-lived forest giants, like rimu, kahikatea, mataī, miro and tōtara are key structural elements to many of our forests.

Rimu are easily damaged when they are smaller, as trees with stems 10-30 cm in diameter are used by stags to rub itchy antlers when shedding their seasonal velvet. Rimu in this size class can still be over 50 years old, as they bide their time in the forest understorey, waiting for a chance to grow when older trees naturally die and let sunlight in. Deer pressure in many of our forests can become severe enough that most podocarp recruitment is stopped – seedlings are trampled, saplings browsed, and immature trees killed by de-barking. If this pressure goes on long enough, the natural cycle of forest regeneration is put in jeopardy.

The Damage deer do to forest in large numbers has been known for a very long time.

Puketapu Community Trust has asked the consultation team these questions:

1) Is there documentation and/or an agreement to allow the erection of a deer fence around the Waihemo Recreation Reserve? If so, we respectfully request to see a copy.
2) Is there documentation and/or an agreement or amended agreement to allow deer farming within the Waihemo Recreation Reserve? If so, we respectfully request to see a copy.
3) Was the public/wider community consulted about losing access to the Waihemo Recreation Reserve because it was going to be deer fenced and subsequently deer farmed?
4) What are the documents/discussion papers that the WDC used to justify, consider and allow this alteration of a possible licence to occupy or a lease agreement to allow blocking of public access and allow the farming of deer within the Reserve?
5) Was there a report that considered the effect that deer farming would have on the vegetation within the reserve?
6) Is there a copy/proof of this happening? If so, we respectfully request a copy of all of the above?
7) What year and date did all the above take place?

It seems there is not a lot of information on file at the Waitaki District Council about this lease. And so this is all we have about the council decision to allow deer farming within the reserve and the erection of deer fencing, thereby stopping access to a public place and causing clearly demonstratable damage to the forest.

Council replied as follows:

In 1996, Council responded to a request to deer fence the lease. The Property Manager of the time advised the lessee that the lease required 'public access' at all times, asked for the Lessee's guidance as to any knowledge of public use, whether the fence would restrict users, and stated any fences would need to be removed if there was public outcry.

There is no mention of consideration of what the deer might do to the forest.

It has long been known at this point that deer damage forest. The requirements of the Reserves Act in regard to recreation reserves and protecting biodiversity has also been long known.

There appears to be no supporting evidence that the WDC displayed any care or knowledge of the fact that deer would damage the forest in their decision about allowing deer farming, if indeed there was a decision. As well there appears to be no evidence that they sought public consultation to blocking public access to a public reserve.

There appears to be no evidence to back up either action.

How does any of the above make sense?

A lack of knowledge? A lack of good process? Incompetence? Or an element of stealth? A combination of all?

In 2002/ 2003 the Waitaki District Council and a landowner endeavoured to close a paper road that gave access to the Waihemo river mouth. This was challenged by the then Public Access NZ and others.

https://www.scoop.co.nz/stories/PO0507/S00198/coastal-and-river-access-secured.htm

Coastal and river access secured

Wednesday, 20 July 2005, 2:38 pm

Press Release: Public Access New Zealand

NEWS MEDIA RELEASE

Objectors to a Waitaki District Council decision to stop public road access to the mouth of the Shag River, near Palmerston in East Otago, welcome an Environment Court decision resulting from agreement being reached between the parties. The Court has allowed stopping and disposal of an unformed road, conditional on alternative public access being provided along the north bank of the river and along the coast.

In May 2002 the Council resolved to dispose to the adjoining landowner the seaward portion of Bushey Park Road and abutting side roads. Five objections were made. Four of these were heard in June 2003. The Department of Conservation withdrew their objection prior to the hearing. In August 2003 the Council confirmed its original decision to stop the road. The remaining objections were referred to the Environment Court for determination.

DOC secured by private agreement access for themselves to the Onewhenua Historic Reserve at the mouth of the Shag River but disappointingly failed to pursue public access to this public reserve and coast.

The remaining objectors were Mr John McGann of Oamaru, Federated Mountain Clubs of New Zealand, Royal Forest and Bird Protection Society (Dunedin Branch), and Public Access New Zealand. The objectors considered that the legal road alignment was capable of development by bridging and board walking, however funding for this was not forthcoming. The objectors entered into negotiations with Stanfield's Bushey Park Limited and the District Council to secure alternative access.

Recreation and conservation groups have shown that they will not take lying down the closure of public roads by councils, merely for the convenience of neighbouring landowners. Road stopping will only be countenanced where there are alternatives on offer that provide secure, permanent and practical public access.

The objectors' negotiator, Bruce Mason of PANZ, commented that the results obtained would not have occurred without statutory rights of public objection and appeal against road stopping. It is crucial that such rights remain.

He also said that the results demonstrate that there are practical ways to secure public access using existing means, and that the Government's proposed 'footways' along private water margins are by no means a complete solution to access problems. It shows that existing legal access protection needs to be an integral part of any national strategy to improve public access.

Background and Access Detail

Environment Court Decision C100/2005, 18 July 2005

Historically Bushey Park Road has been used for access to the Shag River estuary and the beach at the river mouth. The route crosses old river channels, which were previously partly bridged, and salt marshes. Destruction of a bridge many years ago required deviation onto an alternative track on private land. In recent years obtaining permission for public access has been difficult. Also deer fences obstructed the legal road.

The settlement provides for continuous public foot access downstream from the old State Highway 1 bridge along the north bank of the Shag River and estuary to Shag Point. This will be on a mix of existing esplanade strips and recreation reserve, and new esplanade strips on two properties.

The new esplanade strips will be between 5 and 30 metres wide to ensure practical access, and will require erection of gates or stiles and sign posting. Dogs, firearms, camping, and vehicles are prohibited. So too is causing any obstruction to public access. There is no provision for closure to the public. There is a right for the public to assert passage at any time. The strips will be binding on successors in title.

There will also be public foot access north along the coast from Stony Creek/Anderson's Lagoon to the Shag River mouth. An existing legal road along the cliffs will be widened over much of its length to provide safe and practical access. Access will continue along the beach to the mouth of the Shag River. Stanfield's Bushey Park Limited have agreed to erect a stairway up the cliffs at the southern end, and pedestrian stiles.

ENDS

These following reports and strategies are created by Waitaki district circa 2014 to presumably help manage the Waitaki District.

In 2014 a Wildlands report is created for the Waihemo Recreation Reserve area, to access the wider remnant forest that once was collectively called ***Puketapu Bush*** on the southeast slopes of Puketapu.

Also a Indigenous Biodiversity Stratedgy is produced in 2014

And a Waitaki Reserves Management Plan also produced in 2014.

These all refer to the Resource Management Act 1991, the Reserves Act, and the Local Government Act 2002.

They all refer to protecting biodiversity, protecting landscapes, allowing public access, and use of public reserves, etc.

Then in 2016, a new licence to occupy is signed that allows deer farming within the Waihemo Recreation Reserve for the next 8 years.

It clearly states as below.

USE OF LAND

Clause 4 from the expired licence to occupy.

4) The Licensee shall use the land only for the purpose of grazing deer.

Does that make any sense in view of the above Management Plan requirements?

Privacy Act and LGOIMA

4) The Licensee shall during the continuance of this Licence manage the land for the purpose specified in clause 4, including complying with all bylaws and regulations and shall at all times be to the satisfaction of the Council:

Take all steps necessary to protect any standing timber or trees on the land from damage by animals or otherwise.

NON-PERMITTED ACTIONS

6) The Licensee shall not at any time, without the prior written consent of the Council:

6.1) Erect, build or place any building or other structure nor plant any tree, shrub or other plant on the land.

6.2) Cut down or destroy any standing timber or trees on the land.

6.2) Damage or destroy any natural, scenic, historic, cultural, archaeological, biological, geological or other scientific features or indigenous flora and fauna on the land.

There are some tough asks here – the licensee has been allowed to farm deer within the Reserve which results in most of the above. And it has been long known what the consequences of deer farming in the forest will be.

There is mention of public access — but it takes a month to arrange. A month to reinstate, it could be said. It is a public recreation reserve and as such should be available for public use as per the Reserves Act.

In times past there has been a history of endeavouring to protect the remnant forest.

17 Recreation reserves

1) It is hereby declared that the appropriate provisions of this Act shall have effect, in relation to reserves classified as recreation reserves, for the purpose of providing areas for the recreation and sporting activities and the physical welfare and enjoyment of the public, and for the protection of the natural environment and beauty of the countryside, with emphasis on the retention of open spaces and on outdoor recreational activities, including recreational tracks in the countryside.

2) It is hereby further declared that, having regard to the general purposes specified in subsection (1), every recreation reserve shall be so administered under the appropriate provisions of this Act that—

   a) the public shall have freedom of entry and access to the reserve, subject to the specific powers conferred on the administering body by sections 53 and 54, to any bylaws under this Act applying to the reserve, and to such conditions and restrictions as the administering body considers to be necessary for the protection and general well-being of the reserve and for the protection and control of the public using it:

   b) where scenic, historic, archaeological, biological, geological, or other scientific features or indigenous flora or fauna or wildlife are present on the reserve, those features or that flora or fauna or wildlife shall be managed and protected to the extent compatible with the principal or primary purpose of the reserve:

   provided that nothing in this subsection shall authorise the doing of anything with respect to fauna that would contravene any provision of the Wildlife Act 1953 or any regulations or Proclamation or notification under that Act, or the doing of anything with respect to archaeological features in any reserve that would contravene any provision of the Heritage New Zealand Pouhere Taonga Act 2014:

(a) those qualities of the reserve which contribute to the pleasantness, harmony, and cohesion of the natural environment and to the better use and enjoyment of the reserve shall be conserved:

(b) to the extent compatible with the principal or primary purpose of the reserve, its value as a soil, water, and forest conservation area shall be maintained.

Compare: 1953 No 69 32, 33; 1964 No 108 s 2
Section 17(2)(b) proviso: amended, on 20 May 2014, by section 107ofthe Heritage New Zealand Pouhere Taonga Act 2014 (2014 No 26).
httos://www.leqislation.aovt.nz/act/public/1977/0066/73.0/DLM444605

Some very pertinent extracts from Waitaki District's Indigenous Biodiversity Strategy which is dated 2014 - 2017

Page 2

The Waitaki community values and cares for the district's indigenous biodiversity and accepts the shared responsibility to work together to ensure it is sustained and enhanced, both now and into the future.

As a result, there is a full range of healthy ecosystems stretching from the mountains to the sea (ki uta ki tai), reflecting the unique and diverse natural character of the Waitaki district. Our indigenous biodiversity is an integral part of our everyday lives and landscapes, it complements the productivity of our sustainable economy and working lands, mahika kai values and sustainable harvest.

Page 4

The goals align with all four National Priorities (from the statement of National Priorities for Protecting Rare and Threatened Biodiversity on Private Land, 2007).

- to protect indigenous vegetation associated with land environments that have 20% or less remaining indigenous land-cover.
- to protect indigenous vegetation associated with sand dunes and wetlands.
- to protect indigenous vegetation types associated with "originally rare" terrestrial ecosystem types not already covered by Priorities 1 and 2; and
- to protect habitats of threatened and at risk/declining indigenous species.

Part Two of the Strategy presents collated research and evidence about why it is imperative to maintain indigenous biodiversity. Much of the information contained in Part Two has been drawn from the *Wildlands Report 2013*, which was commissioned by the WDC.

The WDC is required, under Section 6 (c) of the Resource Management Act, 1991 (RMA), to recognise and provide for the protection of areas of "significant indigenous vegetation and significant habitats of indigenous fauna" on land it administers as a matter of national importance. As part of the WDC's commitment to this, the Strategy aims to complement and inform the *Waitaki District Plan* which comprises the key legal document for the protection and enhancement of the environment within the Waitaki District. The Strategy is also aligned with the *New Zealand Biodiversity Strategy, 2000* and the *Biodiversity Strategy for the Canterbury Region*, adopted by WDC in 2008.

Page 5

There are challenges ahead for the management of indigenous biodiversity in our District, such as protecting the remaining dry grasslands, avoiding further loss of endangered species, enhancement rather than degradation of waterways and how to protect and restore a range of healthy ecosystems stretching from the mountains to the sea.

Page 6

1.3 Why should we care about indigenous biodiversity?

Indigenous biodiversity critically matters to us all! A healthy ecosystem with robust indigenous biodiversity performs, free of charge, a myriad of functions essential to modern life. Essential 'free' services provided by healthy ecosystems include:

- the production of raw materials (food, pharmaceuticals, and fibre)
- provision of mahika kai and cultural values
- clean water and air
- decomposing wastes
- cycling of nutrients
- the creation and maintenance of soils
- pollination and seed dispersal
- regulating local and global climates
- reducing flooding and storm impacts
- reducing the effects of climate change through absorption of carbon dioxide, and shade, shelter, natural character and identity.

The economic magnitude of naturally provided services cannot be ignored, yet is generally assumed. In the Waitaki District, both agriculture and tourism, the major local economic industries, fundamentally depend on a healthy natural environment and indigenous biodiversity. Recognising the inherent value of indigenous biodiversity, scientific research efforts have begun focusing on valuing biodiversity in economic terms. A study carried out in 2003 valued Canterbury's 'free' terrestrial and marine biodiversity services in the year ending March 1998 at $8.5 billion and $504.3 million respectively (McDonald & Patterson, 2003). Australian Economist, Professor Clem Tisdell[1] estimated that the value of wildlife-based tourism on the Otago Peninsula contributed $100 million dollars per annum to the Dunedin economy. Late in 2013, Landcare Research was awarded Government funding to develop methods to put a value on the natural or ecosystem services which underpin the New Zealand economy. As well as this, the research will gauge human well-being and provide evidence of how human activities impact on biodiversity and modify ecosystem services (Landcare Research, 2014).

Page 7

Maintaining indigenous biodiversity contributes to a healthy environment, provides us with food and fresh water, shapes our local and cultural identity, underpins our economy, and has significant intrinsic value to the people and takata whenua of the district. Indigenous biodiversity is everyone's business!

[1] Speaker at the 20th Anniversary Conference of the Yellow-eyed Penguin Trust

Page 8

Around two thirds of New Zealand's forest cover has been lost; in Waitaki this is more like 80% with only 5% of land area covered by woody vegetation below the tree line, including all kinds of shrubland as well as podocarp-broadleaf forest, from an estimated 85-90% pre-Maori (MfE & DOC). Additionally, over 90% of wetlands has been lost, with closer to 100% lost in lowland plains areas. Most tellingly there are more introduced species in NZ than there are indigenous species, and this is increasing (Ibid).

Page 9

1.6 What are the causes of Waitaki's indigenous biodiversity loss?

The direct cause of indigenous biodiversity and habitat loss is vegetation clearance (removal, burning etc) and ecosystem modification (through grazing, oversowing, top-dressing, irrigation, soil erosion and the like). These causes are greatest where land use changes, such as where afforestation or pastoral intensification, is occurring. The role of pest plant and animals, such as competition from exotic weeds and predation/destruction by pest animal species is an equally significant cause. In Waitaki these especially include rabbit and possum browse, weeds invading the braided river beds, and predation on nesting birds.

Indirect causes can be attributed to lack of information and ineffectual application of the RMA (inconsistent policies and rules and poor enforcement of plan provisions). While there is scientific information available about national trends, there are significant gaps in information specific to the Waitaki District and this hinders the implementation of systems to protect indigenous biodiversity on a localised scale. For example, the extent and distribution of wetlands in the Waitaki District are not well known, and are a priority for survey and assessment of their ecological values and threats. In addition, the ecological requirements of many poorly known or undescribed species are not fully understood (Wildlands Report, 2013). Lack of information also pertains to misunderstanding and not appreciating the values of nature or the consequences of human actions (Steven, 2014). Part 2 to this Strategy provides further detail on the causes and threats to Waitaki's indigenous biodiversity.

Page 10

As previously stated, the Strategy gives effect to the *New Zealand Biodiversity Strategy* and the *Biodiversity Strategy for the Canterbury Region*. It is a non-statutory document which shares the same vision as the *Biodiversity Strategy for the Canterbury Region* and although written with a local flavour, is aligned with regional targets as bulleted below.

- no further loss of significant habitats and ecosystems
- an increase in biodiversity protection and restoration initiatives
- a growing public awareness of incorporating indigenous biodiversity into working and urban landscapes

- biodiversity promotion
- on-going monitoring and research, and
- partnerships which result in beneficial biodiversity outcomes.

The Strategy also recognises and seeks to align itself with other biodiversity initiatives through an integrated approach and promotes co-operation and collaboration between individuals and agencies.

Page 12

If indigenous biodiversity and life-giving landscapes are to persist, conservation reserves – critical biodiversity banks – must be supplemented by protection and restoration measures across working landscapes.

- **Waitaki Priority 1 – *To protect indigenous vegetation associated with land environments that have 20% or less remaining indigenous landcover.***
- Indigenous vegetation occurring on the lowland part of the Waitaki District meets this priority, as well as indigenous vegetation on many terraces and fans beside the Waitaki River and on inland basin floors (Wildlands Report, 2013).

Page 14

GOAL 2: To maintain, and where appropriate, enhance or restore, Waitaki's significant indigenous biodiversity.

GOAL 3: To engage with landholders, Ngai Tahu and the broader community in protecting and enhancing indigenous biodiversity.

Yes, we are still going through Waitaki District Council's Biodiversity Strategy.

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PART TWO: THE CONTEXT

5 LEGAL DUTY TO PROTECT INDIGENOUS BIODIVERSITY

5.1 National Biodiversity Policy

In 1993, New Zealand ratified the **United Nations Convention on Biodiversity**, the first global agreement on the conservation and sustainable use of biological diversity. The convention required governments to develop national biodiversity strategies and action plans. Consequently, New Zealand produced the **New Zealand Biodiversity Strategy**: Our Chance to Turn the Tide/Whakakohukihukitia Te Tai Roroku Ki Te Tai Oranga, in February 2000.

The NZBS sets out goals for biodiversity management in New Zealand. These provide guidance to government agencies and other organisations, but do not prescribe in detail

how particular actions related to biodiversity management should be undertaken. In particular, Goal Three requires a halt to the decline in New Zealand's indigenous biodiversity and aims to:

> *Maintain and restore a full range of remaining natural habitats and ecosystems to a healthy functioning state, enhance critically scarce habitats, and sustain the more modified ecosystems in production and urban environments; and do what else is necessary to:*
>
> - *Maintain and restore viable populations of all indigenous species and subspecies across their natural range and maintain their genetic diversity.*

Achievement of the national goals will depend heavily on action at the regional and local level, and on the action and assistance of communities and landowners.

The **Resource Management Act, 1991** outlines the functions of regional councils and territorial authorities for the purpose of giving effect to the Act. These are set out in sections 30 and 31 respectively, and include functions that relate to biodiversity. An amendment to the RMA in 2003 provided clarification and more explicit reference to biodiversity, reflected in sections 30(1)(c)(iiia), 30(1)(ga), and 31(1)(b)(iii). Section 31(1) states:

> *Every territorial authority shall have the following functions …*
>
> *(b) the control of any actual or potential effects of the use, development, or protection of land, including for the purpose of…*
>
> *(iii) the maintenance of indigenous biological diversity*

Part 2 of the RMA sets out the overarching purpose and principles of the Act and includes Section 6 which states:

> *In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development, and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:*
>
> *(c) the protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:*

There are a number of other statutes that encompass biodiversity matters, and which impose related functions and responsibilities on a number of agencies. These statutes include:

- Conservation Act, 1987
- Reserves Act, 1977
- Biosecurity Act, 1993
- Local Government Act, 2002
- Forests Act, 1949

Primary causes of indigenous plant losses are planned vegetation removal, landscape and hydrological modifications, climate change and introduced pests. This is mainly due to human intervention such as agricultural production and intensification, urban settlement, infrastructure expansion, and pollution. Other causes include grazing and weed invasion. Indigenous fauna on the other hand, is extraordinarily affected by introduced predators, which have invaded almost all ecosystems on mainland New Zealand, and widespread habitat loss.

Of significance is the identified indigenous cover threshold of 20% retention, below which further clearing causes vastly accelerating species decline – that is, rapidly increasing extinction potential, as detailed in **Section 6.3** (below).

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Biodiversity action: common misperceptions

Indigenous biodiversity protection became the focus of international efforts in 1992, when the legally binding Convention on Biological Diversity, which required national identification and mainstream protection of indigenous biodiversity, was negotiated. However, in spite of substantial efforts and much scientific information since then, there are widespread misperceptions about indigenous biodiversity conservation, which present real barriers to effective remedial actions. Common misperceptions include the following themes.

Indigenous biodiversity can be dispensed with

Contrary to the common view, indigenous biodiversity is essential, not accessory, to viable and self-sustaining landscapes, human settlements and economies. Scientific review increasingly reveals evolved biological and ecological diversity as both the fundamental material and drivers of vigorous lifegiving landscapes, and so not just a matter for discretionary market decision.

Widespread reduction, and even elimination, of such dynamic diversity resulting from intensive land development limits available life forms and complexity, damages environmental quality and saps both ecosystem and economic resilience. When diverse evolved ecosystems are comprehensively replaced over time, landscapes and waterways wear down, often literally – evident in land erosion, depleted soils and polluted or scoured-out waterways. Settlements become increasingly dependent on expensive external inputs, and vulnerable to environmental fluctuations, especially extreme events.

Contrasting this are conservation reserves and mixed landscapes that respectively hold ‘what was’, and what still is possible. These areas, which tend to occur in more remote areas or survive by private decree, constitute biodiversity shelters or banks, critical in maintaining restoration potential for degraded countrysides.

If indigenous biodiversity and life-giving landscapes are to persist, conservation reserves – critical biodiversity banks – must be supplemented by protection and restoration measures across working landscapes.

That gives Council some idea of the considerations that were intended to be taken into account in the decision making process if one was following the WDC Biodiversity strategy. Remember this was for 2014 to 2017, and the expired licence to occupy was signed in 2016.

Come to 2025 and there is no public access within this public recreation reserve.

It is surrounded by a deer fence, there are no gates to allow entry. There is no signage or information about accessing this public land.



The forest is degraded and damaged and diminished. It is unable to regenerate because of deer farming within the reserve.

The Trust asks the Waitaki District Council to lead by example and follow their own rules and regulations as well the national legislation for reserves and Resource management acts.

To do otherwise sets a precedence of disregard for rule of law.

If the council cannot make the effort to do it on land they administer on behalf the crown — how will that be perceived by the other landowners and occupiers of the Waitaki district?

The Fence

Waitaki District Council and Waihemo Community Board are proposing to put an additional fence through this iconic landscape which will continue to keep on damaging the forest remnant and exclude the public from their Public Recreation Reserve.

In order to do this, they propose to spend in the vicinity of $50,000 in the first instance —

- $24,000 for 680m of deer fence
- $16,000 for creating a water supply because the deer have been drinking and wallowing in a spring in the SW corner.
- $10,000 or thereabouts for resource consent and landscape assessment.
- $50,000 all up.

This for a proposed temporary purpose which would, if WDC staged retirement is followed, would leave somewhere around 36ha . This 36ha would carry between 6 and 11 stock units by Beef and Lamb estimates for this class of land. The average would be 8.5 su. DINZ web site says a “modern” Red Deer hind equates to 2.4 su. The remainder would carry approximately 130 MA hinds. It could be more; it might be less on an annualised basis.

Is that damage and expense worth it for 130 deer?

It remains unknown how much income is derived for the Council for this Licence to Occupy the reserve.

It is unknown how many deer are actually farmed in this reserve. Maybe it would be around 180 if set stocked. It could be mobs of 400 to 500 moving in and out to maximise pasture regrowth.

For either scenario, we know and have known for along time that deer damage forests.

It is known however, as the expired licence shows, that rates are not liable to be paid. The rating details for Section 74 BLK IV SD Moeraki are capital value $365,000 with a total rating payable $ 1,476.05.

There will be those that read this that will know how much is paid for the use of this public land. What the actual licence fee is.

If an amount like 4% interest on the capital value was cosidered, it would have been $14,600.

Was that it? Too much? Too little?

It looks like the rate payers of Waitaki District are not going to get that information and hence will not be able to access if this has been a good compensation for loss of access, destruction of forest and most importantly the inability of the forest to regenerate.

And now we must go to great expense and effort to restore this forest. Would all the income derived from the reserve over the years be able to compensate for this? What is the income that has been derived from this reserve?

Why do the occupiers really need this particular piece of land?

The money earned by the degrading of this reserve in the past, especially since deer have been grazed on it, should be put towards the restoration. The reserve has been damaged. Plain and simple.

Our thoughts are that the amount of revenue does not compensate for the loss of access and continued damage and degrading of the Waihemo Recreation Reserve.

SEVERAL THINGS HAPPEN HERE IF THE CONTINUED GRAZING OF DEER IS ALLOWED.

- **Degradation and damage of trees continues.**
- **Regeneration of forest is prevented.**
- **A fenceline would be required to be ercted through this significant landscape. That fence is not there at present and need not be put there.**

Being Fair To All

Below is the redacted Lease agreement — it had been asked for numerous times. In the end it became the subject of an official information request by several parties. We still had to ask specifically for it.

A lot is made of the fact that the Council's tenant requires time to transition their farming operation.

There are things Council needs to know and keep in mind in relation to the above.

Puketapu Community Trust had been told that they would have access to a portion of the reserve last autumn, early winter 2024 i.e. last April/May. Here we are a year on. That is at least twelve months notice. We believe the Olivers were spoken to in December 2023.

THE REALLY INTERESTING THING IS - IN 2016 (THAT IS CLOSE TO 9 YEARS AGO) A LICENCE TO OCCUPY WAS SIGNED AND IT STATES VERY CLEARLY IN CLAUSE 9 UNDER THE HEADING OF:

Termination

9. This agreement maybe terminated by either party giving one month's notice in writing to the other.

For the last near 9 years it has been monthly. If you have signed this agreement, you must be aware of this fact. How could you not? It would make good business sense that you were always prepared for this eventuality, because it could have been terminated at any time by one month's written notice. Logical, is it not?

There is nothing here, in this agreement that says otherwise. There is nothing in this agreement that states special consideration must be taken regarding the licensee.

Let's not forget the public though. Very thoughtfully they are considered and with a month's written notice from Council they can have the access to the Reserve that has been denied to them. They should always have been able to access this Reserve. They should not have to ask. They have a legal right. It should never have been stopped.

BELOW IS A COPY OF THE REDACTED LICENCE TO OCCUPY

LICENCE TO OCCUPY COUNCIL LAND

AGREEMENT made this [redacted] day 2016 BETWEEN the W. of he WAITAKI DISTRIC
COUNCIL (called "the [redacted] (called "th Council") and

WHEREBY IT IS AGREED as follows

1. The Council HEREBY LICENCES and authorises, in accordance with the Reserves Act 1977, the Licensee to enter upon and use only for the purpose specified in Clause 4 of this Agreement, the land belonging to the Council being Part Section 74 Block IV Moeraki Survey District and shown outlined in Red on the attached plan (called '' the land"). This licence is personal to the Licensee and is not assignable.

TERM

2. The Licence shall be for a term of 8 years from 1 July 2016.

LICENCE FEE

3. The Licence Fee payable shall be set by the Council on a two yearly basis as at 1 July every 2 years and shall be payable by the Licensee as from the next payment date in accordance with Clause 3.2.

3.1 For the first two years of the Agreement, the Licence Fee shall be [redacted] per annum plus GST.

3.2 The Licensee shall pay the licence fee specified in Clause 3.1 six monthly, in advance, on the first day of July and January in each year, with the first payment being due and payable on 1 July 2016.

3.3 The licence fee shall be paid to the Council at its office located at 20 Thames Street, Oamaru, or by direct credit to the Council's bank account, details of which shall be provided to the Licensee.

3.4 During the term of the Licence, the Licensee shall not be liable for the payment of any rates which may be payable in respect of the land.

USE OF LAND

4. The Licensee shall use the land only for the purpose of grazing deer.

4.1 The Licensee shall ensure that all stock are in good health and not in a distressed state. All stock that die on the land are to be immediately removed from the land.

4.2 The Council or it's invitees may enter onto and use the land at any time for any purpose it thinks fit and the Licensee shall make no claim against the Council on account of any such entry or use by the Council or on account of any unauthorised entry by any other person.

Redactions have been made pursuant to Pll Privacy Act and LGOIMA

MAINTENANCE

5. The Licensee shall during the continuance of this Licence manage the land for the purpose specified in clause 4, including complying with all appropriate bylaws and regulations and shall at all times to the satisfaction of the Council:

5.1 Keep in good order, repair and condition, all fences, gates and hedges on the land, to a standard required for a proper stock proof fence.

5.2 Take all steps necessary to protect any standing timber or trees on the land from damage by animals or otherwise.

5.3 Keep all drains, ditches and water courses, open, clean and clear of weeds.

5.4 Ensure no excessive growth or other fire risks are allowed to develop.

5.5 Keep the land clear from all noxious weeds, rabbits and vermin and shall fully comply with the provisions of the Biosecurity Act 1993 and any notices or demands lawfully made or given under the Act or any other relevant statute.

NON-PERMITTED ACTIONS

6. The Licensee shall not at any time, without the prior written consent of the Council:

6.1 Erect, build or place any building or other structure nor plant any tree, shrub or other plant on the land.

6.2 Cut down or destroy any standing timber or trees on the land.

6.3 Damage or destroy any natural, scenic, historic, cultural, archaeological, biological, geological or other scientific features or indigenous flora and fauna on the land.

6.4 Assign, transfer, sublease, mortgage, charge or otherwise deal with the land.

NUISANCE

7. The Licensee shall not do or suffer anything in or upon the land which may be or become a nuisance or annoyance or cause of damage to the owners or occupiers of other property in the neighbourhood.

7.1 The Licensee acknowledges the Council's obligations under the Utilities Access Act 2010 and agrees not to do or allow anything that may compromise utility operators reasonable access to the land.

LICENSEE TO INDEMNIFY THE COUNCIL

8. The Licensee shall indemnify the Council against all and any claims, suits, actions or other proceedings that may be brought against the Licensor because of any breach or non-observance of any covenants the Licensee is required to perform in accordance with this Agreement.

TERMINATION

9. This Agreement may be terminated by either party giving one month's notice in writing to the other.

9.1 Upon the termination of this Agreement, the Licensee, at the request of the Council, shall within one month from the date of the notice issued in accordance with clause 9, remove from the land, all property of the Licensee. If any such property has not been removed within such period of one month, it may be disposed of by the Council as it thinks fit without incurring any liability to the Licensee.

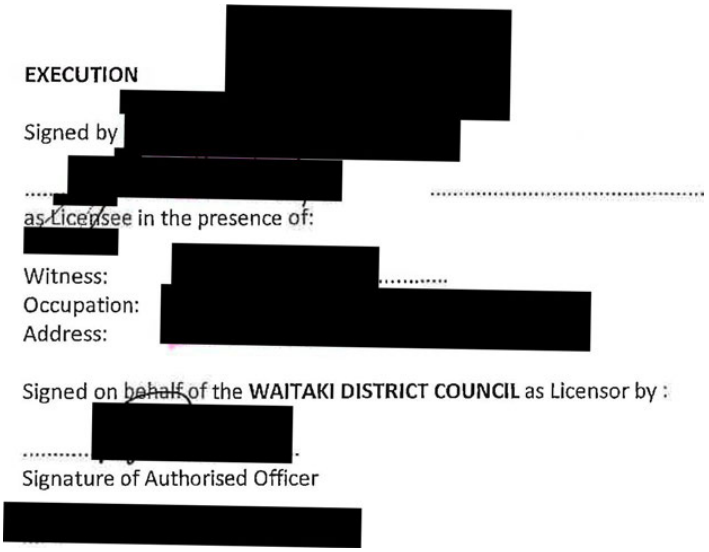
9.2 The Licensee and the Council agree that written notice may be sent and received by email. Email communication is confirmed as received when acknowledged by return email by the Licensee or the Council. Return emails generated automatically shall not constitute an acknowledgement.

FAILURE TO COMPLY

10. If the Licensee fails to comply with any of the covenants of this Agreement, the Council may do anything required to remedy that failure and charge to the Licensee, the reasonable cost of the work. Payment by the Licensee to the Council of any sums under this clause shall be treated as licence fees and the Council, in the event of non-payment by the Licensee, may pursue those sums as arrears of licence fees.

SPECIAL CONDITIONS

11. If at any time during the term of this Agreement, the Council requires public access across the land to the Puketapu Monument, the Council shall provide the Licensee with one month's written notice of this requirement, including written advice as to the terms and conditions on which the Licensee may continue to occupy the land.


EXECUTION

Signed by

as Licensee in the presence of:

Witness:
Occupation:
Address:

Signed on behalf of the **WAITAKI DISTRICT COUNCIL** as Licensor by :

Signature of Authorised Officer

Name of Authorised Officer
For and on behalf of the Council and acting pursuant to delegated authority,

Redactions have been made pursuant to PII Privacy Act and S7(2)(a) LGOIM in the presence of:
Witness:
Occupation:
Address:

The public on the other hand, have had the biodiversity on their reserve degraded, their access blocked. If it was fenced off in 1996 then they have not had access for 29 years.

How correctly has this represented the public with their rights as laid out in the 1977 Reserves Act?

Why does continuing with this action, make it any more legal or right or follow any of the Waitaki District's Management plans or biodiversity strategies?

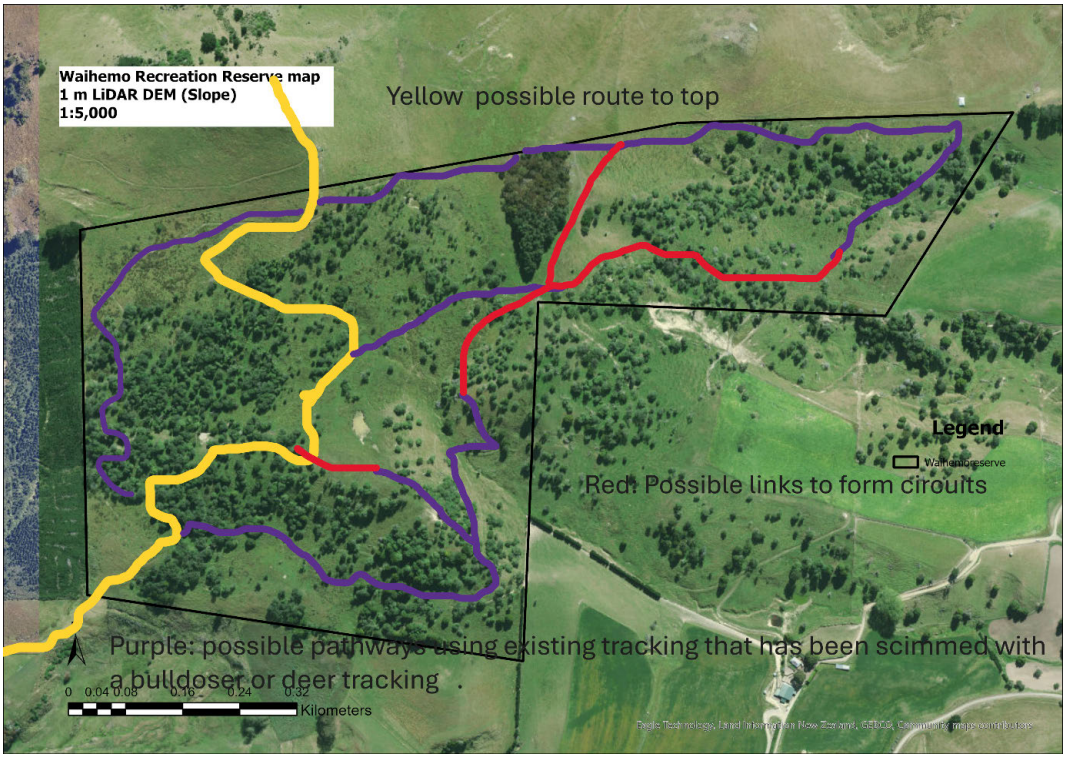
We call on the Waitaki District Council to lead by example – correctly follow its own reserves management plans and bio diversity strategies.

In East Otago there has been no shortage of land for sale, there is plenty of land available. There has been for years and there currently is. Indeed, you might ask has this deer farming enterprise recently bought and purchased land in the area? This is not about a shortage of available land. There is land available for farming. Lots of it.

We understand the licence holders use it as a “fawning” block because of the tree cover. Ideal. However, deer fawn equally as well in open ground with space and some length to the pasture. This used to be a very common occurrence on the better soils of the downlands that are now used for dairying and other high value uses. Good fawning percentages were attained.

So, this is not about land availability or a requirement for fawning/calving deer.

Equally it has been mentioned that because of the long-standing lease to the one family that they have an emotional bond with the land that is the Reserve. Returning this to full public access does not diminish their ability to continue this bond. Everybody, including them, will be able to partake and “bond “with the reserve area. Except for them, they will not have sole possession as they have become accustomed to since the Reserve was deer fenced and deer farmed.



Possible Tracks

The above image shows potential track lines. Purple *utilises the dozed track that appeared in 2019 without council consultation or approval*. Red links these existing tracks. They would form cheap and cheerful easy walking and running tracks. These can be immediately used as walking/running, etc., routes by using a combination of marker posts and weed whacking /cutting a swathe through the grass to form a path. Over time and use it will become apparent if sections will need hardening/forming and this could be easily done by volunteers.

As well this track system is essential for the biodiversity works that are proposed, providing easy access to traps, etc., and planting areas for planting and maintaining plantings and weed control.

Yellow is where a more formal track to a higher standard would likely go. Keep in mind that once access is gained, a better placement or route for that track offering well-framed vistas and points of interest could be discovered. This track is covered by in discussions/detail in the concept plan that WDC has put together along with course estimates of costs.

Outline of Puketapu Community Trust ECCO fund Application/ Methodology and how it can be morphed into a whole Reserve methodology.

IF the grazing licence is not renewed.

It is thought that with the remaining tree cover that exists, there is a reasonable seed bank, and most trees are still seeding though possum are browsing. Also, there will be a very healthy natural mycorrhiza (beneficial fungi) population. There is a reasonable variety of trees including Ribbon Wood, Hoheria Angustafolia, Ngaio , Kowhai and some Totara, as well as scrub plants like Red Matipo, Coprosma of different sorts, etc.

The **issue is** that the seed bank and regeneration of it and hence **recruitment** of new trees is not possible because of **stock grazing**. Also, it is noted that possums are plentiful within the reserve. We are yet to be able to clarify rabbit issues and presence of rats and mice.

We put in for funding to allow us to purchase approx. 20 NZ Auto Trap A220s initially. These are a self-resetting kill trap. They come with the ability to collect kill data and if there is cell coverage, they will relay that information as well. All going well, they will simply keep doing their job for many months before they need to be serviced. We don't doubt that the possums will keep moving into the reserve area, so we propose to simply to lay out a grid-like coverage, fine tuning it as need be. Redeploying them further afield and extending this trap system as more funding becomes available or that it is evident that they are suppressed. *We could move and expand eradication into surrounding land holdings, whose custodians see the benefits to themselves and the wider community.*

Creating the Corridors: Connecting the habitats: Both with predator control and infilling the habitats.

A greater vision would be:
With the ***co-operation and goodwill*** of surrounding landowners we could **"connect"** Goodwood Scenic reserve, Tavora Penguin reserve. Also, recently extensive plantings in the Te Hakapupu/ Pleasant River catchment and esturary. Private plantings on Mt Royal, possible future retirement of some parts of upper Mt Royal, as well as a QE2 covenant on Mt Royal. To the east is a QE2 covenant at Anderson's lagoon. And, to the east is a QE2 covenant on Bushy Park. And again, northwards across the Waihemo/Shag River you reach Horse Range/ Trotters Gorge. Any surrounding areas could be a source of re-infestation and/or a habitat that could be enhanced and connected. It's a win for flora and fauna; it's a win for suppressing a known TB vector. And likely would save some roses and garden produce as well. **It's a Win Win for the whole community.**

Added to that**,** it would be a fulcrum to expand funding applications to deal to spreading **wildling pine** on the northern slopes and upper portion of Puketapu. With the co-operation of those landowners — a benefit to all.

With the reserve destocked and possums' numbers suppressed it allows germination and tree seedlings to grow. Rodents can have quite an impact on the seed bank, as well as quite a detrimental effect on invertebrates, lizards, and birds. So we have also allowed for setting up a trial area to suppress them as well. Not over the whole area, just a trial area at this point.

Will we deal to stoats, ferrets, hedgehogs, etc?
Yes. Most likely in the future because in these first few years, with limited resources, we plan to concentrate on getting the trees going. Should we achieve more funding then yes, we would, because this would assist a host of invertebrates, and skinks and geckos, and greatly assist the bird population which, as we all know, is good at spreading ***pre-manured parcels of seed.***

What about the plants?
Since we think the seed bank is still viable and there are likely lots of naturally occurring mycorrhiza (near perfect conditions really) — we are intending to set up " **trial"** areas where we will **"chemically"** release the seedlings with grass only herbicide. Those of us who are restoring forest areas often see situations where, in the spot that has been sprayed, a new plant has germinated. ***They just need light, moisture and the competition removed.***

This is nothing new to farming. In the 1970s clovers were being encouraged in the sward by knocking back the grasses with herbicides. It was called "chemical topping". Most crops are over sprayed with herbicide to knock out the weeds species before they out compete the desired crop.

Again, this won't be over the whole area but likely around existing remnant trees so that they can provide shelter and protection for seedlings as they develop.

As would happen naturally along any bush edge.

Although some consider the above "trials" as novel - if they work (and we really believe they will) it will save a heap of plants and money. We can literally cover the ground.

Nature is very good at healing itself. Often, it just needs a helping hand.

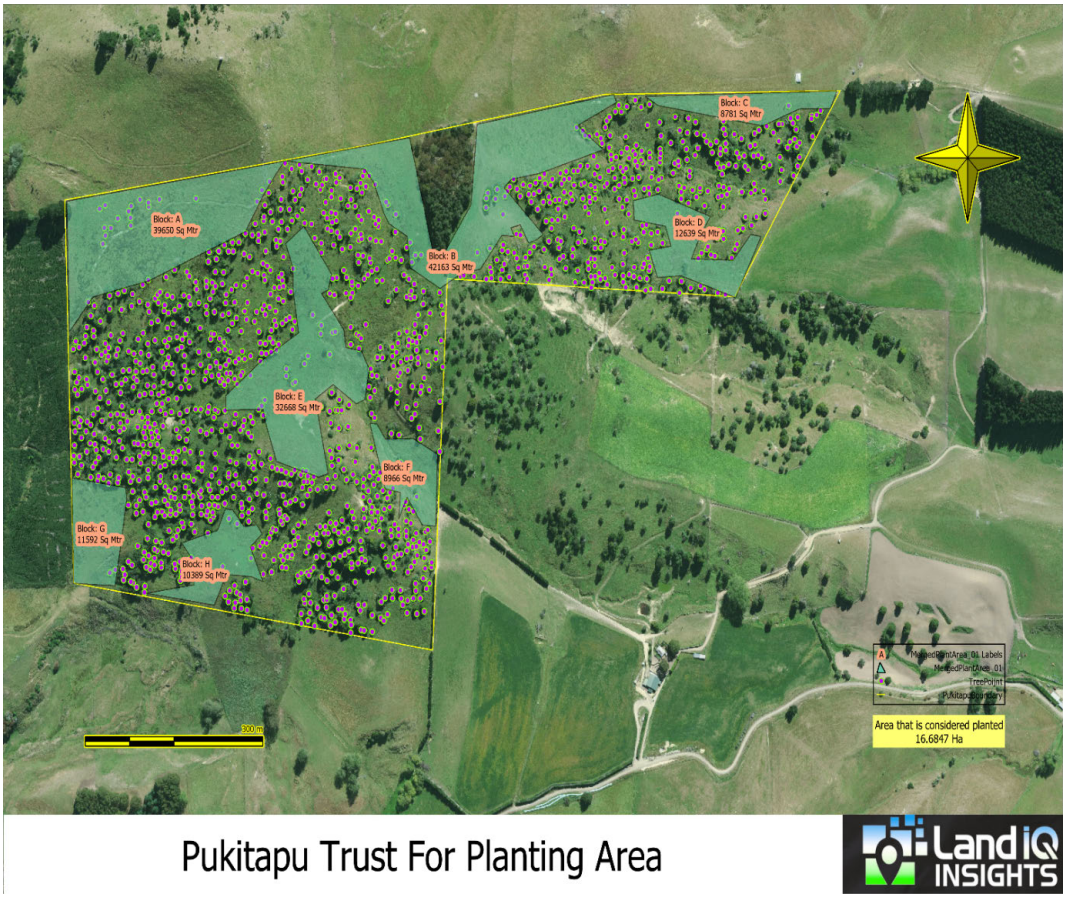
Yes, in the open areas it is intended to plant "Ecco" sourced trees (sourced from the Reserve or reasonably nearby and that would most likely be from original forest source). These would be planted with the thought and spacing that would allow further planting of podocarps and other trees that are no longer existing in the Reserve and other more delicate species that would grow more often under a canopy.

If the whole reserve was to be retired — that is, the grazing licence is NOT renewed, a possible way to begin reforestation would be:

- An 8m by 8m spacing across approximately using fast growing species including Ribbonwoods, Ngaio, etc.
- 30h – that is one estimate of area that does not fit into an ETS forest density. i.e. what is "open" ground within the remnant forest. This would require approximately 5000 trees at the above spacings.

THERE IS HOWEVER A PLANTING PLAN THAT WE HAVE DRAWN ALSO which covers 16ha of open ground. You will note that in all the satellite imagery there are existing trees spread across even the more open areas, some of which was also open ground in the 1862 survey. Something like 2500 trees would establish that initial shelter/protection if a 8m by 8m was used. These could be fast growing Ribbonwoods and Ngaios but likely also including grey scrub plants, tussock, and flax to avoid creating sharp straight lines on the landscape — to create more natural forest edges.

WITH THE REMAINING TREE COVERED AREAS BEING LEFT TO SELF SEED IN PART AND ALSO ASSISTED WITH "CHEMICAL TOPPING" AS WELL, THERE WILL BE MORE OPEN AREAS THAT COULD BE LEFT AS GLADES, USING ASTTELIAS/TOE TOE, ETC., OR LEFT WITH OCCASIONAL SPECIMEN TREES E.G., GROUPINGS OF CABBAGE TREES.



Primarily for the above scenarios, **slower growing species that are more sensitive can be planted between existing trees, as then the shelter and protection is established.**

Staying on the topic of plants, in our successful application we have allowed for propagating seedlings which we intend to do in conjunction with local schools, local tree growers/tree nurseries and others in the community gifted in the satisfying pastime of plant propagation.

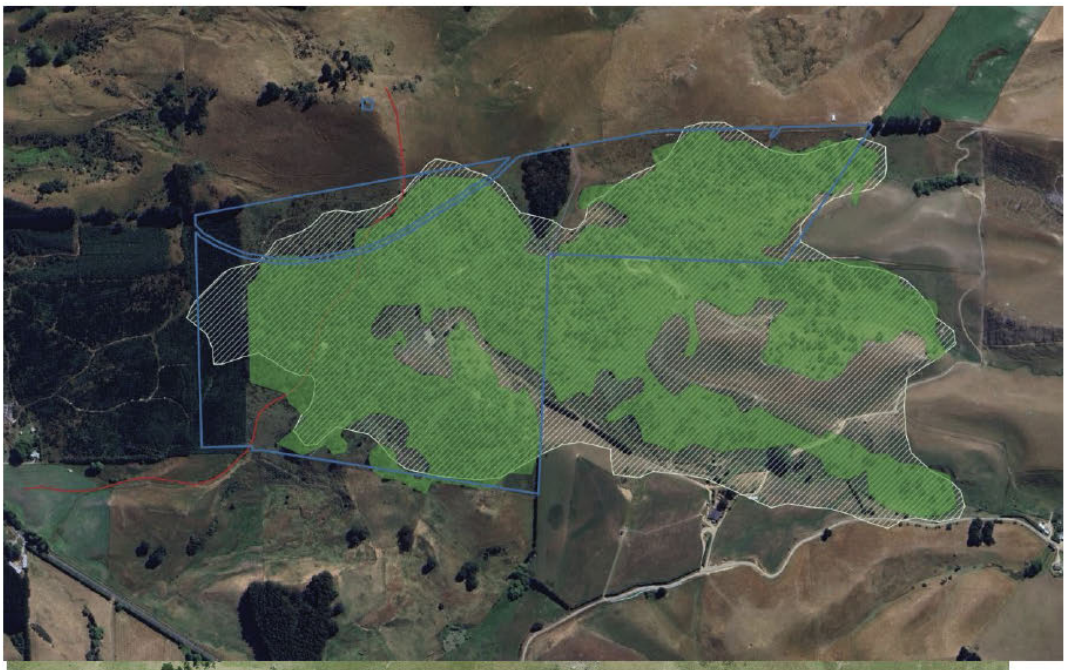
In addition to all the above, we really hope to involve senior school and university students, botanical folk, etc., as well as other interested people in developing baselines for the plant succession, invertebrates, birds and other fauna so we can measure our progress through the years via photography.

For quite a few of us it will not finish in our lifetimes. It will be decades and longer before full height canopy is achieved. But in our time, we will know that it is under way, that the bare ground is being covered. And that the plants will get there. And the natural fauna will be surviving.

Renewing the grazing licence delays by years the initiation of the project across the open areas, while allowing the further deterioration of the remainder of reserve if it is not destocked.

Not renewing the grazing licence in any form speeds the whole healing process.

Overlay from WDC proposed retirement plan showing outline of original forest edge 1860.





Puketapu Trust For Planting

Plain image of significant clear areas above.

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Ngaio in the first photo and Ribbonwood and cabbage tree in second. Both photos are 8 year old plants in this area. Does this seem a worthwhile loss of potential growth if you stage the retirement? As the public still cannot use their legal right to access their reserve. And Council is still allowing deer to graze, which prevents regeneration.

And for what? What will be the revenue?

And how significant will it be in the face of:

- the cost of setting up a staged retirement,
- the subsequent loss of potential accumulating carbon credits,
- the opportunity cost of those that could be recreating with in the reserve,
- the visitors and the spill over into the economy of the area.

The fact Council is continuing to damage the Reserve against all its reserve management plans, biodiversity plans, RMA requirements, Reserve Act legislation.

The $50,000 required to put in a “temporary” fence would go a long way to achieving that initial planting spacing. If that amount was used in conjunction with the $49,000 Eco fund then restoration is well and truly happening.

IS IT SENSIBLE TO KEEP DAMAGING THE REMNANT FOREST AND BE EIGHT YEARS BEHIND WHERE THE RESERVE COULD BE?





Pukitapu Trust 6 Mtr Buffer

c



Pukitapu Trust Tree Points

cc



An example of an eight-year old Ngaio.



A copy of the 1862 Crown Survey map showing the extent of the "Puketapu Bush".

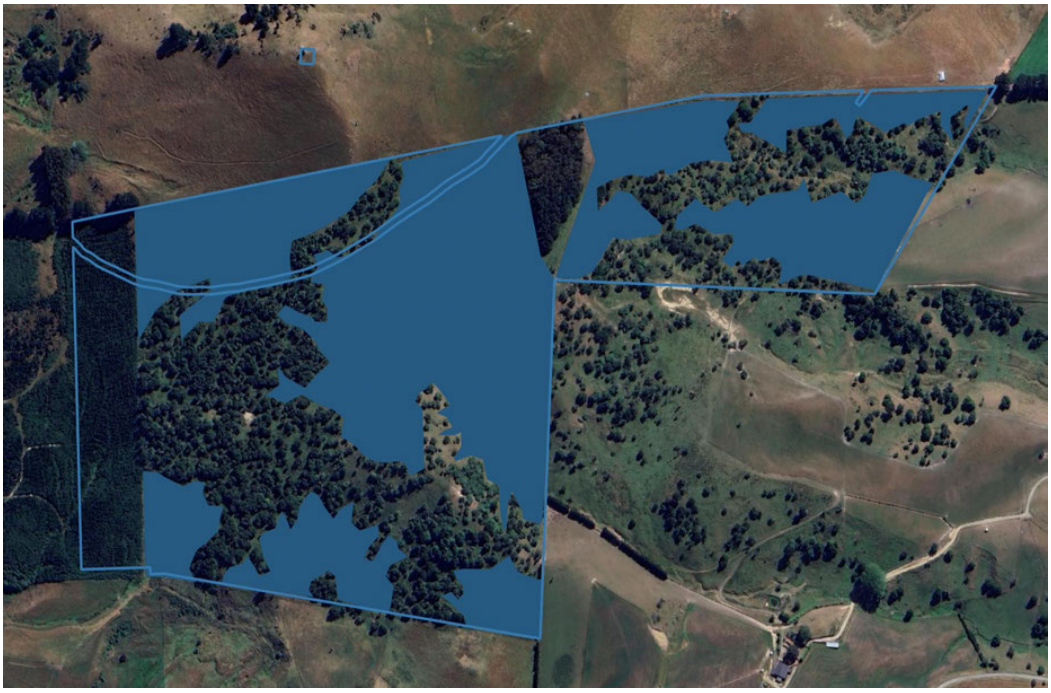


Image from WDC staged retirement plan — over estimating planting required in open ground.



Ngai and Bulla Bulla (southern Maori dialect)

The staged retirement plan does not, we believe, reflect the true amount of planting that may be needed. It likely overestimates it.

It does not take into consideration natural seeding, successful chemical topping/releasing. Herbaceous plants such as Bulla Bulla (Pora Pora), and Astellias that will naturally occur once grazing stops. It does not take into account the Rushes that are widespread on the site — these are all part of the forest building process. They all provide shelter, will add to the forest litter as they decay, their roots will create macropores through the soil.

Fire Risk

A Google search for **Fenz and various fire causes** shows a fire rating index/flammability index for different vegetation types. Radiata pine is approximately in the middle with species like Gorse, Manuka and Kanuka at the upper end and importantly, and possibly luckily, trees like Ngaio and Broadleaf being the least flammable, with Ribbonwood, Kowhai, Hoheria in the lower half and below Radiata pine.

To keep things in context — in the right conditions, **everything burns** as is regularly demonstrated in New Zealand and around the world. Just provide weather conditions of **low humidity, high temperatures and no moisture, plus wind.**

You need ignition sources.

Again, the **Fenz data/articles** will show that most fires are caused by **deliberate burning or burn offs that then get out of control** and subsequently flare up at a much later time as was seen with a fire in Dunback area some 10 or so years ago. That fire was driven by extreme northerly sector winds and crossed/leapt distances of 500m and more over multiple, quite bare paddocks. A fire in the Roxburgh area not so long ago crossed Lake Roxburgh. **Having bare ground, short grass, or lakes is not necessarily going to stop fire.** They can help but in the ***"right"*** conditions are not impassable. **Another frequent cause is electrical arcing of power lines.** Natural causes are a very small part of ignition sources.

Waihemo Recreation Reserve has **no power lines crossing it,** has **no need to be "burnt off"** and is **well away from other ignition sources** like roads, vehicle accidents. Railway lines have been a source of fire in the East Otago area.

Potential ignition sources within the reserve would be the use of machinery and tools during the construction of tracks, and vehicles, tools or machinery used in the revegetation process. The forestry industry has very good management strategies for managing forest fire risk. Good processes and strategies can be developed for working inside the reserve and **managing fire risk.**

You can never account for human behaviour whether it is simply **careless or malicious**, as is the case in several fires in the Waituna Wetlands area in Southland in recent years. Guy Fawkes displays as a rule are becoming more controlled and fireworks less available and less affordable.

Any fire most likely would need to spread from outside of reserve. More than likely from the northern side or the nearby town of Palmerston or from roads or power lines.

If there were to be a fire in the reserve, although there is not ready road access to the reserve itself, it is a very **short flight time** from Waihemo/Shag River for **helicopters with monsoon buckets.** This filling area is upwind of Puketapu in the context of the prevailing winds and the Puketapu hill itself is an **isolated geographical feature** surrounded by a roading network so that it can be approached from all directions. Thus, **allowing multiple options to combat a possible fire. It is not remote.**

There is **no doubt that reafforesting will add a fuel load** that did not exist since the area was in forest. **However, that forest had survived into the 1860s**.

But, as with everywhere, every dry grass paddock, every maturing dry cereal crop, cereal stubble, hay paddocks, pine plantations, newly planted pine plantations full of gorse before canopy closure, forestry slash, sprayed out forestry blocks waiting for planting, spreading wilding pines, railway reserves, road reserves — the list is endless — **there is fuel load in most places and a lot of those places are on northerly, dryer slopes or aspects and closer to ignition sources than the Waihemo Recreation Reserve.**

A Change on the Landscape

There certainly is **a landscape change during the process of re-afforesting.** Yes, there is long grass and the possibility of weeds like gorse and broom coming away until you **attain canopy closure.** The **gorse can be managed** by spot spraying, cut and pasted with herbicide. Once the grass sward develops it will also help suppress gorse seedlings. Gorse does not like shade and will not survive when it is overtopped by other species. There are many examples of this. **Hinewai Reserve on Banks Peninsula** is a good example.

However, it is not the intention to allow the gorse to grow and spread on the Waihemo Recreation Reserve once it is destocked**.**

The look of the area might appear untidy to some as the process gets going — perhaps it could be thought of as the **process of restoring** say an old tractor or perhaps painting a house. You have to take it back to bare metal or wood then go through all the priming layers until finally you get the last top coat on and give it a cut and polish. It is just that **this process is biological and, in most cases, takes a longer time.**

Long grass that accumulates over years is not an impediment to planting — it can be a nuisance but that is easily solved by spraying well ahead of planting time (three or more months as the East Otago Catchment Group have done at various sites). This allows it to

a) die
b) decay slightly, in effect becoming mulch like cover which can be pulled or kicked aside.

To think long grass is an impediment to planting is to not understand how nature works. Planting in these conditions forms a mulching layer that helps retain moisture, builds up humous as it rots and creates a habitat for invertebrates which can variously condition the soil. Also, it is unattractive and helps deter rabbits and hares.

Importantly, if grasses build up, the soil will be begin to ease out of being compressed by trampling stock hooves and will, with the help of insects and worms and fungi, begin to rehabilitate to a nice crumb-like structure. Also, it will shade and cloak other possible weeds. Most things need soil contact and light to grow. Grass will help suppress gorse seedlings — hence why Tordon is a good gorse spray because it leaves grasses intact which in turn suppress the seedling gorse.



The above is a Waitaki District Plantation on a Local Purpose Reserve. It had originally been set aside as a stone quarry. The gorse has enveloped the fence. Radiata pine at mid-point on a flammability index and gorse is in the upper range for flammability.

Is this a fire risk ? Yes it is, as is the plantation full of gorse next to it and more towards Palmerston.

East Otago now has thousands of hectares of pine plantations. Both with younger trees, near harvest and windrowed, harvested sites sprayed out waiting planting with dead gorse and grass. Often in sunny, wind exposed sites. The north side of Puketapu with the wilding pines spreading is a fire risk.

Puketapu Community Trust and its Capacity to advance this project

Words have been used frequently by those opposed to the destocking of the Reserve in reference to Puketapu Community Trust's ability to be able to plant and maintain as per the Trust's vision and aspirations.

Capacity can be built and increased once the optimum outcome for the Waihemo Recreation Reserve is decided. Capacity is enabled by funding which needs certainty. The Trust can always achieve more fund raising. It's an open-ended thing.

You increase capacity by building a bigger team, resourcing them better. You do it by being clever and efficient. And using the philosophy of working with nature, not trying to implant a rigid model on to it.

It is a concern that this will not be a fair and neutral hearing because of the widespread and disparaging remarks in regard to the Puketapu Community Trust's "capacity"

WAIHEMO RECREATION RESERVE GRAZING LICENCE SUBMISSION FORM

Maria Jean Barta
[redacted]

I wish to present my submission at a Council hearing.

MY SUBMISSION

Part One: Farming
Waihemo Recreation Reserve (WRR) has been grazed for over 100 years. The grazier would like to continue grazing. The Reserve is a significant part of their farming operation.

The grazier has had the use of PUBLIC land for over 100 years, since 1920. The grazier last had the "Licence to Occupy" renewed in 2016 for a period of 8 years, and thereafter on a month-by-month renewal. So the grazier has known for some time that there is a real possibility that the Reserve would be returned to public access. I understand that the grazier has recently purchased approximately 150ha of an adjacent farm to compensate for the possibility of no longer having the use of the 52ha of the Reserve. This 52ha should never have been considered to be "a significant part of their farming operation" as it has never been land that should have been used for farming deer.

Waitaki District Council (WDC) has commissioned several reports over the last 20 years from a variety of consultants. These reports were to assess the ecological values of the Reserve and the condition of the native flora. None of these reports suggest that grazing should continue.

From **Landscape Effects Assessment,** 27 May 2024, Prepared by Mike Moore *BSc, Dip LA, MRRP, ANZILA,* Landscape Architect
"Puketapu is identified as a Significant Natural Feature in the WDP and has notable physical, perceptual and associative values. It is a geo-preservation site recognizing its significance as a volcanic landform, and the treeland on its southern slopes has ecological and natural character values. Visually, it is a memorable and legible landform, which has landmark significance to the Palmerston area. Puketapu is a Kai Tahu cultural landscape feature for its origin narrative associations, along with significance as an historic settlement and food gathering area, and it also has wider cultural significance commemorating historic local figures."

Just which of these values are consistent with and can coexist with deer grazing? The answer is — NONE. What native forest remains is barely a remnant of what existed previously. And, unlike many reading the submissions and making the decisions, I have seen the degraded state of the vegetation; I have walked around parts of the area. I have also spent hours cleaning kowhai seeds gathered from the Reserve by a council employee. Have you taken the trouble to ensure continued growth of kowhai or other native plants to replace those grazed by deer? Have you seen the trees trying to survive against the predation of deer browsing? Do you even care?

The grazier has also expressed an "attachment to the land". Well, surprise, I have an attachment to the land too. And stopping the farming operation does not remove his attachment to the land unless he's only attached to its value in providing income.

The WDC appears reluctant to allow public access in one tranche and is keen to divide off about 12ha of the Reserve in the first instance. This subdivision is a poor decision. It would entail spending $16,000 on another deer fence, creating a second scar on the

hillside. It would delay for some years the public getting access to the whole Reserve and allow further degradation through deer grazing. Why is the WDC so hesitant? Firstly, "it would allow the current lessee [should be "occuppier"] to plan for the ultimate removal of the deer from the Reserve." However, this point has already been covered.

Secondly, the WDC considers that a more rapid retirement would allow for the growth of "invasive weed species" and an increase in predators. These points would be more "digestible" if Council had demonstrated its ability to control "invasive weed species" and predators in areas as open as garden plots in traffic islands in Palmerston, let alone the forestry blocks it manages on the flanks of Puketapu mauka. Council has absolutely no grounds to suggest that the Puketapu Community Trust could not engage interested volunteers on an ongoing basis to manage weeds, grass growth, and predators. Council has yet to set an example of good management in this regard, but then, it has yet to set a good example of managing the Reserve anyway.

Part Two: Puketapu Track
Since its inception in 2019, the Puketapu Community Trust has had numerous meetings with Council, Waihemo Community Board, Walking Access NZ, track designers and builders, funding agencies, and local businesses. However, as far back as 2006, the community has expressed interest in having a more accessible track to he summit of Puketapu. A good part of this track would pass through the Waihemo Recreation Reserve but any access is denied since the erection of deer fencing. What is more, it appears that this fencing was erected without permission or even consulting with Council. No correspondence can be found in Council records.

WDC paid 50% of the cost of the feasibility study carried out by Simon Noble in 2021. Council staff have had discussions with neighbouring farmers regarding purchasing small parcels of land to allow access to the Reserve boundary. However, ULR and ROW are already in place if required.

I am at a loss as to why WDC would not want Palmerston, the southern gateway to the much vaunted Waitaki Geopark, to have a superior track in place up the south-east flank of Puketapu. And why this track should not traverse the Waihemo Recreation Reserve. And why the Reserve should not be available in its entirety to public access. A part of the Reserve will simply be a poor remnant — much like the native vegetation left by the grazing deer. What is required now is sincerity and belief from WDC that a community group can gather together the "person power" to manage the WHOLE Reserve.

This submission requests that the whole 52ha of the Reserve be released in one parcel so that proper and effective management can be put in place.

And if it takes a small volunteer community group to show the Waitki District Council how to do that — so be it.

Waihemo Recreation Reserve Grazing license
SUBMISSION FORM

Have your say

Please ensure that your submission is with us by 5pm on 15 April 2025.

How to lodge your submission:

Fill in our online submission form on the Consultation page at letstalk.waitaki.govt.nz or

Email: consult@waitaki.govt.nz
Post: Waihemo Recreation Reserve Grazing Licence Consultation, Waitaki District Council, Private Bag 50058, Ōamaru 9444
Deliver: Council offices or service centres at 20 Thames Street, Ōamaru, Ōamaru Public Library 62 Thames Street, Ōamaru. or Waihemo Service Centre, 54 Tiverton Street Palmerston

Your contact details: (please print clearly)

Full name: Anne Eunson

Organisation (if applicable):

Postal address: [redacted]

Email: [redacted] Phone: [redacted]

Do you wish to present your submission at a Council hearing? ◯ Yes ☑ No

If you tick yes we will contact you to arrange a time. Please note hearings can be joined online via zoom and will be live-streamed.

What comments would you like to provide on the proposal?

I do not see the need to spend money on making a track a planting it in natives when there has always been access to the monument on Pukitapu.
I think the Tavera Reserve, Shag Point/ Matakea Reserve and Trotter's Gorge scenic reserve are perfectly adequate for this area and do not see the need for more.
Leave the land how it is, being looked after by the people leasing it.

Phone 03 433 0300
Email service@waitaki.govt.nz
Address 62 Thames Street, Private Bag 50058, Ōamaru 9444

www.waitaki.govt.nz

Waitaki DISTRICT COUNCIL
TE KAUNIHERA Ā ROHE O WAITAKI

136

From: Wayne McCarthy [redacted]
Date: Tuesday, 15 April 2025 at 1:00 PM
To: Consult <consult@waitaki.govt.nz>
Subject: Puketapu Trust

I strongly disagree with the Waitaki District Council's proposed staged approach whereby the Council gradually hands the Waihemo Recreation Reserve to the Puketapu Trust for ongoing management. I consider the whole Waihemo Reserve should be handed to the public for management by the Puketapu Trust in one action. A phased approach should not occur.

The Council has mismanaged this area by allowing deer grazing and now casts doubts on the ability of the Trust to manage this area in spite of the Trust's members incuding farmers, builders and conservationists.

I previously lived in Palmerston and have climbed Puketapu more than 30 times. I was prevented from climbing more often because the Grazier would not allow people to access Puketapu in lambing season. I was amazed at the number of visitors to Palmerston who also climbed this peak. Clearly Puketapu has high tourist potential.

I am also delighted at the legal and professional support which has recently been offered to the Trust. Even outsiders from the Palmerston area are becoming concerned at the Council's poor management and its cover-up steps regarding Puketapu. In summary I disagree with the proposed phased approach by the Council.

C. Wayne McCarthy

From: Anni Watkins [redacted]
Date: Sunday, 13 April 2025 at 6:36 PM
To: Consult <consult@waitaki.govt.nz>
Subject: Waihemo reserve

As a local resident and ratepayer, I am writing to say that I think the entire Waihemo/Puketapu reserve should be handed over to the trust to manage now. I think that no grazing license should be issued over Waihemo reserve.

The fact that the existing grazing licence has finished makes this the perfect opportunity to honour obligations to maintain this reserve as a reserve and give access to the public. To hand the reserve over in three bits, over years is financially wasteful, because of the extensive deer fencing that will be required to divide it up safely.

It is also not honouring the intent of a reserve, because deer grazing is not a natural NZ environmental process and is not consistent with trees. Gorse is assisted by grazing and reduced by tree growth (we know this from the work on the Akaroa Peninsula), so the current use is encouraging gorse.

There is little enough of NZ that has not escaped relentless grazing and farming. We need to preserve whatever we can, and allow or assist recovery.

Therefore, I am against the issuing of another grazing license and I think the entire reserve area should be handed over to the trust to maintain, now.

Dr. Anni Watkins

Dunback

From: Sam Oliver [redacted]
Date: Monday, 24 March 2025 at 7:07 PM
To: Consult <consult@waitaki.govt.nz>
Subject: Waihemo Rec Reserve Sec 74 Blk IVSD Moeraki Submisson

Submission to the Waitaki District Council
Regarding the Waihemo Recreation Reserve Grazing Lease

To the Waitaki District Council,

I am writing in regard to the Council's proposal to transition the Waihemo Recreation Reserve (legally described as Section 74 Blk IVSD Moeraki) into a public reserve, with plans to develop a walking track to Puketapu. My family has held a 100-year grazing lease on this land, which has been an integral part of our family business and farming operation. I have several concerns about this proposal, which I outline below.

1. **Impact on My Family Business**
   The removal of grazing rights would directly impact our farm operation, as this land supports our deer stock numbers. Reducing stock numbers to compensate for the loss of grazing would have significant financial and operational consequences for our family business. This land has been sustainably managed as part of our farm for generations, and its loss would undermine the stability of our livelihood.
2. **Land Management Concerns**
   Over the course of our lease, I have actively managed the land to control weeds such as gorse and broom, as well as pests such as possums and rabbits. Without ongoing management, the land is at risk of becoming overrun by invasive weeds and pests, which would degrade the environment and become a significant problem for the community. I would like to know what funds and resources the Council has allocated for ongoing pest and weed control if the grazing lease is removed. Who will be responsible for this work, and how will it be funded?
3. **Lack of Funding for the Project**
   It is my understanding that the Council does not currently have sufficient funding for the proposed reserve and walking track and is seeking grants from the community. This raises concerns about the feasibility of the project and whether sufficient resources would be available to maintain the reserve and address weed and pest control. Without adequate maintenance, the reserve could fall into neglect, creating an environmental and aesthetic issue rather than a community asset.
4. **Fire Risk and Track Access**
   I am also concerned about the risk of fire, particularly during the summer months when there are fire bans in place. Will the proposed walking track be closed during high fire risk periods, and if so, what provisions will be made to ensure public safety and compliance with fire restrictions?
5. **Alternative Considerations**
   I respectfully suggest that the Council consider alternative ways to achieve its goal of creating public access to Puketapu while preserving the productive use of the land. Options such as negotiating a dual-use agreement or working with leaseholders to maintain both recreational access and agricultural productivity could provide a balanced solution.

In conclusion, while I understand the desire to create public amenities, I strongly believe that transitioning this land into a reserve without a comprehensive and sustainable plan will have unintended negative consequences for both my family business and the environment. I urge the Council to work with me and other stakeholders to find a solution that meets the needs of the community without compromising the viability of long-standing farming operations.

Thank you for the opportunity to provide feedback. I welcome further discussion and am happy to work with the Council to explore alternative solutions.

Sincerely

Sam Oliver

Sent from my iPhone

6128858

Name	Jenny BARNETT
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

Grazing should stop immediately. I've seen areas fenced off on tramping tracks and the native vegetation has come back quickly.
The Dunback Visionaries planted out a badly overgrown area (Council land) beside the historic Swing Bridge and have maintained it to prevent pest growth recurring. Community groups are capable of great things. I have faith in the PCT to create a wonderful asset to the overall community and think it should happen immediately with Council support. 100 years of leased grazing at what I presume is a "peppercorn rental" is long enough. Return this land to its original status and don't let one man stand in the way progress for the whole area.

6137922

Name	Melissa Moore
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

Thank you for the opportunity to express my opinions on the important issue of the future of the Waihemo Recreation Reserve.

I have lived in the area for the past 11 years and it has only recently come to my attention that our community was gifted the 52ha of land on the side of Puketapu many years ago but that, due to its designation for grazing, the public have not been able to enjoy this resource.

I strongly believe that this reserve could be transformative to generations of people living in Palmerston and the wider Waihemo area.

People I talk to from outside our locality often refer to the lack of reasons to stop in Palmerston. They cite the lack of amenities and attractions, including access to walks and parkland, good cafes, quality shops and arts' facilities. The consensus is that our community is a 'drive through', only good as a 'pie and toilet stop', and that the preferred place to break their journeys is Waikouaiti, which not only has its beautiful beach, but an increasing abundance of attractive shops and cafes. It is hard to argue with traveller friends who, having no beef with our community, just tell it how they see it. Articles in the ODT in recent years have echoed their assessment and done our town no credit.

These commentators are passing through, so in some ways, you could say, what does it matter.

I believe it matters deeply for many reasons: Firstly, the money. Palmerston is not a rich township. Historically, the relatively reasonable price of housing here has been one of the primary reasons for new settlement here, along with employment at Macraes. Our 4Square supermarket thrives because of our relative isolation - we don't have many choices; but also due to the mining community and tourists/bach owners driving the Pig Route. But one supermarket, however friendly, doth not a thriving community make. Palmerston needs people to stop, stay and spend more than a penny. And we need people to see the potential here and have more than one reason to invest in our community.

Secondly, I believe Palmerston needs reasons other than farming and mining and a resilient rural spirit, to help grow healthy kids and attract people to come and make their homes in our area. Having 'wild' places residents have access to for leisure is a huge draw. It's well established that healthy communities are built on having outdoor areas to exercise, in green spaces, away from traffic. Being a township built around two highways, the reserve would offer us all a rich, peaceful resource that could help build stronger families and whānau, as well as a better sense of community connection to each other and the land/whenua. Having the reserve redisgnated public land for the people of Palmerston could reinvigorate a sense of pride in our area and help us be seen as a destination; somewhere beautiful and healthy to live, rather than a down-at-heel pitstop, which is so often how we are currently characterised.

Furthermore, as you know, Palmerston is in an area historically stripped of the majority of its native planting and habitats to make way for farmland. You only have to look around at the huge paddocks, paucity of native trees, and expanses of forestry blocks to know that our native bush has virtually disappeared from the area. 52 hectares is not much, but restoring the native ngāhere and making it accessible to birds, insects as well as future generations of people, can only help foster our appreciation of the potentially beautiful and rich environment we're privileged to live in. If one of our primary roles here is as Kaitiaki, then surely we make better guardians by helping to restore this land to its original, healthy values, in balance with our own economic imperatives. Its current use as grazing land and the ongoing damage caused by deer and predators can only continue to inhibit this process and the original duty of care the people of Waihemo were given.

I would like to know how the people of Palmerston benefit from the reserve's current use as grazing land? How does the current mode of use honour the original intention of the land as a gift for ordinary residents and for future generations?

I urge you to restore the Waihemo Recreation Reserve to the people of Palmerston. I urge you not to renew the current grazing licence. I urge you to see the potential the Waihemo Recreation Reserve has to play a transformative part in the development of the Palmerston community, investing in the health and wellbeing of future generations growing up here, and helping attract new and vibrant life to settle and invest here.

6137922

Thank you very much for reading my submission. I hope the committee will embrace a long-term vision of Palmerston's wonderful, untapped potential.
Melissa Moore
Goodwood, Palmerston

6140324

Name	Christine Leov Lealand
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

It's a no- brainer that the public reserve should be cleared of grazing animals and pest species (both plant and animal) and developed as a scenic reserve for the enjoyment of everyone in the district. In time it could become a tourist attraction similar to Orokanui. It's time for Palmerston to go beyond being the domain of the lowest common denominator and lift our game.

6145726

Name	Gerard Sheat
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

This grazing licence is a great idea. It has been effective for many years as a grazing block. This reserve that is under submission is one one of the stupidest proposals the Waitaki district council has put forward. In my 25 years of working with the farmer associated with this area for what I have seen in those years is a very well maintained clean, no gorse or over grown weeds and grass that could potentially become a large fire risk/hazard for the community if this was left un grazed.

6145729

Name	Stevie Myers
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

Leave the license as a grazing licence. This is a waste of money. The south side of puketapu is cold windy and not a very favourable place for any public reserve. Would you want to walk up a bloody steep hill to look at some natives?? Or scramble through some over grown weeds/ grass that will take over this land once grazing stop. If I was to walk up this hill it would be to go to the monument for the views of East Otago not a halfway native walk.

6147436

Name	Louis Thomas Mario Smith
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission This Grazing Licence need to be renewed	

I write this submission as a long time and future resident of the Waitaki District with direct and current family ties to the Palmerston area.

I am writing in reply to the notice of intention to grant a grazing licence over the **Waihemo Recreation Reserve** legally described as **Section 74 Blk:IVSD Moeraki.**

The license to graze should be renewed for the whole 52 hectares of the Reserve.

This needs to happen because of a number of factors, the first being that the cost of undertaking such an over ambitious project as the one suggested by the 'Puketapu Community Trust' for restoration to native bush is unrealistic and underfunded. Even if such a project were to be started the shortfall, the responsibility, the Health and Safety and ultimately any liability would be on the council to clean up. I believe this to be an unbalanced equation for rate payers. There is very little gain in receiving a partially completed reserve costing many hundreds of thousands of dollars (estimated to be $800,000 in Dec 2023) by their own admission compared to money saved for ratepayers by not undertaking this project, not to mention the profit garnered from the grazing lease in question.

The redundancy of having a second route up the mountain is unnecessary and any track cut or carpark built will have to be maintained at further cost to the Council and ratepayers.
The pest control of such a reserve is going to be an additional cost likewise.

I bring to your attention the Goodwood Scenic Reserve. A reserve less than half the area of the Waihemo Recreation Reserve that is neglected, inaccessible and unmaintained, bound to a strangle with Bush Lawyer, Banana Passionfruit and other invasive species. It is my fear and logical conclusion that if the grazing license is not renewed the Waihemo Recreational reserve will suffer the same neglect, abandonment and disregard thereby allowing it to be taken over by Gorse, Broom and the aforementioned.

It remains to be mentioned the plight of the former lease holder if this land is withheld from their business. The Reserve has for the last 100 years made up an integral part of their farming operation, an operation that has and remains a positive boost in the community through their family, in the local economy through money spent and earned locally and for the council for through rates, rents and obligations. To deny the renewal of lease is a disservice to what has been a happy partnership for the last 100 years.

I advocate that the 'Intention to grant a grazing licence over the **Waihemo Recreation Reserve** legally described as **Section 74 Blk:IVSD Moeraki**' be accepted and the lease renewed.

Thank you for your consideration

Louis Smith

6147782

Name	Peter Alexander Everitt
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission
I support the Puketapu community trust in taking full control of the PUBLIC RECREATION RESERVE. This will be a huge asset to future generations to enjoy being able to walk amongst the native fauna and flora and hopefully have the native birds that seem to be disappearing. I look forward to your support on this project.

6149574

Name	Andrew William Lee
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

there are plenty of reserves and walking tracks in the area, I would not want to see the area taken over by evasive gorse etc, in its current state its maintained with grazing and still retains lots of native bush. If the area is taken out of grazing how many people are actually going to use the reserve? will this bring people to the area? I highly doubt it, it is already possible to walk to the Puketapu Monument (outside of lambing) and Ive never seen a huge amount of tourists attempting it. Putting the land into a reserve will be a big mistake for the future and a huge cost to maintain, wheres in the current state its maintained, and shows how lightly grazed areas can coexist with native bush, what better could you want?

6149619

Name	Michael James Thorsen
Speaking	No
Organisation	Private
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I support the return of the Recreation Reserve to the local community immediately. As no Restoration Plan is provided in the supporting documents, and as no formal grazing lease is in place I DO NOT support the phased restoration of the area. I do not believe the risk of weed proliferation makes up for the degradation the reserve is likely to have suffered from decades of grazing. I base this view as a professional ecologist with over 30 years experience and nearly 20 years' experience in Otago including this area.
I would like to present my views in person to the hearing.

6149636

Name	Julia Millar
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

The land in question has been grazed and maintained by the Oliver family for over 100 years, not only would this have a major negative impact on their farming , i am concerned with the impact it would have the increase in invasive pest species. Not to mention the rise in local rates for an unjustified project when we already have ample reserves in the area

6149646

Name	Maureen Howard
Speaking	No
Organisation	Rewilding in Action - podcast
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I do not support the Wataki District Council's proposal to continue grazing on the Waihemo Recreation Reserve. On the contrary it is the Waitaki District Council's legal and ethical duty to administer this recreation reserve as set out in The Reserves Act, 1977.

The Puketapu Community Trust wish to reclaim the Waihemo Recreation Reserve for public enjoyment and biodiversity.

The community need this reserve to be returned to them. North of Waitati there is no public land with good walking tracks through native bush. It is unacceptable that there has been no public access to this recreation reserve (52 Ha of indigenous bush set aside in 1862) at least since the 1920's when the current grazier's family started grazing it.

It is also unethical for the Council to use public money to deer fence off about two thirds of the reserve. This would: create a visual scar on the landscape, continue the degradation of the existing trees and prevent the regeneration of any understory AND continue to exclude the public.

It seems that there is public support for native bush restoration and public access to this public amenity. The Puketapu Community Trust would like to: establish environmentally sympathetic, well-made walking tracks; restore the bush canopy and implement pest control (possums are an issue). There was a Wildlands Survey done in 2013 and a Landscape Architects Report in 2024.

In all, there would seem to be a lot of support (including genuine offers of mahi) from the community and wider community.

6150269

Name	Alfred John Webb
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission
I am familiar with the area and I strongly wish for this reserve to have full public access and have grazing withdrawn withdrawn unless deemed appropriate by a restoration expert as a tool for weed control while the area is restored to native vegetation. The reserve and its surrounds including watercourses are suffering intensified land use and exotic forestry.

6151195

Name	Jill Hetherington
Speaking	No
Organisation	Landscape Connections Trust
Email	[redacted]
Address	The Landscape Connections Trust PO Box 1320 Dunedin 9054
Phone	[redacted]
File Attachment	Yes
Submission Refer attached file	

To whom it may concern

The Landscape Connections Trust is an eNGO delivering The Halo Project, we support resilient communities by engaging in healthy landscape development within the 55,000 hectares surrounding the Orokonui Ecosanctuary. The aspirations of the Puketapu Community Trust for the Waihemo Recreation Reserve align with our aspirations, and we write in support of their plans. Pockets of remnant habitat throughout East Otago are an important for species migrations and as sanctuaries from which we can encourage more people to take action for nature, and protect species currently threatened.

We encourage the council to make decisions which support the Puketapu Community Trust to step in as guardians over this landscape as soon as possible.

Jill Hetherington
Chair of the Landscape Connections Trust



6151332

Name	Marcus Mckean
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I think the grazing lease should be renewed for the whole 52ha.
This project cost is unrealistic and unsustainable and as a rate payer I'm not prepared for the rates to increase for something that I will never use,
also with out grazing the weeds and pests will become problematic and will need to be kept under control and will turn into a fire hazard in the future.

6154670

Name	Alan Brown
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission
This land should continue to be grazed by deer

6161354

Name	James Oliver
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I am writing to you as a long-time resident with direct family ties to the current leaseholders of the 52ha reserve, which I have been working on since childhood, as my children are now doing.

This submission is in response to the notice of intention to grant a grazing licence over the Waihemo Recreation Reserve, legally described as Section 74 Blk IVSD Moeraki. I strongly believe that the grazing lease for the entire 52ha of the reserve should be renewed.

The proposed project cost is unrealistic and unjustifiable. I have personally invested considerable time and effort into managing the gorse, broom, and other weeds in the reserve, as well as eradicating thousands of possums and other pests over the years. Grazing can help manage plant species such as gorse and promote a healthier ecosystem, which is essential for native flora and fauna. A quick glance over the fence into the forestry block reveals the significant gorse growth since the removal of the pine trees just a few years ago, raising concerns that the 52ha reserve could face a similar fate.

Furthermore, if you drive a few kilometers down the road to the Goodwood reserve, which is about a quarter of the size, you will see how run down and overgrown it has become, rendering it largely unusable. This raises serious concerns about the future of the Puketapu reserve, as maintaining 52ha of land in a usable condition is an overwhelming task without proper management and cost.

It is also important to consider the impact on the former leaseholder if this land is removed from their business. The Reserve has been a crucial component of their farming operation for the last 100 years, contributing positively to the community through their family, supporting the local economy with money spent and earned locally, and providing revenue for the council through rents, and obligations. Denying the renewal of the lease would be a disservice to what has been a successful partnership for a century.

Additionally, the 52ha reserve is a significant part of our farming program. Losing this amount of area would require us to drastically reduce our herd numbers, which would have a negative impact on our operations and the local economy.

I would also like to request a copy of the proposed long-term plan for eradicating pests and weeds in the reserve. Specifically, I am curious about where the funding for this plan will be sourced from.

Thank you for considering my perspective on this matter. I hope for a favorable decision that ensures the continued grazing, care and maintenance of the Waihemo Recreation Reserve be accepted and the lease renewed.

James Oliver

6176783

Name	Kate Oliver
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

Dear Waitaki District Council,

I am writing to formally submit my request for the renewal of the grazing licence of the Waihemo Recreation Reserve.

1. Overgrowth and Pests

One of my biggest concerns regarding the cessation of grazing on this land is the inevitable overgrowth of weeds, gorse, and other undesirable vegetation. I do not believe that people fully understand how quickly these invasive species can take over in the absence of regular maintenance. The reserve is also boundaried by forestry land which contains gorse throughout. Without grazing and the maintenance from the current lease holders the gorse from this forestry block will spread rapidly into the reserve creating fire hazards and environmental degradation. Gorse is highly flammable and the risk of wildfires will increase, potentially threatening both the reserve and surrounding properties. Currently there is a robust pest control operation on the reserve from the current lease holders but if pest populations in the reserve (possums, ferrets and rabbits etc.) become uncontrolled their is a huge risk of transmission of tuberculosis to neighbouring livestock and impacting animal health and biosecurity.

2. Lack of Use

Another point of concern I would like to address is the proposed track that the Council suggests will replace the grazing arrangement. While I understand the intention of the track. Quote: "Places to walk, picnic and spend time with family and friends." I believe that the track will not see the level of use the Council anticipates. As someone who grew up in Palmerston and has always been active, I myself have walked up Puketapu on the existing track many times. However, in all my time using the track, I have not once encountered another party on the track. This in itself shows the lack of usage and strongly suggests that the proposed track will not attract the level of public interest or activity that the Council might expect. The new track being located on the south side of Puketapu will also decrease foot traffic in my opinion. I have seen myself that this side of the mountain receives no sun in the winter and frost can sit on the ground for days on end.

I am also a strong believer in not fixing what is not broken. The existing track up Puketapu is already well-established and fully functional. It is also easily accessable with the carpark right in the centre of town. Another key consideration is that there are multiple other neglected reserves in the area that are in greater need of attention and improvement. Funds are better spent on the areas we have now rather that creating new ones to become neglected aswell. The current reserves are also mainly located on flat terrain, making them far more accessible to a wider range of people, including families with young children, elderly, and those with mobility challenges looking at the age demographic in Palmerston. If the goal is to create spaces where people can walk, picnic, and spend time with family and friends, then it would be more beneficial to focus on enhancing these existing reserves rather than investing in a new track up Puketapu, which is steep and less accessible to many shown with the lack of people that climb it now.

3. Economics

The financial burden of developing the proposed new track should also be carefully evaluated. Constructing a new track/public area is not just a one-time expense. It comes with ongoing costs that will continue to impact ratepayers. The initial construction will require significant investment in earthworks etc. to ensure the track is safe and durable. Additionally, a new carpark and accessibility requirements would need to be built, adding further costs. Beyond the upfront costs, long-term maintenance must also be considered. Pest control and spraying will be necessary to manage invasive weeds, prevent overgrowth and damage from pests along the track, requiring regular intervention and funding. Do the ratepayers of the Waitaki District Council understand that this cost will be passed on to them? Additionally, fencing will likely need to be installed and maintained to protect both the track and surrounding properties and stock, further increasing costs. These ongoing expenses could become a financial strain, especially when there is a well-established track already and neglected reserves that could be improved at a lower cost.

6176783

4. Loss of income for a family business
A local family business has been grazing this land for the past 100 years. For generations, this land has been an essential part of their farm, providing much-needed pasture for their fawning hinds and contributing to the financial stability of their business. If the grazing license is not renewed, this family will face a significant loss of income, which could put their entire operation under strain.
The removal of grazing rights is not just a minor inconvenience it disrupts a century-old farming tradition and threatens the business that has long contributed to the local economy. At a time when farmers are already facing rising costs and economic uncertainty. Instead of displacing a family business that has responsibly managed and cared for this land for generations, the Council should recognise the value of continuing the grazing arrangement, which provides economic benefits without any additional costs to ratepayers.
Thank you for taking time to read this submission and I do hope that it impacts your decision.
Kind Regards,
Kate

6178562

Name	Fiona Frncis Stirling
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes

Submission
I urge the WDC to retire the reserve from grazing immediately so the work of preseving remnant trees and creating a regenerating forest can begin as soon as possible. This is well over due and there is a very well motivated group the Puketapu Community Trust, willing and ready to do the work.

It is great to learn that the Waihemo Recreation Reserve will be returned to its original intention of benefit to the general public.

I applaud the Waitaki District Council's decision to withdraw the Reserve from leasing for deer farming. However, I strongly urge the Council to not delay this retirement further with staged release from leasing.

The rationale for the delay that is proposed does not make sense to me: that "a rapid retirement of the land from grazing could result in an increase in invasive pest species."

- **Deer** are a pest species where trees are concerned! The remnant trees on the Reserve will be suffering from deer browsing and will certainly not be regenerating with deer eating any seedling.
- **Possum** numbers increasing could be a threat but unless the farmer leasee is currently controlling possums, the Puketapu Community Trust's promise to carry out pest control will be a significant boost for the remnant trees.
- The Puketapu Community Trust also promises to do restoration. This is wonderful news and new plantings will eventually crowd out **plant pest species** and create a thriving and self-regenerating forest.

I have climbed up Puketapu once on the western side and it was difficult and a scramble in places This put me off. I look forward to better access and a more user-friendly track. I view the southern side of the maunga from where I walk regularly on Tūmai Beach to the south and am sorry not to be able to easily climb Puketapu.

Please restore the Waihemo Recreation Reserve immediately and as a whole to the general public and into the care of the Puketapu Community Trust.

6178773

Name	Anna terry
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

Subject: Submission on the Grazing License for Waihemo Recreation Reserve

I am writing to express my concerns regarding the grazing license for the Waihemo Recreation Reserve. Honestly, I find the situation perplexing and frustrating. We are discussing the use of 52 hectares of land that has been meticulously maintained for the past 100 years, supporting a family business. The land is free from gorse, has an effective pest control system, sturdy boundary fences, and is in excellent condition. The grazing units here produce award-winning velvet.

As highlighted in the Otago Daily Times article, our family business has achieved significant recognition, including the “Supreme Champion of Champions” title and the five-year red section with a head weighing 13.38 kg, along with the People’s Choice award.

To consider transforming this well-managed land into a “biodiversity” walking track seems misguided, especially when the majority of the local community may not even utilize it. The track is likely to become overgrown with tall grass, gorse, and pests, ultimately deterring people from using it.

The current track is functioning well, so I fail to understand why a trust would be allowed to allocate over $800,000 to this project when those funds could be better spent on initiatives that directly benefit our community.

I recognize that Nicky and Greg are supporters of local initiatives, having contributed to various community events over the years, including schools and local sports clubs like rugby, netball, and squash, as well as St. John’s Palmerston.

With many local businesses already struggling during these challenging times, I question the wisdom of taking away this 52 hectares of land and putting another local business at risk.

I was really surprised when a member of the Puketapu Trust showed up at my place in Waikouaiti out of the blue, asking for sponsorship to fence the track. I thought that was pretty unprofessional.

Thank you for considering my submission.

Kind regards,

Anna Terry

6180167

Name	Chris. Aillie
Speaking	No
Organisation	Orokonui Estuary Care Group
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

The WDC is incorrect to state "...rapid retirement of the land from grazing could result in an increase of invasive pest species." Deer are highly destructive to the understory of indigenous bush leading to it's degradation. As Manager of Orokonui Ecosanctuary during its establishment there was direct evidence that removal of stock led to natural regeneration of forest. (With the subsequent removal of other browsers it flourished even more.) In the Remarkable Conservation Area DOC states "When stock were removed it helped rare native species to stage a comeback."

The WDC has an opportunity to showcase their commitment to protect precious areas of significant indigenous vegetation in its care. Legal requirements and responsibilities under the Reserved Act and the Reserves Management Act would be met.

6182178

Name	Jeff Oliver
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I believe that the initiative from council is misguided and poorly thought out.
The current track functions well for all users and is in harmony with the current landowners who have farmed the property for several generations.
Allocating over $800,000.00 to undertake a new scheme without proper consideration of the knock on affects to the current custodians is poorly conceived and disrespectful.

6182192

Name	Miriam Vollweiler
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

It am in support of the Waihemo Recreation Reserve being returned to its original intention of benefit to the general public.

I am in support of th the Council to not delay this retirement further with staged release from leasing.e Waitaki District Council's decision to withdraw the Reserve from leasing for deer farming. However, I strongly urge

The rationale for the delay that is proposed does not make sense to me: that "a rapid retirement of the land from grazing could result in an increase in invasive pest species."

- Deer are a pest species where trees are concerned. The remnant trees on the Reserve will be suffering from deer browsing and will certainly not be regenerating with deer eating any seedling.
- Possum numbers increasing could be a threat but unless the farmer leasee is currently controlling possums, the Puketapu Community Trust's promise to carry out pest control will be a significant boost for the remnant trees.
- The Puketapu Community Trust also promises to do restoration. New plantings will eventually crowd out plant pest species and create a thriving and self-regenerating forest.

I climb up Puketapu every year on the western side and have done this for the last twenty years with my son and friends- the steep scramble in getting to be a challenge in my late 60s. it is a difficult and steep scramble in places look forward to better access and a more user-friendly track.

6182418

Name	John Barkla
Speaking	No
Organisation	Botanical Society of Otago
Email	bso@otago.ac.nz
Address	c/-Department of Botany, University of Otago, P O Box 56, North Dunedin 9059, New Zealand
Phone	[redacted]
File Attachment	Yes
Submission Please see uploaded submission	

Botanical Society of Otago – Submission on 'Notice of Intention to grant grazing licence over Recreation Reserve – Waihemo'

Thank you for the opportunity to make a submission on the Waitaki District Council's proposal to issue a licence to graze part of Waihemo Recreation Reserve. This submission is made by the Botanical Society of Otago (BSO), an affiliated society of amateur and professional botanical enthusiasts. We hold regular meetings, field trips, workshops and social events. We regularly visit areas of botanical interest throughout Otago and Southland and many members are familiar with the Waihemo Recreation Reserve, as observed from the Puketapu Monument.

The BSO is concerned that the predominantly indigenous vegetation cover present at the time of the reserve's establishment has, over the last 100 years or so, been reduced to just 14% cover (as assessed in 2014 by Wildlands). The BSO was surprised to learn that since its establishment, the Waihemo Recreation Reserve has been grazed by sheep (and deer in more recent times) and that the reserve has been generally unavailable to the public for recreational use. This grazing has been carried out under licences granted by the Waitaki District Council and its predecessors.

This seems contrary to the purpose of the reserve and to the Council's obligations regarding biodiversity on land they administer, especially policy 16.9.3.1 of the operative Waitaki District Plan "*To manage the adverse effects of the use or development of land on significant indigenous vegetation or significant habitats of indigenous fauna so that the values of those areas are protected*". The 2014 Wildlands report noted that the dry coastal forest dominated by kowhai, ngaio and narrow-leaved lacebark, is a locally uncommon ecosystem type and establishes that the treeland area exceeds the thresholds set out in the Operative Waitaki District Plan and Otago Regional Policy Statement to be considered a Significant Natural Area.

The BSO understands that the Puketapu Community Trust is working towards restoring the Waihemo Recreation Reserve to its original pre-European forest cover and plant species, and forming environmentally sympathetic tracks. While we are pleased that the Council is working in partnership with the Puketapu Community Trust, we are **not** supportive of the Council's proposal to issue a further licence to graze part of Waihemo Recreation Reserve.

We believe this will merely prolong the ongoing decline of the biodiversity values of those parts of the reserve proposed to be grazed, and delay the start of its restoration. We understand that if Council issues a new licence to graze part of the Waihemo Recreation Reserve it will be required to construct (at its cost), a new stock-proof fence so that the area proposed to be grazed can be separate from the area proposed for restoration. We suggest the funds required to build a fence might be better directed towards assisting with restoration of the forest.

We acknowledge that restoring the indigenous vegetation will have many challenges, not the least of which will be managing the anticipated increase in weeds that, up until now, have been suppressed (along with indigenous plant seedlings) by grazing. Of particular concern are the weedy vines such as Chilean flame creeper and banana passionfruit, exotic species that have proven problematic in other reserves of the district. We urge any restoration plan to fully anticipate and adequately fund appropriate weed control measures, including early intervention and regular surveillance.

The BSO also sees exciting opportunities for restoration to include species not currently present in the reserve but which are likely to have occurred there and which are still present in similar forest types nearby. These include nationally 'At Risk' species such as fragrant tree daisy (*Olearia fragrantissima*), fierce lancewood (*Pseudopanax ferox*), climbing groundsel (*Brachyglottis sciadophila*) and white mistletoe (*Tupeia antarctica*).

The BSO would be happy to provide further advice, as restoration of the indigenous vegetation progresses.

Summary

The BSO **objects** to the Waitaki District Council granting a grazing licence over Waihemo Recreation Reserve.

John Barkla
Vice Chair
Botanical Society of Otago

6184052

Name	ROBERT HUDSON
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

Ive known Greg Oliver as a fellow deer farmer for fifteen years. During that time Greg has worked tirelessly to achieve an economic farm business on his farm. He is very well respected by his fellow deer farming colleagues.

The plan to revoke or change his license to graze the recreation Reserve will have a significant impact on the viability of his whole farming business. Losing his ability to run hinds at fawning or calving time on the reserve makes his property an uneconomic business.

Greg has accepted there will be changes and is prepared to work with those involved to help fence off parts to help with restoration and establish the walking track. There are many issues coming from this, and currently the uncertainty is affecting Gregs mental health in ways Ive never seen before. Hes having difficulty sleeping, has become irritable with those around him, and finding decision making difficult. These are symptoms Ive never associated with Greg before, and concern me greatly as a friend.

He has concerns around any retired ground reverting back to gorse and broom, and harboring pests, which will ultimately spread to his property. These retired areas take a significant amount of time and money to maintain, and will this be done into the future. There are many examples all round NZ of reserve land having reverted and being under utilised and forgotten. I have one such area on my boundary covered in gorse harboring Wallaby, fellow deer and Rabbits, all spreading to my property to feed at night, damaging fences. Ten years ago a significant area burnt and was unable to be contained, due to inaccessibility. Fire would also be a real threat on ungrazed Reserve at Waihemo.

In making my submission in support of Greg Oliver and his family, I would appeal to those involved in making decisions around grazing rights, to accept the effects this is having both personally and financially on Greg Oliver. The family have leased this land for over one hundred years, have farmed and cared for it as if they owned it, and this must be considered when making any changes to their grazing rights.

Sudden changes to long standing arrangements are not acceptable to force upon any business, so I hope both parties find a solution.

Thankyou Robert Hudson

6185957

Name	Grant Still
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I oppose this native bush plan and opening it up to public use as the Puketapu farmer. It will invite vandalism, fire risks and more dog attacks to stock on farm. If the track goes ahead, has it been made clear to public that the existing walkway will cease to exist. I worry also about guy Fawkes and people at the monument at night and wandering on the farm as I already have issues with this. If the new one goes ahead no one will be keeping an eye on, as I do now with current track.

6187709

Name	Jack Mathieson
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission Provided in file below Against renewal of grazing	

16 April 2025

Waitaki district council

Noho ora mai,

This submission is in response to the request for feedback on the proposal by the Waitaki District Council to issue a licence to graze a portion of the Waihemo Recreation Reserve.

Firstly, I would like to state that I am opposed to the renewal of grazing rights—particularly for deer—in this area. The land was donated for public use and access in 1860, yet it has been privately grazed ever since, with no meaningful public access. Over this time, significant native biodiversity has been damaged, and regrowth has been suppressed—initially by sheep grazing, and more recently by the more destructive impacts of deer grazing. Access to the summit of Puketapu has relied on private land rather than the land originally set aside for public use.

The timing is now right to change this, especially following the successful EcoFund grant from the Otago Regional Council, which supports the Puketapu Community Trust's work on a new track, as well as planting and pest control efforts.

This area has been profitable for the leaseholder for over 100 years—they've had their turn and made their money, largely at the cost of the reserve's environment and biodiversity. It would be great to see this land returned to the purpose it was originally donated for, and to see it enhanced rather than further damaged.

I believe the Puketapu Community Trust has the knowledge and capacity to appropriately manage planting and pest plant suppression across the full reserve. If a full transition away from grazing is not immediately possible, and partial grazing or a staged plan is pursued, I would support transitioning to sheep rather than deer to reduce damage to the remaining native habitat. Additionally, if grazing continues in any form, I would like to see it managed by the Trust, with revenue from livestock reinvested into the reserve—for planting, weed suppression, or other restoration efforts.

Noho ora mai, rā

Jack Mathieson (Msc)

6190636

Name	Steven Joyce
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I believe the land would be best looked after by the current lease holder.noxious weeds are costly and time consuming to keep clearl which is why council money would be better spent in the Main Street for example old railway building.Current walking track up Puketapu makes more sense to keep open and use. Existing toilets close by as if goes ahead new ones will have to be constructed/more money. Farmer still happy letting people through so no brainer if not broken don't try and fix it.

6192135

Name	Leslie Sheat
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I am NOT in support of making this a public reserve, I believe it should continue to be leased and grazed.
My reasons are that the ongoing expense of upkeep of this area will be extensive and likely passed onto rate payers. This money could be better spent on upkeep and improvements around the immediate town which is falling into disrepair. There is an impact that these local reserves have on surrounding farms, as it will be hidden around the back of Puketapu where there is no visibility and therefore security is limited to protect livestock on surrounding farms, especially at night time.
The current lessees have had this land for over 100 years, and likely have a significant emotional attachment that comes with having farmed it over this time. Has consideration been given as to the access that this current lessee will have to their remaining farm, which is currently through this block of land?

6192139

Name	Marianne Sheat
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I am NOT in support of making this a public reserve; I believe it should continue to be leased and grazed. My concerns are that the cost of maintaining this area will be considerable, and the financial burden will likely fall on ratepayers. This funding could be better directed toward maintaining and improving the town, which is in need of attention and showing signs of neglect. Additionally, local reserves like this one have a negative impact on surrounding farms. This particular reserve, located behind Puketapu with limited visibility, raises security concerns for farmers who have livestock, especially at night.
The current lessees have been managing this land for over 100 years, which has likely fostered a deep emotional connection. Has there been any consideration for the access they currently have to the rest of their farm through this block of land?

6193077

Name	Suzanne Ellison
Speaking	No
Organisation	Kati Huirapa Rūnaka ki Puketeraki
Email	manager@puketeraki.nz
Address	[redacted]
Phone	[redacted]
File Attachment	Yes

Submission

Kāti Huirapa Rūnaka ki Puketeraki wishes to make this submission on the WDC proposal to issue a licence to graze part of Waihemo Recreation reserve.

The Rūnaka is submitting in opposition to the issuing of a licence to graze part of the Reserve.

The proposal has been reviewed by the Komiti Kaupapa Taiao, the environmental network for our Rūnaka. They note that the reserve contains unique vegetation and is proposed to be zoned a Significant Natural Area in the draft District Plan. They strongly support the WDC partnership with the Puketapu Community Trust as under these plans the reserve will be opened up for public access and the unique vegetation will be enhanced through the restoration of the reserve.

The move to protect and enhance the remaining unique vegetation on Puketapu is a move that is strongly endorsed by our Rūnaka. Puketapu was on board the Araiteuru waka when it foundered off the coast at Matakaea, Shag Point. Puketapu is said to have gone in search of wood and was carrying back a bundle of wood on her back by two straps, one of flax & one of toetoe. The marks of the straps can be seen on the hill as two gullies of flax and toetoe. (Ref. Te Pātaka Korero o Araiteuru – Megan Potiki, Aukaha Ltd, March 2020).

We are very keen to see the remnant unique vegetation protected and enhanced in recognition of Puketapu.

We are pleased that WDC considers Waihemo Recreation Reserve an important asset for the district as the extended, long-term grazing licences seem at odds with that view. As Kai Tahu we are very familiar with the impact of landlocked reserves and parcels of land that we are only able to access with the consent of other people or are unable to access let alone utilize.

We do think it is time for the Waihemo Recreation Reserve to become what it was set aside to be, an asset that will benefit the whole community.

We also reluctantly acknowledge that WDC may choose to not move to the full and immediate retirement of the grazing license. In that case we strongly urge the immediate removal of deer from any grazed area. It is time to halt the continuing damage that is being done to the land from the grazing by deer.

This position was reached after reviewing the relevant materials and evidence, particularly considering the damage caused by grazing to significant native habitat regeneration, and the restriction of public access to a reserve that has been set aside since 1860–1862 and is protected under the Reserves Act 1902.

Kāti Huirapa Rūnaka ki Puketeraki

14 April 2025

Tēnā koe,

Kāti Huirapa Rūnaka ki Puketeraki wishes to make this submission on the WDC proposal to issue a licence to graze part of Waihemo Recreation reserve.

The Rūnaka is submitting in opposition to the issuing of a licence to graze part of the Reserve.

The proposal has been reviewed by the Komiti Kaupapa Taiao, the environmental network for our Rūnaka.

They note that the reserve contains unique vegetation and is proposed to be zoned a Significant Natural Area in the draft District Plan. They strongly support the WDC partnership with the Puketapu Community Trust as under these plans the reserve will be opened up for public access and the unique vegetation will be enhanced through the restoration of the reserve.

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We are very keen to see the remnant unique vegetation protected and enhanced in recognition of Puketapu.

We are pleased that WDC considers Waihemo Recreation Reserve an important asset for the district as the extended, long-term grazing licences seem at odds with that view. As Kai Tahu we are very familiar with the impact of landlocked reserves and parcels of land that we are only able to access with the consent of other people or are unable to access let alone utilize.

We do think it is time for the Waihemo Recreation Reserve to become what it was set aside to be, an asset that will benefit the whole community.

Runaka Office – C/- Karitane PDC, Karitane, 9440
Phone (03) 465 7300, Email admin@puketeraki.nz
http://www.puketeraki.nz

We also reluctantly acknowledge that WDC may choose to not move to the full and immediate retirement of the grazing license. In that case we strongly urge the immediate removal of deer from any grazed area. It is time to halt the continuing damage that is being done to the land from the grazing by deer.

This position was reached after reviewing the relevant materials and evidence, particularly considering the damage caused by grazing to significant native habitat regeneration, and the restriction of public access to a reserve that has been set aside since 1860–1862 and is protected under the Reserves Act 1902.

Noho ora mai,



Suzanne Ellison, MNZM
Rūnaka Manager

6193215

Name	Mary Annette Cross
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I support the Puketapu Community Trust in protecting the Waihemo Recreation Reserve. I hope in time there will be walking tracks more easily accessible to the summit. Planting of more native trees. The 52 hectares will need to be fenced to protect from the invasion of rabbits. Trapping will need to be carried out for possum control. Weeds and grass will also have to be controlled. It may be possible to negotiate to graze some of the larger grass areas.

6193416

Name	Ray Joyce
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I would like to fully support the status quo in regards to the grazing of this land by the Oliver family.
Why fix was isn't broken?
I would rather the council spent rate payer money on maintaining the current infrastructure. You only have to take a short walk around the streets of Palmerston to see the footpaths are in dire need of upgrade. Anyone pushing a pram or walking with young children is better of walking on the road.

6193428

Name	Michelle Rule
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I run a Rural Supplies store in Palmerston and this topic has been very hot conversation for most people coming in. Out of around 30 plus conversations farmers and local town folk have bought up, there has been a general theme coming through. That is that this will not have a positive outcome for the community as what is being portrayed. Mostly because no one believes the funding will cover what needs done plus future funding is not guaranteed. In doing this so quickly we are essentially cutting someone's deer farming business very quickly and alienating a very well respected family in the area that support every business in this area. I personally believe that these funds would be better spent with the original idea of putting a walkway through the proposed area. Or spend it doing up the other tracks that are overgrown and forgotten about like Tavora Reserve.

6193462

Name	Rod Philip
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I am against the granting of a grazing licence on the Waihemo Recreation reserve (WRR).
Cessation of grazing will stop further degradation of the remaining native forest.
A staged retirement of grazing would mean that Council funds would be expended on fencing, only to remove the fence in a few years time. I maintain that these funds would be better spent on restoration of the WRR.
Perhaps some of the funds collected over the decades from rental could be allocated towards restoration in the WRR.
To continue to allow grazing on the WRR seems contrary to the Council's own indigenous biodiversity strategy.
If a grazing licence is declined, any future control of invasive noxious weeds would surely be the Council's responsibility as the administrator of the reserve .
I welcome the opportunity for community groups to work along side the Council in the restoration of the reserve.
Opening up the whole reserve to public access links in with the proposed Puketapu track project to create a reserve of regional importance that will become a significant asset for future generations.

6193498

Name	David Smith
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

Waihemo Recreation Reserve
I wish to support the Waihemo Recreation Reserve Grazing License with the Oliver Family.
If the grazing license is not continued the gorse will take over the area very quickly. The cost of spraying is very expensive as you need people with the appropriate qualification eg chemical handling certification also in a short time this will become a fire hazard as well as a safe haven for rodents
As a rate payer and farmer, I would rather see our money being used for better roads and infrastructure

6193828

Name	Gemma Fairbairn
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

Although I love the idea of this area for a beautiful walking track I strongly believe it will not be able to be upkept to the same current conditions. I enjoy walking up Puketapu and looking in that direction over the clean GORSE free land. Leave it as it is I think.

6193870

Name	Lyn Leng
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

We support the Oliver family to continue to farm this area. As it stands the Council have NO COSTS if fact they have an INCOME from the land.

If the Trust was to take over 52ha of land, how are they going to fund the planting of that, at a rate of $20,000 per ha. They are a group of people with no financial interest in this land only a dream. Let them have a small block and prove to the rate payers of The Waitaki District Council that they can manage the planting, weed and pest control on that before they move forward. As a rate payer in this council, I don't want to see my rates increase to manage a block of land on the south side of the hill that is best left to be grazed. The demographic in this town is elderly according to the Cences 50.9 years on average. I would rather see footpaths on all streets that you can walk on and cleared water ways to stop flooding in the area. LOOK AFTER OUT TOWN FIRST and stop what will turn into a rate increase as the council will have to fence and maintain the land.

6193999

Name	Phil Keene
Speaking	No
Organisation	Taieri Recreational Tramping Club
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission Please see attached our submission	

Waihemo Recreation Reserve Grazing Licence: Puketapu Community Trust

Submission from the Taieri Recreational Tramping Club

1. The first minuted meeting of the Taieri and Recreational Tramping Club was held on Thursday 4 March 1988. The club has a formal constitution with the objects of fostering recreation through tramping and protecting flora and fauna. The club has 130 members at present. The club develops summer and winter trip programmes and regular visits are made to areas in North Otago, including Puketapu.

2. The club recently became aware of the initiative by the Puketapu Community Trust to restore and reclaim Puketapu including the recreation reserve subject to the grazing licence.

3. Following a discussion of the merits of the Trust's plan to restore Puketapu the club committee agreed to make a submission at it's meeting on Friday 27 March.

4. The club does not support continuing grazing of deer under a renewal of the licence. The sooner restoration actions can commence the better for the long term future of the reserve.

5. The club supports the restoration actions of the Puketapu Community Trust that will

- open public access to the full reserve space intended as encapsulated in now the Reserves Act 1977 and to develop a wider range of walking options

- contribute to the improvement of the natural environment and conservation values leading to the long term sustainability of the reserve. This will stop further deterioration of the reserve's flora and fauna.

- allow the Trust to initiate plantings that will provide shelter and protection for slower tree species across the entire reserve.

Thank you for considering our submission.

Phil Keene
President – Taieri Recreational Tramping Club
8 April 2025

6194345

Name	Rosiland kirk
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I'm writing to respectfully request the renewal of the grazing licence for the Waihemo Recreation Reserve.
If grazing is discontinued, there is a genuine risk that weeds, gorse, and other invasive plants will quickly take hold. The reserve borders forestry land already overrun with gorse, and without the ongoing maintenance by the current leaseholders, this will likely spread—creating a serious fire hazard and causing significant environmental damage. At present, pest species like possums, rabbits, and ferrets are also being actively managed. If this control ceases, there is a real concern about the potential spread of TB to surrounding farms.
I would also like to raise concerns about the proposed walking track. While well-intentioned, in all the years I've walked the existing track up Puketapu, I've rarely encountered anyone else. I don't believe a new track would be any more popular—especially given that it would run along the shady, colder side of the hill where frost lingers for days during winter.
There are already several underused reserves in town that could be enhanced instead. These areas are flatter, more accessible, and better suited to families, older adults, and people with limited mobility. It seems more beneficial to improve what we already have rather than create something new that may not be utilised.
There's also the financial aspect to consider. A new track, carpark, fencing, and ongoing maintenance will come at a cost—one that ultimately falls on local ratepayers. In contrast, grazing the land comes at no cost to the Council and ensures effective land management.
Lastly, this land has been grazed by a local family for over 100 years. It forms a vital part of their farming operation, and losing access would seriously impact their livelihood. They have cared for this land responsibly for generations. I believe they deserve our support—not displacement.
Thank you for considering this request. I sincerely hope you will choose to renew the grazing licence and continue this practical, long-standing arrangement.
Yours sincerely,
Rosiland Kirk

6194531

Name	Christopher David Hepburn
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

This area is a recreational reserve and should be returned to our community. There are very few places left in our district where we have the opportunity to allow restoration of an ecosystem and greater public access. Remnant coastal forest ecosystems should be protected and allowed to immediately recover. I do not support use of council money in the development of private property and the focus of limited funding should be on public land and restoring access for our community – benefiting the greatest number of rate payers possible.

6194641

Name	Maia Chambers
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission See attached document	

Submission on the Notice of Intention to Grant a Grazing Licence over Waihemo Recreation Reserve

To: Waitaki District Council
From: Maia Chambers
Riparian planter, rural pest control technician, and landowner
Contractor and volunteer for the Hikaroroa / Mt. Watkin Conservation Project
Affiliations: High Country Contracting, Mammalian Corrections Unit, Habitat Restoration Aotearoa

Contact: [redacted]
Date: 14/04/2025

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1. Introduction and Representation

Kia ora, my name is Maia Chambers. I am a landowner, grower, riparian planter, and experienced rural pest control technician based in East Otago. I have worked professionally across our region on ecological restoration projects through organisations such as High Country Contracting, Mammalian Corrections Unit, and Habitat Restoration Aotearoa. I also volunteer my time and skills with the Hikaroroa / Mt. Watkin Conservation Group, where I assist in ungulate control, trap servicing, and monitoring.

I am passionate about hands-on, grassroots conservation work that strengthens ecosystems and communities alike. I've seen firsthand how land can heal — and how people's lives are positively transformed when they're involved in place-based conservation. I respectfully request to speak to this submission.

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2. Submission Context This submission responds to the public notification regarding the intention to grant a grazing licence over the Waihemo Recreation Reserve, legally described as Section 74 Blk: IVSD Moeraki.

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3. Submission Position I strongly oppose the renewal or issuing of a grazing licence for any portion of the 52-hectare Waihemo Recreation Reserve.

I ask that Council:
Refuse the renewal of any grazing licence for any part of the Waihemo Recreation Reserve.

4. Grounds for Submission

a) Personal Experience with Restoration Working on projects like Hikaroroa has shown me that native bush can recover — and quickly — when given protection from grazing. I've personally helped restore steep gullies and ridgelines that once looked like bare pasture, now covered in young kanuka, ngaio, ribbonwood, and kowhai. The same is possible at Puketapu if the land is retired from grazing entirely and immediately.

b) Grazing is Incompatible with Restoration Goals Deer are incredibly destructive browsers. Their presence prevents natural seedling regeneration, compacts soils, and maintains gorse and exotic grass dominance. As someone who has carried out pest control and revegetation across Otago, I can confidently say continued grazing is not compatible with native restoration or with the intent of a public reserve.

c) Lost Opportunities for Public and Community Use As a hunter and outdoorswoman, I value access to public land. Yet the Waihemo Recreation Reserve has long been locked away and inaccessible. The fencing and grazing regime effectively privatises public land. Ending the licence and opening access for community-led restoration, recreation, and education — as the Puketapu Community Trust proposes — would return the reserve to its original purpose.

d) Conservation Builds Resilience In my experience, community conservation work improves mental health, builds friendships, strengthens rural skillsets, and creates a sense of hope. At Hikaroroa, I’ve seen isolated people find connection and purpose through conservation. Puketapu has that same potential. But not while it remains locked up and grazed.

e) Waste of Resources on Temporary Fencing Building expensive new fencing just to split the reserve for a staged retirement makes no sense. We should be investing those resources into planting, weeding, and path-building — not deferring the inevitable at further cost to ratepayers and nature.

f) Let the Forest Return The mature trees on the reserve are survivors from a forest type that once covered much of this region. These remnants deserve to be protected, not trampled. With the right care, Puketapu can become a living forest again — a home for birds, a source of seed, and a taonga for future generations.

5. Final Statement I support the immediate and complete retirement of the Waihemo Recreation Reserve from grazing. I want to see tracks built, trees planted, birds return, and people reconnected to this land.

The community is ready. The knowledge is there. The restoration should begin now.

Decision Requested:
Do not renew or grant any grazing licence over the Waihemo Recreation Reserve.

Ngā mihi nui,
Maia Chambers

6194875

Name	Graeme Craig Wilson
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

The situation as it stands is a reasonably common one of past reserve management decisions not standing up to present day aspirations.
As it is a recreation reserve, public recreation values must be prioritized with other reserve values such as biodiversity and historic values also protected.
Grazing should only be allowed to happen if it ideally enhances, or is at worst neutral, to these values.
If fees from grazing are used to support the development of recreation use or ecological enhancement, and the grazing does not limit the scope of this enhancement, then a phasing out of grazing could be agreed on. This would support the grazier in transitioning their operation.
Any consideration of the benefit of grazing to pest control needs to be made in light of the long term plan for the vegetation of the reserve. As an example, gorse is unlikely to hinder the establishment of forest and so to stop gorse from growing would not be a good reason to keep grazing.

6194897

Name	Elena Nikitina and Wolff Podgwaite
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission I oppose renewal of the grazing licence for any part of the Waihemo Recreation Reserve. Please refer to the attached submission.	

My name is Elena Nikitina, I am 47 years old, I live in Palmerston and work for the Ministry of Education.

I am making a submission on behalf of myself and my husband in relation to the Notice of intention to grant a grazing licence over Waihemo Recreation Reserve.

We oppose the renewal of the grazing licence for **any** of the 52.7 hectares of Waihemo Recreation Reserve.

Puketapu is a historic and a culturally and ecologically significant landmark of our little town. It is the most noticeable geological feature of the area and offers an enormous recreational value to the locals and visitors from further away. Restoring the reserve in full will allow an opportunity for education, appreciation and connection with the nature.

The reserve in its current state is a sad sight to observe. Due to grazing, the native forest is unable to regenerate and is effectively dying. It is unable to support the biodiversity of the native flora and fauna. The restoration of the **whole** reserve with the help of volunteers needs to take place as soon as possible.

There is a group of dedicated people who are willing to give their time and effort to assist with native plantings and pest control. My husband and I are two of those people. Eco grants to do this are available from the government.

Removing the grazing and opening the whole reserve to the public will provide an opportunity to relax and recharge in nature, educational opportunities for the local schools, and the much needed in the area habitat for the native birds, which in turn will attract more visitors and benefit local gardens.

6194918

Name	Margaret McFarlane
Speaking	No
Organisation	Private
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes

Submission

NO to granting a lease or license to occupy . No more deer or grazing in this recreation reserve, remove them. Allow public access to the whole recreation reserve. Waitaki District Council and the Waihemo Community Board should fully support the vision and goals of The Puketapu Community Trust

Submission to the Waitaki District Council re the advertised "Notice of Intention to grant grazing licence over Recreation Reserve- Waihemo.

(This block is legally described as Section 74, Block: IV DS: Moeraki)

My name is Margaret McFarlane. I co-own and live on a rural property at [redacted] where we have been doing restoration planting (after pine removal) and pest control. I have a broad range of experience and knowledge in education (in particular, biology, science, horticulture, outdoor education and environmental education), conservation (Biodiversity work for the Department of Conservation, restoration of ecosystems and revegetation projects, private and public). I am a trustee on the Landscape Connections Trust which endorses the vision of The Puketapu Community Trust, this however is a private submission. I do not wish to speak to it.

NO part of the 52 hectare Waihemo Recreation Reserve of remnant indigenous tree land should be grazed. All 52 Ha should be returned to its original purpose, that of a recreational reserve.

The Waitaki District Council and the Waihemo Community Board should get behind and support the vision of the The Puketapu Community Trust. For the benefit of the ecosystem and it's biodiversity and for all of us now and in the future.

It has made me sad and increasingly frustrated and angry to witness the damage being done to this precious remnant and it's ecosystem by deer grazing. And angry that all of us are denied access into this public reserve. I'd like to walk up through this ancient ngahere with my grandchildren and to help restore this ancient ecosystem.

The Waitaki District Council has a duty to administer this reserve under the 1977 Reserves Act, clause 17 and its various amendments, especially subclauses 1, 2 (a), 2 (b), 2 (c), 2 (d) and under Section 6 (c) of the 1991 Resource Management Act (must recognise and provide for the protection of areas of "significant indigenous vegetation and significant habitats of indigenous fauna" on land it administers as a matter of national importance.)

<u>It is patently obvious the Waitaki District Council has failed in its duty of care regarding its ethical and legal obligations.</u>

This includes <u>not</u> ensuring the farmer with the lease/ license to occupy has adhered to the conditions of their lease/ license to occupy (Council staff have been muddled about this and the legal differences between them). A copy of the License to Occupy dated 2016 finally obtained from the Waitaki District Council Network Manager states it was for 8 years. Other previous leases have not been provided despite repeated requests.
There are clear breaches by the lessee. For example: of clause 5.3 where a muddy deer wallow has set up in the area of a natural spring. And of clause

6.3 where very clearly the natural, scenic, historic, cultural, archeological, biological, geological (think soil degradation) or other scientific features or indigenous flora or fauna have been damaged or destroyed.

Under the 1977 Reserves Act, under Section 73, clause 1 there is a statement that says NOW if the reserve is required for the purposes of which it was classified/ set aside in the early 1860's.

The lease/license to occupy for this land is over! It is well past time for the Waitaki District Council to issue notice to this farmer to remove his stock as per the now expired Licence to Occupy Agreement.
And for the Waitaki District Council to carry out their duties as outlined by the Reserves Act.

This is a recreational reserve and should be returned for the original purpose it was created for. The Puketapu Community Trust has a well thought out vision for this recreational reserve. One that will ensure the survival and ultimately the thriving of this rare indigenous forest ecosystem and recreational opportunities for this generation and generations to come. Including the farmer and his family should they choose to visit.

The Waitaki District Council should not spend any public money for any fencing or water reticulation done on public land to enable any private individual to continue to make a profit. Especially as it is likely that the farmer or members of his family (son in law) would be the contractors receiving that public money. This simply is not ethical.
Also it will cost money to remove these fences. Again it is not ethical for public money to be used for this purpose. Or for the lessee and his family to make money from their removal, should they be contracted to remove them.
Any council funds that may have gone into fencing and water reticulation should support the vision for this recreation reserve as proposed by the Puketapu Community Trust.

My comments to further support my view are outlined below.

1. A Crown Survey Map of 1862 recognised the value of the land by setting it aside as a Recreation Reserve. This showed great foresight on many levels all those years ago. Old maps from this time show that even in the early 1860's, it was a very small remnant of what would have once been the original extensive indigenous cover over this East Coast of Otago. The intent back then was to conserve this bush.
Sir John McKenzie, for whom the large stone memorial on top of Puketapu was erected, lobbied to conserve this bush and that at Trotters Gorge and to set up public spaces. He was instrumental in breaking up large land areas to try to achieve a fairer, more equitable society. I imagine if he could, he would be protesting from his grave in the Palmerston Cemetery about what has happened.

2. Anecdotally there are some accounts of people walking in this reserve prior to the erection of the deer fencing in 1996. It is very murky as to how this deer fencing came about. But as a result, very unfortunately the public have not had access to this PUBLIC reserve since. Another clear breach of the Recreational Reserve Act. And of the lessee's agreement!

3.There are no other public recreational reserves of this kind in this area, this includes down as far south as Waitati. A natural area, where members of the public of all ages can walk through and enjoy what is left of of the once extensive indigenous and varied bush cover. In fact there is a distinct lack of accessible walking tracks on public land in a natural environment in this part of coastal Otago.
The Puketapu Community Trust has plans for environmentally sympathetic tracks that have been carefully considered by a landscape architect as being able to made without undue adverse effects.
Note: There are small Department of Conservation scenic reserves at Goodwood and three at Seacliff (two have no public access) which have no walking tracks. There is a Yellow Eyed Penguin Reserve at Tavora which has a walking track. It is owned by the Yellow Eyed Penguin Trust and understandably it is closed during the breeding and moulting season for the penguins. And for those of us who have dogs, they are not allowed there.

This is clearly stated in the Reserves Act that these Recreational Reserves were set up for the purpose of recreational activities, including recreational tracks and for the physical wellbeing and enjoyment of the public.

Clearly there hasn't been public recreational activities happening in this recreational reserve for decades. What an amazing asset this could be.

4. Puketapu mauka is a distinctive, iconic feature of Palmerston and the surrounding area with it's classic volcanic peak rising up behind Palmerston. It is recognised as a SNF (Site of Significant Natural Feature) and in the New Zealand Geopreservation Inventory. It is of spiritual significance to the local iwi and loved and appreciated by many of us. It is commented on by many visitors, many of whom express a desire to go there.

Again the Reserve Act is clear in its intent that the scenic, historic, biological, geological be managed and protected to the extent compatible with the purpose of the reserve.

Again this hasn't happened! In particular the scenic and biological aspects. The landscape values would further be degraded with additional fencing (see the Landscape Architects report done in 2024)

5. It is obvious to see and it is noted in the Wildlands Report on the Puketapu Treeland done in May 2014 that much of this SNF of Puketapu is highly modified from its original vegetation and landscape value including by pasture, pines, gums and fencing.

This recreational reserve is the last remnant of the once widespread indigenous mixed vegetation and its original landscape. It is roughly one percent of what it was pre European arrival. Bird song used to be able to heard by ships moored offshore.
The species list of existing indigenous plants is greatly reduced from it what it would have been. No doubt there were other more palatable, more easily accessed species which have disappeared after so many years of grazing pressure.

It feels sacrilegious and criminal (definitely illegal) to me for the Waitaki District Council to even contemplate enabling any further degradation of this treasure by granting a further grazing licence, even to part of this reserve.

Again the Reserve Act clearly states “indigenous flora and fauna or wildlife (which I take to be introduced pest species) shall be managed and protected to the extent compatible with the principal or primary purpose of the reserve “

Further to that the Reserves Act states “its value as a soil, water and forest conservation area shall be maintained.”
We know that wetlands, swamps, soil and permanent natural forests, are long term mechanisms for carbon sequestration.

6. Currently the very picturesque views from Puketapu can only be accessed through the good will and generosity of the landowners on the Palmerston side. The track is very steep in places and many people are unable to make the climb up to the summit and the historic memorial to Sir John McKenzie. It is also quite slippery if there has been rain. This track is also closed (understandably) to the public for lambing.
The 360 degree view from the top looking out to the sea and around is world class and one of the finest on the east coast of the South Island. It is largely unrecognised. And it is not accessible for most. I believe it is not only a public attraction in its own right, but has the potential to be a tourism attraction.

Palmerston is very close, it is only 2 km away. Most of us would agree that Palmerston would benefit from an economic boost (and attention). You only need to visit the Moeraki Boulders to realise how important tourism is. The economic benefits of tourism and recreation to the local and New Zealand economy far out weigh anything else.

7. The Landscape Effects Assessment done in May 2024 by the Landscape Architect Mike Moore gave careful consideration of the impact (visual and otherwise) of the walking track the Puketapu Community Trust is proposing and I fully support his view that the impact can be managed and will be

minimal. Similarly I agree with his opinion that any additional deer fencing that the Waitaki District is proposing to do on behalf of the farmer (who no longer has the lease for any of this land) will have a visual impact for the reasons he explains.

8. The Wildlands report classifies the Puketapu Treeland remaining on the Waihemo Recreational Reserve as belonging to the **Otago Coast Ecological Region** which is characterised as being relatively dry with mild summers and cool winters.
It doesn't take an ecology, conservation and environmental background to notice that there is very little of this original vegetation left on the East Coast. Apart from the small, largely neglected scenic reserves mentioned the only other small pockets of remnant indigenous vegetation are on private land and are not accessible to the public.

I urge the Waitaki District Council to leave a legacy by supporting the Puketapu Community Trust in their vision to restore this small, sadly degrading, very ancient indigenous treeland.

9. There is strong community buy in from many in the local community. There is also support in the wider community including Waikouaiti, Karitane, Seacliff and beyond. It is seen as an opportunity for Palmerston and it's inhabitants. It is also important for those of us in the wider community. There are many of us who have varied skills and extensive experience:

1. in making and maintaining tracks of all types
2. growing eco sourced native plants
3. planting and releasing young plants
4. weed control
5. pest control including possums, mustelids, hedgehogs.
6. And use of herbicides to selectively remove the grass sward to allow native seedlings to emerge
7. And are experienced at enlisting the help of volunteers and managing them as well as volunteering themselves.

This is also covered in the Reserves Act. Obviously the support of the Waitaki District Council will be required.

10. The Waitaki District Council (and staff) have been reticent/tardy to supply the required documents needed to make this submission. I'm not sure if this has been deliberate or if they didn't understand or appreciate their legal obligations.
There also seems to be a strong bias towards the farmer who had the Licence to Occupy (which expired last year) to continue to be able to graze much of this reserve with a staged retirement.
I'm not convinced the Waihemo Community Board are representative of their community. It would appear there is a bias towards the traditional model for farming. The board does not appear to appear to be aspirational, or visionary.

Firstly this need to allow a lease is completely irrelevant as the reserve is now required for recreational and biodiversity purposes. **And grazing is not a permitted activity**.
Secondly this farmer has not abided by the conditions of his license to occupy (as already discussed).
Thirdly this farmer has known for a long time that this return of the reserve to public use was eminent and should have been planning for it (eg by planting shelter on his own land for his fawning hinds)
Fourthly this farmer is definitely not the struggling returned soldier that his forebear in the 1920's who won the ballet to graze sheep was.
Fifthly this is not a legacy that I would want, degrading and destroying rare remnant forest and excluding the public for decades for private gain.

11. As part of the spiel the Waitaki District Council and the Waihemo Community Board has been promulgating about not retiring the whole reserve at once has been the perceived threat of pest species invading the reserve.
Firstly the animal pests: Most of us would regard deer as a pest species! As the reserve is already deer fenced there shouldn't be too much issue from ungulates once the farmer has removed his! The Puketapu Community Trust has funds to buy possum traps and there are many projects up and down the motu having considerable success with possum control as well as other pest species, including mustelids etc. The knowledge, technology and skills already exist and are constantly being improved.
Secondly the plant pests: There seems to be concern that areas of land without canopy cover will become covered with rank grass. Yes it will for a time, but if tracks are in place, people will still be able to walk etc. without hindrance. Examples of areas retired from grazing include Huriawa Peninsula at Karitane and Flat Top Hill near Alexandra. Both are very popular recreational areas.
12. The soil fertility will improve as the grass grows and collapses. In as little as 3 years a Ngaio or similar tree can grow above the grass and once this happens and the canopy is restored, the grass will die off and other seeds will be able to germinate and grow. Ngaio and similar species will grow to 4 metres or more in 5 years. We know, we have seen it happen on our own place.

13. There are some in opposition to all of the 52 Ha being returned to the public in one go who worry about the spread of invasive exotic weeds. This would be need to be addressed as on any land these days. But compared to the spread of weeds and wilding pines and Douglas firs from forestry plantations will be much less and manageable.
Ironically one of the biggest risks of gorse and wilding pines spreading onto the reserve come from a neighbouring block of land managed by the Waitaki District Council. It is planted in pines (within the allowable 20metres from the boundary) and at this stage surrounded by tall gorse (within the allowable 3 metres from a neighbours boundary.) Waitaki District Council talked about being "good neighbours". It's time they were! Again the knowledge,

technology and skills exist to combat weed pest species and the money not spent on fencing and water reticulation could go towards paying for this.

14. There are others who worry about the risk of fire with rank grass (once the stock has been removed.) Again this is a risk, but fortunately this recreational reserve because of its aspect (south facing and therefore damper) will be less risky, than for example the Waitaki District pine plantation surrounded by tall gorse on the boundary on the Palmerston side. At least the reserve is not close to any houses!

15. This remnant tree land needs all the help it can get. The canopy trees are dying and collapsing in places due to decades of stock and possum damage and there is no regeneration due to browsing.
Chopping it up into smaller blocks would increase the risk of edge effect (where wind throw and invasive weeds and pests have more points of entry).

A forest ecosystem can't exist as a tiny separate parcel. It has to be connected to allow the movement of bird and insect species. How great would this be if in time this reserve linked to the Goodwood Scenic Reserve, Tavora and onto the remnant forests around Karitane and further afield.

16. There has already been a loss of funding opportunities for the Puketapu Community Trust as a result of the lessee not removing his deer since his licence to occupy expired. Some opposition has been concerned about the trust's ability to fund what needs to be done.
The Waitaki District Council has a legal obligation to assist with funding and management (although it would appear if part of the reserve was grazed, any income received would not go back into the reserve). There are many funding options available and some that haven't been explored. Surely this would all be a better use of funding (especially public) than helping a private individual make money and degrade a public asset.

How fantastic would it be if the Waitaki District Council supported the vision of the Puketapu Community Trust to provide accessible walking tracks, potentially cycle tracks and at the same time restore the canopy cover and undertake pest control.

Imagine the legacy the Waitaki District Council and us (the public) could leave for the future with the Waihemo Recreational Reserve. A thriving indigenous forest with its associated fauna with accessible access for all of us.

6195111

Name	Luke Gardener
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission Attached as a word document	

I do not want the Council to renew the grazing licence for any part of the 52ha Waihemo Recreation Reserve. The Council decision should be to reject the renewal of a grazing licence for any part of the 52ha Waihemo Recreation Reserve.

The renewal should be rejected because:

1) The grazing licence was never consistent with the purposes for which the reserve was created and seems to be contrary to the purposes of recreation reserves as outlined in the Reserves Act 1977. Specifically, I am unable to determine how the proposal enables the provisions guaranteed under Section 17 of the Reserves Act to be fulfilled, those being: "freedom of entry and access to the reserve", and the 'protection of flora and fauna (indigenous biodiversity. Deer grazing is not consistent with either of the above and has not been consistent with that purpose over the last decades. There is an absence of recreation reserves in the Southern Waitaki District, and it is my view that the recreation reserve was always required for the purpose it was intended (making the issuing of a grazing license contrary to the Act) and that even if that was not the case, it is certainly required now to meet the demand of visitors and residents alike.

2) The proposal to fence half the reserve (680m) will cost ratepayers significantly more than the annual revenue generated from the grazing lease. This burden on ratepayers is exacerbated by the proposal to remove the fence again in a relatively short period of time and then reconstruct it. The money would be better spent on revegetation or amenity works. Rather than grazing preventing weeds colonising the site, the grazing of deer is likely to cause further degradation of the remaining vegetation, preventing natural regeneration, as well as soil stability. I want to be able to enjoy a revegetated reserve within my lifetime, something that is unlikely to occur with the staged removal proposal.

3) The points outlined in Council documents in favour of grazing namely:

    a. Suppression of weeds;
    b. Farmer’s long history with the property and ability to continue farming; and
    c. Fire risk

    Do not exceed the public benefit of free access to the recreation reserve, nor the ongoing damage that the deer herd will do on the remaining indigenous vegetation. The concerns can be managed/address in the following ways.

    a. The weeds can be managed by the volunteers of Puketapu Community Trust, who have already received grants from the Otago Regional Council for biodiversity work on the Reserve.
    b. The fire risk will be less overtime under a revegetation plan. Mixed Broad Leaf Forest has a lower fire risk than grasslands or nearby eucalyptus plantations. Overtime, the revegetation will decrease fire risk within the Reserve.
    c. While the family of the farmer concern has had a long history with the property, the rejection of the grazing lease should be viewed in the context of restoring public access to public lands, rather than stripping a farmer of their private right.

4) On a more sentimental note, I want to be able to stop in Palmerston with my family and explore the entirety of the Maheno reserve, enjoying the view from Puketapu and the

indigenous flora and fauna which will only improve following the exclusion of stock from the Reserve. It will be a highlight of a trip to Palmerston,

6195120

Name	Robert Patrick RAILL
Speaking	No
Organisation	Private
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No
Submission No renewal of the grazing license in any form	

6195123

Name	Robert Patrick RAILL
Speaking	No
Organisation	Private
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes
Submission No renewal of grazing license in any form	

I wish to make a submission to the Waitaki District Council regarding the renewal of a grazing lease on the Waihemo Recreational Reserve.

I submit that the grazing lease not be renewed in any form so that the forest can recover from the destructive effects of deer grazing for 29 years (since 1996), and that public access can be established, sooner rather than later.

Any grazing is incompatible with the Reserve being a Significant Natural Area. It is not being protected and cared for as per the Waitaki Reserves Management Plan 2014. Over the years the ecological value of the Reserve has been degraded by the grazing.

The Puketapu Community Trust is very proactive in its approach to – reclaim, rescue and restore the Waihemo Recreational Reserve. I would gladly help them to achieve the communities goals.

From what I understand the lessee has a major deer farming business and the lease, (which has been expired for a year now, but is still stocked) is not a critical part of their operation, but would no doubt be an inconvenience.
The costs of fencing associated with a staged retirement need to be considered as well.
The lessee seems to have done pretty well out of the Waihemo Recreation Reserve over the years, but have not been made to adhere to the conditions of their lease.

It is now time to be fair to the general public and to the intent of the creation of the Reserve in the 1860's.

6195160

Name	Alan John Matchett
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

The integrity and purpose of the Waihemo Recreation Reserve needs to be reestablished and maintained in accordance with the Reserves Act therefore the current grazing lease should be discontinued in its entirety and an appropriate plan of de-occupation agreed.

Council should discontinue any renewal option of the existing lease or any suggested staged retreat options and act affirmatively to develop a purposeful, binding Reserves Management Plan is required under the Reserves Act which following termination of the lease will remove issues of having to negotiate around any concurrent or ongoing stop-gap or intermediate arrangements or prolonging the discontent amongst existing affected/interested parties and views within the local community.
Development of the Reserves Management Plan will provide opportunities
for public/community engagement.

6195217

Name	Zenobia Southcombe
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

In regards to the notice of intention to grant a grazing licence over Waihemo Recreation Reserve (legally described as Section 74 Blk:IVSD Moeraki), I want the decision to be no renewal of grazing licence for any of the 52h of Waihemo Recreation Reserve.

The public has been unable to access this public space for the purposes set out for public use under the 1977 Reserves Act Regarding Recreation Reserves, clause 17 and its various amendments, especially sub-clauses 1), 2(a), 2(b), 2(c), 2(d). We have very few recreational areas to enjoy our unique native forest and wildlife, and currently access to Puketapu's peak is limited to those with strong fitness levels.

I would like to the native forest have a chance at regeneration for the benefit of residents, visitors (and therefore tourism), as well as our unique native wildlife. Allowing and fostering native forest regeneration will help build a "corridor" between the regenerating Tavora Reserve and Trotter's Gorge, with connections aided by recent riparian planting efforts. It is our responsibility to ensure that younger - and future - generations get to grow up with the same access to natural spaces that we have had.

The reserve should be used for the purpose it was classified/set aside for in at least 1860.

Those being in brief:

a) freedom of access and public use of whole reserve

b) protection of scenic, historic, archaeological, biological, geological or other scientific features or that flora and fauna or wildlife shall be managed and protected

c) contribute to the pleasantness, harmony, and cohesion of the natural environment and to better use and enjoyment of the reserve shall be conserved

d) to the extent compatible with the principal or primary purpose of the reserve, its value as a soil, water, and forest conservation area shall be maintained

This whole project is NOT ABOUT removing a private property right. IT IS RESTORING A PUBLIC PROPERTY RIGHT .That has been missing since the reserve was deer fenced. The deer fencing has made it inaccessable. And in essence, the grazing has prevented public knowledge of this reserve and this knowledge has diminished over the years . This has resulted in the oppurtunities to create amentity areas and tracks has being unrealised and thus the benefits of protecting, enhancing this public asset for the wider community good has been unrealised.

6195340

Name	Nicola Holmes
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I am against the renewal of a grazing licence on the Waihemo Recreation reserve (WRR). The WDC and the wider Waihemo community have a unique opportunity to create a thriving regenerating native forest in the area if grazing is stopped now to minimise
further degradation of the remaining flora.
A staged retirement of grazing would require significant WDC funds to be spent on fencing for it to be removed in the near future at additional expense.
These funds would be better spent on restoration and pest control of the WRR. After a lengthy rental period the WDC can now "walk the talk" of its own stated indigenous biodiversity strategy and work with the community on weed control to hasten the WRR's restoration.
This step would ensure guardianship of the WRR into the future.
Opening up the entire WRR to public access links in with the proposed Puketapu track project to create a district-wide asset. The longer a grazing licence is retained the more reduced is the opportunity for viable flora and fauna restoration of this rare taonga in East Otago.

6195352

Name	Ben Robson
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

To the Waitaki District Council,
I'm writing to ask that you reconsider any plans to end grazing on the Waihemo Recreation Reserve and instead renew the current licence.
Grazing has been an effective and low-cost way to manage this land. If it's stopped, weeds like gorse will quickly take hold—especially with the neighbouring forestry block already thick with it. Without ongoing control, the area could become a serious fire hazard and ecological problem in no time.
There's also the issue of pests. Right now, animals such as rabbits, possums, and ferrets are being actively managed. If that work ends, there's a genuine risk that TB could spread to surrounding farms, putting more pressure on the local rural community.
I've also heard about the idea of developing a new walking track in the reserve. While I understand the intention, in reality the existing Puketapu track sees very little use, and I don't see a new path changing that—especially on the cold, shaded side of the hill where winter frost lingers for days. Meanwhile, other flat, accessible reserves in the district sit underused and could be improved to better serve families, older residents, and those with mobility issues.
It's also worth considering the financial impact. Building and maintaining a track, carpark, fencing, and managing the land without grazing will all come at a cost. Those expenses will inevitably land on ratepayers. In contrast, grazing covers maintenance naturally and at no cost to the Council.
Renewing the grazing licence is a practical, sensible solution that benefits both the land and the wider community. I hope you'll support continuing this arrangement.
Regards,
Ben Robson

6195390

Name	Zac Noone
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

To the Waitaki District Council,
I am writing in response to the notice of intention regarding the grazing licence for the Waihemo Recreation Reserve, Section 74 Blk IVSD Moeraki. I strongly support the full renewal of the licence and believe that continued grazing is vital for the long-term health and usability of this 52-hectare reserve.
Removing grazing from the reserve would likely lead to a rapid increase in invasive weeds such as gorse and broom. This is especially concerning given the proximity of the forestry block, where the removal of pine trees has already resulted in unchecked gorse growth. Without regular control, the same issue could easily take hold across the reserve, leading to increased fire risk and damage to native biodiversity.
Managing an area of this size is no small task, and history has shown how quickly reserves can deteriorate without active oversight. Just a short distance away, the Goodwood Reserve—significantly smaller in size—has become overgrown and difficult to access. If a 52-hectare area is left without a practical, ongoing management plan, it is reasonable to expect a similar outcome.
The grazing lease also plays an important role in supporting local agricultural operations. If the land is withdrawn from productive use, farms that rely on this area for stock rotation would face serious challenges, including reductions in herd size and knock-on effects to business sustainability and the broader rural economy.
Financially, there are also major concerns. The costs associated with maintaining the land—such as fencing, weed spraying, pest control, and proposed recreational development—are significant. Without grazing, these responsibilities fall back on the Council and, by extension, local ratepayers. Grazing provides a cost-effective and proven way to manage the land while still delivering value to the community.
Thank you for your time and consideration. I hope that a practical and forward-thinking decision will be made to continue grazing at the Waihemo Recreation Reserve through a renewed licence.
Yours sincerely,
Zac Noone

6195481

Name	Josh Hohneck
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

To the Waitaki District Council,
I appreciate the opportunity to provide feedback regarding the future of the Waihemo Recreation Reserve. I'm writing to strongly support the renewal of the full grazing licence over the 52 hectares of reserve land. There's a lot to consider when deciding how best to manage this kind of space. But from a practical, environmental, and economic standpoint, grazing continues to make the most sense.
Keeping the Land in Check
This reserve isn't just open grassland—it's a large and varied block of country that requires constant attention. Without stock grazing through it, there's a real risk that weeds like gorse and broom will quickly take over. We've already seen how quickly this can happen in neighbouring areas. Since forestry operations wound down next door, the gorse has exploded. It's not hard to imagine that same pattern repeating itself across the reserve if grazing stops.
Once weeds like that get established, they're extremely difficult and expensive to get rid of. What's currently being managed naturally and at no cost to ratepayers could soon become a major maintenance burden for the Council and the wider community.
Environmental and Fire Risk
It's not just about appearances. Unchecked weed growth becomes a serious fire hazard—especially in summer months. Grazing helps reduce fuel load naturally. Taking that away opens the door to significant risk.
The presence of livestock also supports pest suppression, with animals like possums, ferrets, and rabbits being actively managed as part of current land use. If that control effort ends, the area becomes a breeding ground for pests—and with that comes the increased threat of diseases like TB, which would be a real concern for nearby farms.
Recreation vs Reality
There's been talk about developing new walking tracks through the reserve. While creating more public spaces sounds positive in theory, it's worth asking who would actually use them. The existing Puketapu track, which offers great views and established access, sees very little foot traffic as it is. A new track on the colder, less inviting side of the hill—where frost lingers long into winter—is unlikely to draw any more people. Meanwhile, other flat, accessible reserves closer to town remain underused and could be improved to better support the community. Investing in those would offer better returns and make outdoor spaces more inclusive for families, older people, and those with mobility issues.
The Cost of Change
Shifting away from grazing will cost money—simple as that. Fencing, spraying, track maintenance, pest control... it all adds up. And those costs don't just vanish—they land on local ratepayers. Grazing avoids that burden. It keeps the land tidy, functional, and productive, without the need for ratepayer-funded upkeep.
Farming Impact
The reserve isn't just a patch of grass—it's part of the wider working landscape. Taking away grazing access would have flow-on effects, particularly for local farming operations that depend on it. Losing that land means reducing stock numbers, tightening already slim margins, and impacting the rural economy as a whole.
Final Thoughts
This isn't about nostalgia—it's about what works. Grazing has been an effective and responsible way to care for the Waihemo Recreation Reserve for generations. It supports the land, the people, and the environment. Replacing it with an untested, costly alternative simply doesn't add up.
For the sake of good land management, public safety, and local livelihoods, I respectfully urge the Council to renew the grazing licence in full.
Kind regards,
Josh Hohneck

6195584

Name	Paul Smale
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I support immediate cessation of deer grazing within the Waihemo Recreation Reserve, and the return of the Reserve to public use.
Waihemo Recreation Reserve contains remnant seed trees (dryland-tolerant species including kowhai and broadleaf) from which revegetation of the reserve can occur, with human assistance.
Existing deer-fencing around the reserve makes future exclusion of ungulate pests from the reserve relatively easy and inexpensive, once they have been eradicated from within the reserve.
The wider Palmerston area contains few public outdoor recreation opportunities at present, and a walking track through the reserve would be a welcome addition for the local community.
Only several percent of the land in the wider Palmerston area has original indigenous plant cover, and that which remains within the Waihemo Recreation Reserve should be restored.

6195596

Name	K Clarke & K Irons
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	Yes

Submission

Copy of Submission: K Clarke & K Irons

Our submission is in support of the full restoration of the entire 52ha Waihemo Recreation Reserve as required for it's designated purpose as a local amenity.

Indigenous forest cover has been severely reduced within the Waikouaiti Ecological District, and it is formally documented that the Waihemo reserve has a significant area of unique vegetation.

Under the current stock grazing regime the tree-land will die out as older trees are not being replaced.

We strongly support the proposed development of walking tracks across the Reserve and up to the summit of Puketapu.

We envisage these tracks providing access and recreational opportunities to local and visiting walkers and runners.

An ideal layout would provide accessibility from well formed parking areas.

Currently there is no provision in the beautiful Waihemo-Palmerston area for walkers or runners and development of this facility would provide adequate scope to meet most peoples needs.

Keith Clarke's great-great grandparents first came to Waihemo from Scotland in 1869 and worked at the under-sea mine at Shag Point, later retiring Horse Range Road. They were buried at the Palmerston Cemetery in 1917 and 1921.

They lived and raised their 8 children beneath Puketapu.

We have both lived in Waihemo-Palmerston for 9 years.

Keith Clarke retired to Palmerston in 2016. As a former orchardist and export pack-house owner/operator he has a good knowledge of plant husbandry and also established an Environment Enhancement project bordering a stream on his former property.

K Irons studied grasslands management and farm forestry then trained and worked with K. Clarke over a period of 17 years learning all aspects of orchard management.

As part of our personal fitness regime we undertake walks of 30-40kms per week around Palmerston. The opportunities for fitness are severely limited in and around this township. We look forward to further opportunities for all members of this community, and the support of our council in that pursuit.

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6195598

Name	James Colin butler
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission
Would like to see land stay farmed

6195719

Name	Josh Ollerenshaw
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

To the Waitaki District Council,
I'm writing to support renewing the grazing licence for the Waihemo Recreation Reserve.
Grazing is a simple and effective way to manage the land. If it stops, gorse and other weeds will spread fast—especially with the neighbouring forestry block already full of it. This creates a big fire risk and environmental issues.
I've worked on the farm and helped with pest control in the area, especially possums. Without this ongoing work, there's a real risk of TB spreading to nearby farms.
I also don't believe a new walking track is needed. The current Puketapu track is hardly used, and the proposed area is cold and steep. Other easier reserves around town would be better suited for upgrades.
Grazing costs the Council nothing and keeps the land under control. Removing it would bring unnecessary costs and hurt local farming.
Please continue with what already works and renew the licence.
Kind regards,
Josh Ollerenshaw

6195744

Name	Maria A Collins John D Collins
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

We would like to express our strong support for the Waihemo Recreation Reserve to remain under its current grazing lease arrangement. The grazing lease provides significant practical, environmental and financial benefits to both the council and the wider community and changing its use or reclassifying the land risks undermine these benefits with no clear gain.

1. Sustainable Land Management- grazing keeps the reserve land maintained in a cost effective and environmentally sustainable way. Livestock help control invasive weeds and grasses reducing the need for chemical sprays or mechanical intervention. As yet we have seen no clear plan for the control of weeds or pests by any other party. It is a concern that the financial burden will fall on Council and therefore ratepayers.

2. Cost Effective for Ratepayers- the lease generates income for the Council whilst also negating maintenance costs. Without the lease the Council or the newly formed group in support of letting the lease go would be responsible for the land management including ongoing weed and pest control. As mentioned earlier there has been no clear plan providing the costings and labour force to ensure this is done in a cost effective and timely manner. These costs are likely to fall to rate payers, or at worst the community will be burdened with gorse covered land that no-one has the time or money to deal with.

3. Compatible with recreational use- We do not believe that the land is compatible with recreational use. It is not easily accessible and would require a large amount of expensive work done to ensure tracks are accessible to all and fall within health and safety guidelines for public walkways. There are already numerous opportunities for locals and visitors to explore the Palmerston area eg Trotters Gorge walkways that are already funded and maintained.

There is already access available over private farmland to the summit of Puketapu for the majority of the year and we do not see the need to create other access at the expense of the public purse.

4. Agricultural Support- the lease has been with the Oliver Family for a century or thereabouts, this family contribute to our rural economy and have fostered a strong relationship between land management and the community. Their care of the land and community ties align with the rural identity of East Otago and its agricultural heritage.

5. No Clear Alternative Proposal- In reading the comments on the Puketapu Community Trust Facebook it concerns us that there is alot of "talk" but no clear plan regarding the acquistion of funds and how those funds will be utilised. We are aware that someone has been "door knocking " asking for donations for this project which is alarming to say the least and indicates that this group does not have a cohesive clear plan for the land in the present and the future. No compelling evidence has been provided to ensure the land will be utilised and cared for into the future , therefore, we believe without a clearly beneficial and fully funded plan for alternative use ending the lease would be premature and potentially harmful to the land.

6. Proven Track Record- The grazing lease has proven over the last 100 years to be a low impact, reliable and beneficial way to manage this land. No evidence has been provided in a transparent scientific way to prove otherwise. No current research or survey has been conducted or produced to prove that the land would be fully and correctly utilised by the public.

The current lease to the Oliver family is a practical and responsible form of land stewardship.

In conclusion we support the Council to retain the grazing lease on the Waihemo Recreation Reserve. It is a model of low impact community minded land management that delivers environmental and economic benefits without compromising the ratepayer or potential future uses.

Thankyou for the opportunity to provide feedback on this matter.

John and Maria Collins

6195771

Name	Jeff Evens-Turner
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

To the Waitaki District Council,
I'm writing to strongly oppose any move to end grazing on the Waihemo Recreation Reserve. Cancelling the licence would be a major step in the wrong direction.
Grazing is the only reason this land is under control. Take it away, and gorse will spread fast. The reserve will become a fire risk and overrun with weeds—and the cost of dealing with that will fall directly on ratepayers.
The idea of replacing it with a walking track is out of touch. The current Puketapu track is barely used, and there's no reason to believe a new one would be any different. Meanwhile, underused reserves in town could actually benefit from upgrades and be more accessible for the community.
Removing grazing adds cost, creates risk, and takes useful land out of local farming. It simply doesn't make sense.
Stick with what works—renew the grazing licence.
Jeff Evens-Turner

6196179

Name	Justin Lobb
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I believe the current model is leaving the landscape in great condition free of pests and weeds.
I think it is important to ensure good stewardship of this land and I believe that the current lessee is doing a good job.
I am concerned that moving to quickly to remove grazing of this land will only be a detriment to the natural beauty and aesthetic currently. I doubt that there would be capacity or resources to adequately manage this area of land if grazing was to cease.

6196210

Name	Jack Brown
Speaking	No
Organisation	
Email	[redacted]
Address	[redacted]
Phone	[redacted]
File Attachment	No

Submission

I'm writing to express my concerns about the proposed changes to the grazing license for the Waihemo Recreation Reserve. It is absolutely horrible to see 52 hectares of well-maintained land potentially repurposed. This land has been farmed by a multi-generational family for decades. It is free of gorse, has strong pest control, solid fencing, and produces award-winning velvet, including national recognition featured in the Otago Daily Times.

Turning this productive farmland into a biodiversity walking track seems misguided, especially when the current track works well and community use of a new one is uncertain. Without proper upkeep, it risks becoming overgrown and unusable.

Spending over $800,000 on this project raises questions, especially when there is another reserve located 5 minutes down the road and has been neglected for years, while also rates continue to be raised year on year.

Thank you for taking the time to read my submission

Jack Brown.

15 April 2025

Aidan Braid – Committee Co-Chair
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Waitaki City Council
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Ōamaru, 9444

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Submission on the notice of intention to grant a grazing licence over Waihemo Recreation Reserve legally described as 'Section 74 Blk:IVSD Moeraki'

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(all bolded reports, assessments and surveys will be attached to this submission)

About Forest & Bird

1. This submission is made on behalf of the Dunedin Branch of the Royal Forest and Bird Protection Society Incorporated (**Forest & Bird**).

2. Forest & Bird is New Zealand's longest running independent conservation organisation. Its constitutional purpose is to take all reasonable steps within its power for the preservation and protection of the indigenous flora and fauna and the natural features of New Zealand.

3. Forest & Bird has for many years had a strong interest and involvement in improving biodiversity and protecting and enhancing ecosystems within Otago. The Dunedin branch is involved in a wide range of conservation and advocacy activities.

About Myself

4. I am a lifelong resident of Ōtepoti Dunedin, and I pass-through Palmerston regularly. My family and I have stopped multiple times to walk up Puketapu to visit the John McKenzie memorial on top, as I particularly enjoy the area.

5. I have a Bachelor of Science degree in botany and ecology, a National Certificate in Arboriculture and a National Certificate in Pest Control Operations. I have worked in conservation conducting pest control from 2022-2024 in Ōtepoti Dunedin and Fiordland. In Dunedin I worked specifically on Hikaroroa / Mt Watkin – another mountain on the East Otago Coast with a similar ecology to Puketapu. I now work as an Otago and Southland Forest Advisor for Te Uru Rākau - New Zealand Forest Service, where I provide advice on growing and establishing forests, the Emissions Trading Scheme, and land use change.

6. During my three years of pest control work, I spent a lot of time working in and around the Hikaroroa / Mt Watkin Scenic Reserve and helped the formation of a conservation group comprised of local property owners and volunteers.

Part 1: The Waihemo Recreation Reserve Grazing Licence:

7. We strongly believe that the licence to occupy any of the 52-hectare Waihemo Recreational Reserve should not be renewed, as the Reserve should be retired from grazing now. We do not believe that a staged retirement should be undertaken.

8. We believe that the staged retirement is commercial enterprise centric and unfair to the public and the taxpayer. The cost / benefit is not favourable to the general public, which the Reserve is for.

Part 2: Objections to a Staged Retirement

9. The proposal for a staged retirement requires the construction of a 680 metre sub-division deer fence and the associated earth works. A water source may also need to be constructed depending on which section of the Reserve is retired in this course of action, incurring further costs for the Waitaki District Council (WDC).

    a. The average cost for non-electric netting boundary fencing is approximately $20 per metre according to an MPI Stock Exclusion Costs Report from 2016. This equates to $13,600 purely for the fencing.

    b. This fencing would create an ugly division in the Reserve. Visitors to a retired section would feel 'shortchanged' for only being given access to part of what should rightfully be public.

10. The **Proposed earthworks, walking track and fence, Puketapu, Palmerston – Landscape Effects Assessment** prepared by Mike Moore recommends that "the justification / rationale for the fence is revisited".

    a. The assessment concludes that: "I recommend protection of a greater area of the treeland, which will continue to decline under current management."

11. A second retirement stage may require another public consultation, which will cost the WDC, and in turn, the rate payer further fees, to which neither will benefit from.

12. The income for the grazier from deer after removing approximately 15 ha for staged retirement would equal around $30,000 annually. We think this is not worth the price to rate payers to install the fencing, only to remove it and reinstall it in another retirement stage.

    a. This is based on the modern measure of mixed age deer being 2.4 stock units, the Beef and Lamb tables for the class of land ranging from 6 to 11 stock units per hectare. This results in 3.5 mixed age deer per hectare. The area still grazed in the first retirement stage would be approximately 37 hectares. Therefore, the area would hold approximately 130 mixed age deer. The net profit per mixed age hind is around $230.

    b. This is not value for money for the taxpayer, or the WDC.

13. The suggestion from the Waitaki District Council that "a rapid retirement of the land from grazing could result in an increase in invasive pest species" to support a staged retirement overlooks key contextual information.

    a. The Puketapu Community Trust (PCT) has been awarded funding from the Otago Regional Council (ORC) ECO Fund to an amount of $49,780 for in-kind contributions on pest animal control and native revegetation.

    b. The PCT has plans for tree planting densities that would sufficiently achieve the revegetation of the Reserve if it was entirely retired.

c. Like any other native revegetation project, weeds will be present. These can be managed effectively by volunteers as they do not need highly specific training or equipment. As the ECO Fund is in-kind, the PCT has proof of enough volunteer interest for that value of work.

14. The other suggestion from the public that has been voiced for support of a staged retirement is that any tree planting or invasive pest species will increase the fire risk. We do not believe that this poses a significant risk.

    a. Native podocarp-broadleaf mixed forests have a lower flammability risk than grassland. These forests have a high moisture content, moisture containing leaf litter, and little dry matter. The Reserve itself is south facing, which stay cooler and wetter and, therefore, have reduced fire risk.

    b. It is expected there will be a 60-70% increase in wildfire risk by 2040. In addition to this, 98% of wildfires are started by people's activities. The increase in public access to the Reserve will increase the probability of a fire starting.

    c. The Eucalypt and Radiata Pine plantation growing amongst gorse on the property adjacent to the Reserve to the West is far more flammable and poses a greater fire risk than the Reserve ever will.

    d. However, despite all this, the potential impact of a fire – besides to the adjacent Eucalypt and Radiata Pine plantation – is low. There is low population density and infrastructure in the immediate area and Palmerston has a volunteer fire brigade nearby.

    e. While the probability of fire may reach moderate for a period of time, the minor impact maintains a risk matrix value or low or medium risk.

15. We would like to acknowledge that the grazier might feel that their connection to the land and sense of custodianship they have developed over the last 100 years is being threatened. However, the grazier will not be restricted from visiting the Reserve and it is moving towards what it was originally set aside for in 1860.

    a. Retiring the Reserve will more greatly increase the security that the grazier, their family, friends and descendants are able to access the Reserve into the future.

    b. The grazier must feel grateful that – up until now – they and their predecessors have been allowed to freely graze the Reserve and gain revenue from it, based on the terms from the very old, expired lease, which are likely no longer consistent with present-day economics.

16. Another supporting suggestion for the staged retirement is that it will allow the grazier to plan for the ultimate removal of deer from the Reserve. However, we believe this is a commercial enterprise centric viewpoint.

    a. The grazier must have been aware that their grazing license was expiring, and so they should have already prepared for the variety of outcomes presented by this change.

    b. The retiring of the entire Reserve is restoring a public property right. That is what it was originally set aside for in 1860. The benefit to the community as a whole is greater than that to the grazier, who has had their time.

Part 3: Freedom of Public Access

17. Section 17(2)(a) of the **Reserves Act 1977** specifies that "(every recreation reserve shall be so administered under the appropriate provisions of this Act that–) the public shall have freedom of entry and access to the reserve…to such conditions and restrictions…necessary for the protection and general well-being of the reserve and for the protection and control of the public using it."

    a. The Waihemo Reserve has been grazed for over 100 years, preventing the public freedom of entry and access to the reserve.

    b. If given access by the grazier, the livestock (presently deer) grazing the Waihemo Reserve have still presented a hazard to the public.

    c. The Puketapu Community Trust has plans for a path through the reserve if the grazing license is not renewed. This course of action does well to comply with the Reserves Act of 1977 to fulfil the conditions and restrictions to protect and control the public using the reserve.

18. Section 73(1) of the **Reserves Act 1977** states that "where the administering body of any recreation reserve has decided under Section 53(1)(a)(ii) that it is necessary or desirable to farm or graze the reserve or any part thereof, leases of the reserve or of any part thereof may be granted by the administering body with the prior consent of the Minister in cases where the reserve is vested in such a body, or by the Minister in any other case."

    a. We question how both Section 17(2)(a) and Section 73(3) can both be achieved in unison. We do not believe it is possible to graze a reserve or any part of a reserve and also allow public freedom of entry and access, as it is not possible to ensure the protection of the public using it.

    b. Section 73(1) was amended on 1 July 1996 by Section 12(1) of the Reserves Amendment Act 1996, while Section 17 was amended on 20 May 2014 by Section 107 of the Heritage New Zealand Pouhere Taonga Act 2014. We therefore understand that Section 73(3) is less operative, as Section 17 is more up to date.

    c. We expand our understanding of Section 73(3) being less operative in reference to all subclauses of Section 17.

Part 4: Protection of Features of the Reserve

19. Section 17(2)(b) of the **Reserves Act 1977** states that "where scenic, historic, archaeological, biological, geological, or other scientific features or indigenous flora or fauna or wildlife are present on the reserve, those features or that flora or fauna or wildlife shall be managed and protected to the extent compatible with the principal or primary purpose of the reserve."

    a. The Reserve has multiple features (historic, biological, geological, and indigenous flora and flora) that fit these categories, and more importantly – it has great potential to exhibit greater breadth of these all.

    b. None of these features are being suitably managed or protected, and the principal or primary purpose of the Reserve – that being for recreation – is not being fulfilled.

20. The **Ecological Survey of Mt Watkin Scenic Reserve East Otago** by Wildlands Consultants states that the "Mt Watkins Scenic Reserve is one of the most ecologically important forest remnants remaining in North Otago, and probably the largest and best remaining example of dry forest in coastal Otago". It also states that "now that stock have been excluded, successional processes are likely to result in these forest types becoming more extensive within the site over time". The report also identified that indigenous forest only covers 1.2% of the Waikouaiti ecological district. The Waihemo Recreational Reserve has the same potential as the Hikaroroa / Mt Watkins Scenic Reserve.

    a. This report indirectly highlights the potential ecological benefits that the Hikaroroa / Mt Watkin – and by extension the Waihemo Recreational Reserve – could have, if it were managed in accordance with the **Reserves Act 1977**.

    b. The location of the Reserve is situated perfectly to add a 'stepping stone' in a corridor up the coast for native bird species between the Silverpeaks in Dunedin, the Hikaroroa / Mt Watkin Scenic Reserve, and the Ngāi Tahu forestry around Mt Trotter; to the Trotters Gorge Scenic Reserve and the Wainakarua Scenic Reserve.

    c. These biodiversity 'islands' in largely farmed landscapes of degraded land can be hugely valuable for holding natural assets such as local seed for eco-sourcing. They are also particularly beneficial for local residents who live in close proximity to have the opportunity to easily and regularly visit a natural ecosystem. This is especially beneficial where little other natural ecosystems exist such as in the Waikouaiti ecological district.

    d. Native birdlife that could potentially inhabit or travel through the Waihemo Recreational Reserve if it were retired and revegetated could include but is not limited to: bellbirds (korimako), falcons (kārearea), fantails (pīwakawaka), tomtit (miromiro), the NZ wood pigeon (kererū), and the sacred kingfisher (kōtare). Not to mention the benefits to native invertebrates, fungi, mosses, and potentially also lizards.

    e. The Reserve could benefit from the efforts of Predator Free Dunedin, particularly the HALO Project which has conducted pest control north as far as Karitāne.

21. The ORC ECO fund that the PCG was awarded is also for pest animal control.

    a. The continuation of pest control up the coast of East Otago will be beneficial for the increase in public license for conservation, the ecosystem benefits to the native flora and fauna in the area, and for the wider goals of Predator Free NZ 2050.

22. The potential forest ecosystem for the Reserve identified by the **Planting Lists for Selected Forest, Wetland and Coastal Ecosystems in Otago Report** by Wildlands Consultants as being 'CLF4.2 Kahikatea, tōtara, mataī forest'.

    a. This East Otago dry forest type is particularly rare amoung the remaining native forest in East Otago. Other forest types nearby include cloud forests present on the hills around Dunedin, kānuka forests, and broadleaf-kōwhai forest.

    b. The report states that CLF4.2 Kahikatea, tōtara, mataī has the most plants suggested of 48 species of any of the ecosystems: "a productive and diverse tall forest that would have been widely present across plains and downlands of lowland and coastal Otago".

23. The **Proposed earthworks, walking track and fence, Puketapu, Palmerston – Landscape Effects Assessment** prepared by Mike Moore states that "The treeland on the southern slopes has been assessed as having ecological values of significance in the Natural Area Survey. This site is significant because indigenous forest cover has been severely reduced within Waikouaiti Ecological District and this treeland is representative of the former vegetation. The site provides good feeding habitat for indigenous birds and may provide opportunity for mobile species to move between Goodwood Scenic Reserve and indigenous habitats on the Horse Range to the north. Of note, the survey records that under current stock grazing, the treeland will eventually die out as older trees are not replaced."

    a. The longer we wait before retiring the Reserve, the more damage is done to the fragmented forest present. Not only are we not moving forwards towards the original intended purpose of the reserve and the best benefit for the environment, but we are moving backwards.

    b. The first step in regenerating native forest is always protecting what you already have as soon as possible. The most cost-effective methods for revegetation are natural reversion or assisted natural reversion or the Tīmata method. But, both of these rely on having the nearby natural resource of native seed sources.

24. The **Proposed earthworks, walking track and fence, Puketapu, Palmerston – Landscape Effects Assessment** prepared by Mike Moore also states that "Puketapu is notable as one of several volcanic cones in the wider area associated with the Dunedin Volcano (and) is recognized in the New Zealand Geopreservation Inventory as a site of regional significance".

    a. Informative signage could be put in place by the PCT on the geology of Puketapu and the Reserve. However, it could only in good credibility discuss what area of the Reserve has been retired. As it would be sensible to wait until the entire Reserve is retired, the staged retirement course of action would delay this from occurring.

25. The historical features of the Reserve include its importance to local Māori and its proximity to the John McKenzie Memorial. The **Proposed earthworks, walking track and fence, Puketapu, Palmerston – Landscape Effects Assessment** prepared by Mike Moore further states: "Puketapu is identified in the Ngai Tahu Atlas as having cultural landscape significance as follows: Puketapu was a passenger on the Ārai-te-uru waka that capsized off the coastline near Matakaea (Shag Point). After capsizing, many of the passengers went ashore to explore the land, however they needed to be back at the waka before daylight. Most did not make it, including Puketapu, and transformed into many of the well-known landmarks of Te Waipounamu". The takiwā of Kāti Huirapa ki Puketeraki centres on Karitāne and extends from Waihemo to Purehurehu. Puketapu is important to Kati Huirapa Runaka ki Puketeraki.

Part 5: Contributing to the Natural Environment and Use and Enjoyment of the Reserve:

26. The Section 17(2)(c) of the **Reserves Act 1977** states that "those qualities of the reserve which contribute to the pleasantness, harmony, and cohesion of the natural environment and to the better use and enjoyment of the reserve shall be conserved".

    a. This will be achieved by constructing more walking tracks in the area. A new track will have greater security of access.

    b. The staged retirement only initially conserves 15 hectares of the total 52-hectare Reserve. This does not fulfil the requirements of the **Reserves Act 1977** and only further delays the revegetation of native forest for the natural environment and the construction of more tracks for public use and enjoyment.

27. The **Proposed earthworks, walking track and fence, Puketapu, Palmerston – Landscape Effects Assessment** prepared by Mike Moore states that "Puketapu is a visually prominent and highly memorable feature". I personally notice it every time I drive past Palmerston. If there was more area there to explore, I would certainly stop more frequently in Palmerston.

    a. Aotearoa New Zealand and its inhabitants are known for being clean and green, and our enjoyment of rural and natural landscapes. The fact that one of the most prominent and memorable features in the district is not being used for its intended purpose, and that the proposal for change only initially involves around 30% of its area, will likely be viewed by the public as unsatisfactory.

    b. What is worse, is that due to the lack of public access for such a long period of time, it is likely that little is known of the Waihemo Recreational Reserve. Thanks to the efforts of the PCT this has been more widely advertised, but otherwise this taonga gem of East Otago would continue to lie forgotten and unappreciated.

    c. How many kiwis and tourists drive through Palmerston, and do not stop, as the track up to the John McKenzie Memorial is not enough to convince them. If there were more active / environmental activities in the area this may overcome the threshold to visit.

Part 6: Value of Soil, Water, and Forest Conservation

28. Section 17(2)(b) of the **Reserves Act 1977** states that "to the extent compatible with the principal or primary purpose of the reserve, its value as a soil, water, and forest conservation area shall be maintained". However, none of these values are being maintained in an acceptable or sustainable manner.

    a. Deer can threaten water quality through the formation of drainage channels, and cause compaction and erosion.

    b. The deer present are also damaging the existing forest through rubbing the trees with their antlers to remove velvet. Even if the deer are managed well, a small amount of this could be extremely damaging to the remaining remnant fragmented forest present.

Thank you for your consideration of our submission.

Aidan Braid

Committee Co-chair

The Forest and Bird Dunedin Branch

Proposed earthworks, walking track and fence, Puketapu, Palmerston

Landscape Effects Assessment

27 May 2024



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Introduction

Waitaki District Council (WDC) proposes establishing a new track to the summit of Puketapu, Palmerston, along with a new deer fence to protect indigenous treeland within Council reserve land. The earthworks required to construct the track will exceed the Rural Zone Permitted Activity limits in the Waitaki District Plan (WDP), and the site is within a Significant Natural Feature overlay (SNF) in the Plan. In terms of WDP Rule 4.4.3, the proposed developments are discretionary activities.

This report addresses the landscape effects of the proposed track and fence, and will be structured as follows:

- Methodology.
- The planning context
- The landscape character
- The landscape values of the Puketapu Significant Natural Feature
- The proposed development
- Avoidance / mitigation
- Landscape effects assessment
- Waitaki District Plan assessment
- Conclusion

Methodology

This assessment follows the concepts and principles outlined in the New Zealand Institute of Landscape Architects (NZILA) Landscape Assessment Guidelines[1].

The guidelines define landscape effects and visual effects as follows:

[1] Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022.

A landscape effect is *'An adverse or positive outcome for a landscape value as a consequence of changes to a landscape's physical attributes',* [2]

A visual effect is *'a consequence for landscape values as experienced in views. Visual effects are a subset of landscape effects'.*[3]

My assessment will address both the nature (positive – neutral – adverse) and magnitude of effects on landscape values. In addressing magnitude, it will adopt the 7-point assessment scale recommended in the Landscape Assessment Guidelines. This is copied below, with its relationship to RMA terminology given.

Magnitude of effects assessment scale and relationship with RMA terminology

Very low	*Low*	*Low-mod*	*Moderate*	*Mod-high*	*High*	*Very high*
Less than minor	*Minor*		*More than minor*		*Significant*	

The assessment has been informed by a site visit on 16 May 2024.

The planning context

The land is zoned Rural General in the WDP and is covered by a Significant Natural Feature overlay relating to Puketapu as illustrated in **Figure 1.** The guiding Plan provisions with regard to the sustainable management of SNF's, are as follows:

16.8.2 Landscape Objective

Subdivision, use and development are managed so that:

- *the values identified for the … significant natural features … are protected from inappropriate use and development …*

[2] Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. Glossary
[3] Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines. Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022. Section 6.08.

16.8.3 Policies

5. *To ensure that those characteristics leading to the identification of an outstanding or significant natural feature, are protected from inappropriate use and development.*

The landscape character

Puketapu

Puketapu is a volcanic cone 343m high, to the south-east of the township of Palmerston. The hill has a basalt cap derived from the Dunedin Volcano and lower slopes are of sedimentary geology including siltstone, sandstone, limestone and mudstone. There are legible areas of mass movement / instability in a few places. The hill is on a catchment divide, mostly draining to the Shag River / Waihemo, other than its south-eastern slopes which drain to Stony Creek. Overall, the topography is defined by moderate slopes which steepen at the top of the hill.

The vegetation cover is predominantly pasture and the hill is largely managed under a stock grazing regime. The general pattern is that of greater pasture improvement with decreasing elevation. There are exotic shelter belts and areas of woodlot on the mid – lower slopes and scattered wilding pines, along with some coprosma shrubland on the higher slopes. The southern mid-slopes of the hill on which the site is located are covered in indigenous treeland (i.e. scattered trees with pasture beneath).

A focal feature of the hill is the stone tower monument on the summit commemorating Sir John McKenzie, a local landowner, Minister of Lands in the government of John Balance (1891 – 1900), and architect of significant land reform[4]. Other than the monument, there are no buildings on the mid – upper slopes of the hill and dwellings, farm buildings and other structures are confined to the base slopes and in general, extend no higher than the 100m contour (on the eastern side of the hill there is a farm shed at approximately 120m). There are existing walking and farm tracks on the hill slopes, but these have limited visual impact.

[4] https://en.wikipedia.org/wiki/John_McKenzie

The site

The track is proposed for the south side of Puketapu, largely on WDC reserve land. It will extend above and below this on an access easement and unformed legal road respectively, but the majority of its length is within the reserve. This land is currently leased for grazing. The fence proposed is entirely within the reserve.

The reserve land is at mid-slope level on the southern side of Puketapu. There is a flatter, spur top area, but in general, the slopes have a moderate gradient and southerly aspect. The vegetation cover is pasture with scattered indigenous trees, described in the Waitaki District Natural Area Survey[5], as kowhai – ngaio – narrow-leaved lacebark – ribbonwood treeland. There is also rushland amongst the trees. Apart from existing farm tracks and fences there are no 'built' elements.

Figures 2 - 6 illustrate the character of the area.

The landscape values of the Puketapu Significant Natural Feature

Values identified in the WDP

The WDP has identified Puketapu as a Significant Natural Feature in the planning maps. Section 16.8.5 of the Plan notes that this identification is based on the Waitaki Landscape Study 2004[6] and explains that many of the natural features identified have a cultural dimension that increases their importance. SNF's are differentiated from ONF's (Outstanding Natural Features) and Section 7 rather than Section 6 of the RMA applies.

The Waitaki Landscape Study, in addressing the values of the Palmerston area, mentions Puketapu as follows:

[5] Wildlands, 2014, Waitaki District Natural Area Surveys: Site 523 Puketapu Treeland, Waitaki District Council
[6] Densem G, 2004, Waitaki Landscape Study, Waitaki District Council

6.19.1 Values

ii) Puketapu (343m) overlooking Palmerston township forms a significant feature, with both Maori traditions and the Sir John McKenzie monument at the summit of a typical 'stack' hill form. Noted that the edge line of a tree planting area on the south west side of Puketapu (viewed from SH1) forms a line that detracts from the natural form of this hill.

6.19.2 Assessment

No areas or features are assessed as Outstanding in the Palmerston Land Unit, but the following are recommended as Significant landscapes or features:

- *Puketapu above the 200m contour, for its visual and cultural values.*

My assessment

Puketapu is notable as one of several volcanic cones in the wider area associated with the Dunedin Volcano. It has an intact natural landform, but its vegetation cover is now highly modified by pasture, the impact of exotic wildings, shelterbelts and woodlots. The hill's southern face retains greater natural character due to the presence of the indigenous treeland. The summit monument is a prominent feature but otherwise, there is minimal impact of buildings.

Puketapu is recognized in the New Zealand Geopreservation Inventory[7] as a site of 'regional significance' and is described as a '*high conical hill overlooking Palmerston and comprised of eroded volcano'.* The area mapped is included within the SNF mapping in the WDP.

The treeland on the southern slopes has been assessed as having ecological values of significance in the Natural Area Survey[8]. The summary of this survey reads as follows:

'This site is significant because indigenous forest cover has been severely reduced within Waikouaiti Ecological District and this treeland is representative of the former vegetation. The site provides good feeding habitat for indigenous birds and may provide opportunity for mobile species to move between Goodwood Scenic Reserve and indigenous habitats on the Horse Range to the north'.

[7] www.geomarine.org.nz/NZGI?
[8] Wildlands, 2014, Waitaki District Natural Area Surveys: Site 523, Puketapu Treeland, Waitaki District Council

Of note, the survey records that '*under current stock grazing, the treeland will eventually die out as older trees are not replaced*'.

In terms of perceptual values, Puketapu is a visually prominent and highly memorable feature for its volcanic conical form. There is a degree of incoherence associated with vegetation patterns that cut across landform but in general landform legibility is moderately high under predominantly grassland cover. The indigenous treeland on the southern slopes contributes significantly to the natural landscape values of the hill.

Associative values are high. Puketapu is identified in the Ngai Tahu Atlas[9] as having cultural landscape significance as follows:

'Puketapu was a passenger on the Ārai-te-uru waka that capsized off the coastline near Matakaea (Shag Point). After capsizing, many of the passengers went ashore to explore the land, however they needed to be back at the waka before daylight. Most did not make it, including Puketapu, and transformed into many of the well-known landmarks of Te Waipounamu.'

Ka huru manu also records Puketapu as a kāinga nohoanga (settlement) and kāinga mahinga kai (food gathering place) where tuna (eels) and inaka (whitebait) were gathered.

Puketapu also has wider cultural landscape values associated with the monument to Sir John McKenzie and as the place where Albert Kelly, a constable in the Palmerston police force, ran up every day during World War II to look for enemy ships. An annual race is held in October each year to commemorate this[10]. It is an important local landmark and recreational (walking) destination.

[9] https://kahurumanu.co.nz/atlas/
[10] https://en.wikipedia.org/wiki/Puketapu_(Otago)

The proposed development

The track

Whilst there is existing walking access to the summit of Puketapu on the western and northern sides of the hill, WDC proposes formation of a new track with greater security of access, traversing the southern slopes. The final alignment at the lower end is still subject to negotiation, but the tack will likely begin at Smitherams Road and follow an unformed legal road to the WDC reserve land. Above the reserve the track will follow an access easement to the summit monument.

Figure 1 illustrates the proposed track alignment. This has been located to provide a gradient of no more than 15 degrees (in compliance with NZS 8630:2004), and to avoid the need to remove any significant trees. It is proposed that the formation will be approximately 2m wide with a 1.2m wide formed metaled track surface. Depending on the terrain, there will be cut and fill batter slopes to either side, which may be up to approximately 1m high in places but will generally be much less. Cut batter slopes will be laid back at gradients to encourage rapid revegetation (no greater than approximately 1:1.5). The track will have a crossfall directed outward to avoid the need for water table formation on the uphill side wherever possible. The track alignment winds through the indigenous treeland as well as various more open grassed areas within the reserve.

Above the reserve, the access easement is only 5m wide which will constrain the track alignment and will necessitate the construction of steps in some areas. Where steps are needed they will consist of a pegged wooden face with a metaled tread.

Overall, it is estimated that earthworks will involve approximately 630m^3.[11]

The fence

It is proposed to construct a new deer fence to exclude grazing on the part of the reserve where the track is proposed, to protect and enhance the natural values of the existing

[11] Advice – E van der Spek, Waitaki District Council

indigenous treeland. This treeland is largely (though not entirely) confined to the reserve land and is degraded by the grazing. Two alignment options are being considered as shown in Figure 1.

The fence proposed is a standard post and wire-mesh deer fence, approximately 2m high. In places, some minor earthworks may be required along its alignment as is standard for rural fence construction.

Avoidance / mitigation

The track

The proposed track alignment has been identified to minimise disturbance to trees and is considered appropriate. To minimise any adverse effects on trees the following is either already proposed or recommended:

- No Indigenous trees are to be removed to provide for the proposed track or fence.

- Where the track traverses major tree roots, excavation should be minimized in favour of building up the surface on top of the roots where possible.

- Cut batter slopes should be finished to blend as naturally as possible with adjacent slopes and should be no steeper than 1:1.5 to encourage revegetation.

The fence

It is recommended that the justification / rationale for the fence is revisited. As discussed above, the treeland is ecologically significant, contributes significantly to natural landscape values, and is in decline under the current land management. The fencing proposed will protect a portion of it, but over 50% of the treeland within the reserve will still be excluded from protection under both fence alignment options, and it will continue

to decline. It is recommended that the following options are considered before deciding on the fencing currently proposed. The basis for this recommendation is sustainable management of the existing natural landscape values of the SNF (and potential future Significant Natural Area (SNA)) rather than to respond to any significant adverse effects associated with fence construction. Recommended preferrable options are:

- Retire the reserve from all grazing and manage to encourage indigenous forest regeneration.
- Retire a greater area within the reserve from grazing and utilize existing fencing.
- Along with the second option above, require a management regime for areas that will continue to be grazed, that minimizes loss of natural treeland values (including specifying appropriate stock species and stocking rates).

Of the two fencing options currently under consideration and for the reasons discussed above, it is my recommendation that that the alignment to the east (Option B) is chosen, which protects a greater area of the treeland.

Landscape effects

Physical effects

The proposed works will result in a new track modifying the natural landform of the southern side of Puketapu, along with a new deer fence. In places, there are likely to be some minor earthworks to provide for the fence.

Tracks and fences are both elements that are typical of rural environments and will not conflict with rural character values per se. Both the track and the fence will avoid significant adverse effects on the trees, and modification to the landforms are minimized by the sensitively located alignments. There will be some initial scarring effects associated with the earthworks, but these will reduce as natural revegetation of grass cover occurs on the batters.

As discussed above, the proposed fencing will provide for recovery of the natural values of the indigenous treeland for part of the reserve and this will have positive effects into the long term. The fencing and retirement from grazing represents the remedying of a slow decline of natural values, and in my assessment, it is unfortunate that this remedying effect will not be extended more widely.

Visual effects

The reserve has modest visibility from Palmerston and surrounding roads due to the nature of the topography. Figures 3 - 6 illustrate views from the roads surrounding.

The proposed track will result in another lineal 'built' element on the hillslopes that will reduce in impact as batter slopes revegetate. Much of the track will be screened by the existing trees from the viewpoints around. Where visible, the track will not appear inappropriate as tracks are characteristic rural elements, and the narrow width will limit the scale of the visual impact. The upper portion of the track above the reserve will have greatest potential visibility from surrounding roads and dwellings but any visual impact will be effectively mitigated by the considerable viewing distance, and the minimal scale of the steps and track formation.

The fence will have low visual impact due to its light visual mass. Where visible, it will be seen as a characteristic element in the rural landscape. Any scarring effects associated with required earthworks will be short lived as grass cover reestablishes. In my assessment, there is no appreciable advantage in one proposed fence alignment over the other.

Landscape effects assessment

Any adverse effects on the natural volcanic landform will be minimal and effects on the biophysical values of the treeland will be positive overall. Perceptual effects on the naturalness and aesthetic coherence of the hill will be low and any scarring effects will progressively heal as revegetation of the batters occurs. Effects on māori cultural landscape values should be addressed by tangata whenua, however, visual impacts on

the hill generally will be low and naturalness values will improve in the long term associated with protecting the treeland.

Overall, I rate the effects of the proposed track and fence on the landscape values as adverse / low, reducing to adverse / very low as batter slopes revegetate. In the long term the positive effects of regenerating treeland will outweigh any adverse effects of the track and fence.

Waitaki District Plan Assessment

The WDP objectives and policies considered relevant to the landscape effects of the proposed track and fence are copied in the table below, with brief comment provided.

WDP objective / policy	**Comment**
16.8.2 Landscape Objective *Subdivision, use and development are managed so that:* • *the values identified for the outstanding or significant natural features … are protected from inappropriate use and development; …*	It is my assessment that the proposed track and fence are compatible with protection of the landscape values of Puketapu, and do not constitute inappropriate development.
16.8.3 Policies *5 To ensure that those characteristics leading to the identification of an outstanding or significant natural feature, are protected from inappropriate use and development.* *6 To assist in achieving the outcomes in Policies 2 to 5 above, the following policies are to be considered against any subdivision, use or development applications:*	See comment above

f) Earthworks are encouraged to be located away from visually sensitive areas, and where practicable towards the edges of the landform and vegetation patterns;	The earthworks associated with the track formation are of modest scale and screened by the treeland for much of their length. Where visible, they will be seen as a typical rural element and responsive to the natural contours.
g) Earthworks should not compromise any rare or distinctive geological outcrops or any other values associated with an identified outstanding or significant natural feature;	The track alignment will avoid any significant adverse effects on the treeland.
h) Earthworks, where possible, should be restored and finished to a contour sympathetic to the surrounding physiography and should also, where possible, be revegetated with a cover appropriate to the site and setting;	Batters will be constructed at moderate gradients that will encourage rapid reestablishment of grass cover.

Conclusion

Puketapu is identified as a Significant Natural Feature in the WDP and has notable physical, perceptual and associative values. It is a geo-preservation site recognizing its significance as a volcanic landform, and the treeland on its southern slopes has ecological and natural character values. Visually, it is a memorable and legible landform which has landmark significance to the Palmerston area. Puketapu is a Kai Tahu cultural landscape feature for its origin narrative associations, along with significance as an historic settlement and food gathering area, and it also has wider cultural significance commemorating historic local figures.

The proposed track and fence will be aligned to avoid significant adverse effects on the natural landform and the treeland. The scale of the associated earthworks is modest and

both elements are typical rural features. Any adverse visual effects will reduce as revegetation of batter slopes occurs and overall, I assess effects on landscape values as adverse / minor initially, reducing to less than minor over time. The fence will provide for positive effects associated with protection and regeneration of the treeland. If possible, I recommend protection of a greater area of the treeland, which will continue to decline under current management.



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ECOLOGICAL SURVEY OF MT WATKIN SCENIC RESERVE, EAST OTAGO

APRIL 2008

Report No. 1933

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SUMMARY

Literature reviews and a field survey were undertaken to assess the ecological features, values, and management requirements of the recently-established Mt Watkin Scenic Reserve, near Waikouaiti. The field survey collected information to describe and map vegetation and to sample terrestrial invertebrates in representative habitats using pitfall traps. Information on Lepidoptera was collated from previous light-trapping surveys. Aquatic values were assessed by reviewing database information and site inspections of aquatic habitats.

Mt Watkin Scenic Reserve is large (650 ha), has a diverse complement of habitats, a compact shape, and provides riparian protection for two substantial streams and a lengthy section of the Waikouaiti River. Most of the reserve comprises land environments in which <30% of indigenous vegetation remains, and the site supports nationally important volcanic boulder fields and boulder field habitat. Twenty-eight vegetation types were recognised, described, and mapped, while a total of 254 vascular plant species were recorded, 180 (71%) of which were indigenous. The forests at Mt Watkin incorporate large areas of matai-totara/ribbonwood-kowhai and ribbonwood-kowhai forest which have high value as some of the best remaining representative examples of dry coastal forest in Otago. Now that stock have been excluded, successional processes are likely to result in these forest types becoming more extensive within the site over time.

Nine of the indigenous vascular plant species are classified as nationally threatened, uncommon, or data deficient, while a further 25 plant species present at the Mt Watkin site are regarded as locally threatened, uncommon, or otherwise important. A relatively low diversity of pest plants are present within the reserve, and, of these, gorse is widespread and in places dominant, while Chilean flame creeper, newly-recorded from the site, is difficult to eradicate.

Twenty-one bird species were recorded in the survey, of which 14 (67%) are native. These include three - eastern falcon, rifleman, and kereru - which are currently classified as nationally threatened. Forests and rock outcrops at the site provide very good habitat for these species.

While there appeared to be abundant habitat for lizards at the site, only one common species of skink was observed during the survey. Streams within the reserve will support populations of indigenous fish, and some of these may be threatened species.

Eighty-four Lepidoptera taxa have been recorded at Mt Watkin, including two nationally threatened species, and one of regional importance. Almost 3,000 invertebrates (excluding mites and springtails) were caught in pitfall traps. Invertebrate composition appeared to be at least partly related to a gradient in vegetation modification, with Diptera (flies) and Amphipoda better represented in in older, less disturbed forests, while spiders, and to some extent weta, were more common in secondary kanuka forest and grassland. The dipteran and beetle faunas were analysed in more detail. Both of these groups included probable new species and new distribution records. The fly fauna was characteristic of dry forest with few wetlands or open water, while the beetle fauna suggest that Mt Watkin occupies a transition zone between lowland and upland fauna and between the coastal north and coastal south.

The features described above indicate that Mt Watkin Scenic Reserve is one of the most ecologically important forest remnants remaining in North Otago, and probably the largest and best remaining example of dry forest in coastal Otago.

Pest animals at the site include feral pigs, goats, and cats, as well as domestic sheep. A range of other pest animals are certainly present within the reserve. Maintenance of the ecological values of Mt Watkin will largely depend on control of pest plants and animals, and keeping the site free from fire. Ongoing monitoring is also required.

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1. INTRODUCTION

Mount Watkin Scenic Reserve was recently created by the Dunedin City Council (DCC) to cover 650 ha of forest, scrub, grassland, and rock outcrops at Mt Watkin/Hikaroroa, in east Otago. Scenic reserves are established to protect and preserve in perpetuity, such qualities of scenic interest or beauty or natural features worthy of protection in the public interest, for their intrinsic worth and for public benefit, enjoyment, and use. The Council is required to prepare a management plan for the reserve. While it has been recognised for some time that the vegetation and habitats at Mt Watkin/Hikaroroa are of high ecological importance (Allen 1986) a more comprehensive and up-to-date assessment is needed for the ecological features and values within the reserve, including an assessment of any threats or opportunities relating to the values present.

Mt Watkin Scenic Reserve is located in the Waikouaiti Ecological District (Waikouaiti ED), within the Otago Coast Ecological Region. The reserve is between the North Branch of the Waikouaiti River (40 m asl) and the summit of Mt Watkin/Hikaroroa (616 m asl), approximately 10 km northwest of the coast near Waikouaiti (Figure 1). Access to the site is via Mt Watkin Road, and Kerr Road, which branches off from Mt Watkin Road on the north side of Mt Watkin/Hikaroroa.

An ecological survey and assessment of the Mount Watkin Scenic Reserve was undertaken during December 2007. The purpose of the assessment was to obtain information on the current condition of the reserve, including mapping of vegetation, habitats, and special features, and to assess indigenous fauna and the distribution of pest plants and animals.

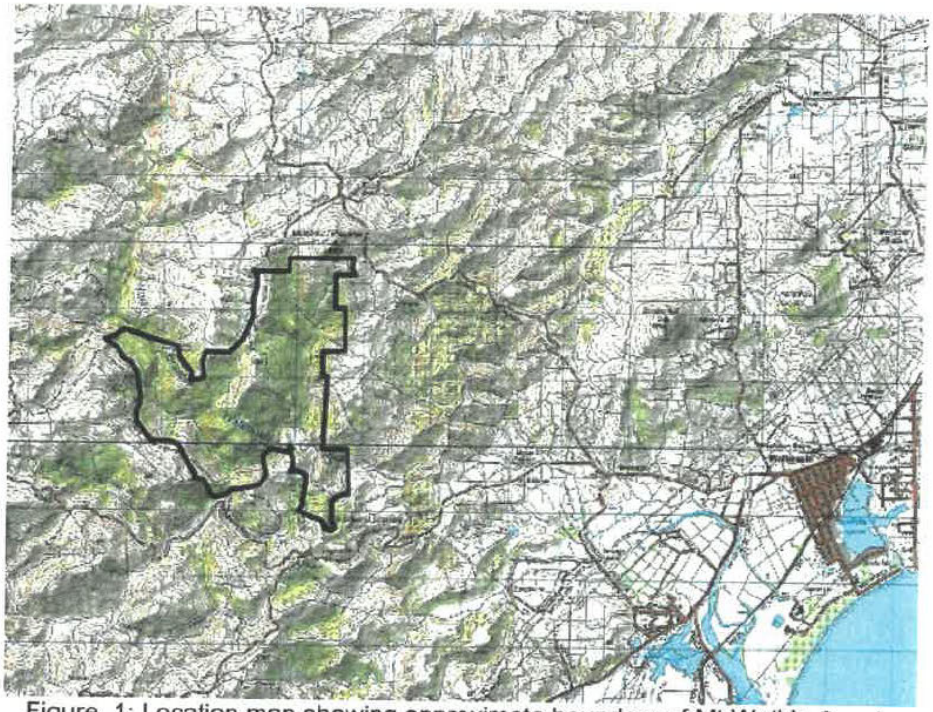


Figure 1: Location map showing approximate boundary of Mt Watkin Scenic Reserve, northeast of Waikouaiti, in north Otago.

2. ECOLOGICAL CONTEXT AND HISTORY

2.1 Waikouaiti Ecological District

The following information on the Waikouaiti ED is from McEwen (1987). The topography of the Waikouaiti ED is characterised by schist hills in the west and tertiary mudstone on eastern coastal hills, with a broken chain of volcanic peaks running between these two landforms. The climate is relatively dry and coastal, with mild summers and cool winters. Annual rainfall of approximately 500-700 mm is evenly distributed throughout the year. Indigenous vegetation comprises small remnants of coastal forest, with pockets of dry matai-totara-rimu/hardwood forest in lower elevation inland areas, scattered secondary broadleaved and kanuka forest, and beech and kaikawaka forests in wetter upland sites in the southwest. Snow tussock and silver tussock grasslands occur in western uplands.

Most of Waikouaiti ED is farmed, with the predominant landcover being exotic grasslands (45,468 ha). Exotic plantation forest common in the south of the district. Indigenous vegetation cover is low (<15% of Waikouaiti ED; Table 2).

Table 2: Present day landcover of Waikouaiti Ecological District (Source: LCDB2; Terralink 2004).

Landcover Class	Area (ha)	Area (% of Total Area)
Exotic vegetation	48,794.0	71.5
Indigenous forest	792.9	1.2
Freshwater wetland	18.4	<0.1
Open space	512.9	0.8
Alpine grass/herbfield	0.0	0.0
Sub alpine shrubland	0.0	0.0
Tussock grassland	748.6	1.1
Plantation forest	9,414.0	13.8
Riverine scrub	370.1	0.5
Indigenous secondary	7,190.0	10.5
Urban	446.6	0.7
Total	**68,287.5**	**100**

2.2 Topography and landforms

Mt Watkin/Hikaroroa is a volcanic peak which has emerged through schist rocks which are present in the remainder of the reserve. The reserve incorporates the southern slopes of Mt Watkin/Hikaroroa and the major gully that drains these slopes, as well as a smaller gully to the west, and other steep faces above the Waikouaiti River. The slopes of Mt Watkin/Hikaroroa are notable for extensive basalt rock 'glaciers' that are best expressed on the slopes that lie within the reserve. While the slopes of Mt Watkin/Hikaroroa and dry ridges within the reserve are largely vegetated in grassland, most of the gullies and steep river faces are densely forested in a range of primary and secondary forest types. Schist rock outcrops and cliffs are a feature of the site and occur throughout. The vegetation on these landforms is discussed in more detail in Section 4.

2.3 Adjacent landscapes

Farm land adjoins the reserve on its northern, northwestern, and eastern boundaries, while the western and southern boundaries lie along the Waikouaiti River, northwest of Bucklands Crossing. A newly-created boundary with the freeholded former endowment land has been deer-fenced, apart from on the forested slopes immediately above the Waikouaiti River in the extreme west of the site. Standard stock fences are present on the northern and eastern sides of the reserve, and do not always follow reserve boundaries. On the northeastern slope of Mt Watkin/Hikaroroa, the stock fence is dilapidated and is allowing stock (sheep) entry to the reserve. Sizeable stands of exotic forest have been established a short distance to the east of the reserve. Stands of secondary indigenous forest and exotic scrub are the predominant vegetation on the lower slopes on the southern side of the Waikouaiti River, with pasture on the upper slopes. Two sizeable patches of indigenous podocarp/broadleaved forest occur in Garden Bush Gully to the southwest, and there are other patches of indigenous forest and scrub to the southeast of Bucklands Crossing. Mt Watkin Scenic Reserve contains the largest area of indigenous forest in the locality, with no larger areas of indigenous forest within 20 km of its western, northern, and eastern margins, or within 10 km of its southern margin.

2.4 Nearby protected areas and sites of ecological value

Several small protected areas are located near Mt Watkin Scenic Reserve. Stoney Hill Run Covenant and Garden Bush are listed in Schedule 25.4 Areas of Significant Conservation Value in the Dunedin City District Plan (DCC 2006). An unprotected area of podocarp-broadleaved forest and kanuka forest (GPS Coordinates E2318590 N5509270) is located between Garden Bush Conservation Area and Mt Watkin Scenic Reserve (Allen 1986). There is also a Recreation Reserve at Bucklands Crossing, approximately 6 km down river of Mt Watkin Scenic Reserve.

2.5 Recent land uses

Immediately prior to the change to reserve status, Mt Watkin Scenic Reserve was part of a larger area of endowment land leased for grazing and firewood harvesting. These lands were grazed by cattle, which penetrated deeply into forest areas on less steep slopes, aided by farm tracks which had been cut through the forest in some areas. At some stage prior to this, grazing by sheep occurred, as there is a dilapidated woolshed on a ridge within the reserve. Dunedin City Council acquired the lessee's interest in the land in 2004, and in 2005 the Mt Watkin Scenic Reserve, based on the boundaries suggested by Allen (1986), was formally gazetted pursuant to the Reserves Act 1977. The remaining northwestern part of the endowment land was subdivided off and sold. This area was largely vegetated in rough pasture and exotic scrub with pockets of indigenous woody vegetation in gullies and on lower slopes above the Waikouaiti River.

A stone quarry that has extracted basalt rocks from the toe of a rock 'glacier' is present on the eastern side of Mt Watkin/Hikaroroa, adjacent to Mt Watkin Road. Use of this quarry has been associated with invasion by woody weeds in this locality. The quarry is now located within the reserve but no recent quarrying activity was evident.

3. METHODS

3.1 Literature review

Available literature and databases of information relevant to the Mt Watkin site were collated and reviewed prior to undertaking field work. Hard copy information sources included published scientific papers and unpublished reports. Databases searched included the New Zealand Freshwater Fish Database (NZFFD; NIWA 2008) and the Bioweb Herpetofauna database (DOC 2008), which were searched for records from within and near Mt Watkin Scenic Reserve. The Bioweb search was restricted to NZMS 260 Map I43.

3.2 Vegetation

A three day field survey was undertaken from 4-6 December 2007, to describe and map vegetation and habitats. The field survey was undertaken on foot and traversed all main catchments and vegetation types within the reserve, although not all areas were visited. In the field, vegetation was mapped using 1:5,000 scale aerial photographs. This information was digitised and mapped using ArcGIS 9.2 software. As well as describing and mapping vegetation, all vascular plant species observed during the survey were recorded, and notes were made on the distribution and abundance of significant pest plants. GPS coordinates were recorded for all observed locations of threatened plants, and the numbers of threatened plants at each location were counted or estimated.

Vegetation classification follows the method of Atkinson (1985) but different symbols are used to describe the structure of the vegetation and its major component species. The system used for naming different vegetation types is as follows:

Kanuka	>50% cover of kanuka within a vegetation tier
Kanuka	25-50% cover within a vegetation tier
[Kanuka]	<25% cover within a vegetation tier
Kanuka-kowhai	kanuka occurs in the same vegetation tier as kowhai
Kanuka/gorse	kanuka occurs in a tier above gorse

In this report, 'scrub' refers to woody vegetation in which the cover of shrubs in the canopy is >80%. 'Shrubland' is used for vegetation in which canopy shrubs occupy 20-80% of the canopy.

3.3 Vertebrate fauna

All birds observed during the vegetation and invertebrate surveys were recorded and their habitats assessed, but no attempt was made to quantify their abundance. In addition to the Bioweb searches described above, information on lizards at Mt Watkin was sought from local lizard experts, as well as by recording any lizards seen during vegetation and invertebrate surveys. Observations and sign of pest animals were noted during surveys. Fish surveys were not undertaken, but notes were made on the condition and general quality of streams observed at the site.

3.4 Invertebrate fauna

Once vegetation types had been described and mapped, ground invertebrates were sampled at six locations using pitfall traps. Pitfall trap locations were selected to encompass the most representative vegetation types (podocarp, ribbonwood, and primary kanuka forest) as well as more modified vegetation, including exotic-dominant grassland and secondary kanuka forest (Figure 2). These sites (Table 1) were: secondary kanuka forest (east-facing in the main gully), dry primary kanuka forest (ridge top near a scarp overlooking the Waikouaiti River), totara-matai/broadleaved forest (east-facing in main gully), modified grassland on the ridge south of Kerr Road, and two ribbonwood-kowhai forests (east- and west-facing). Ten pitfall traps were placed along a single transect in each vegetation type (a total of 60 traps), with 5 m between traps. Pitfall traps were constructed following the basic method of Moeed and Meads (1985). A soil corer was used to create a hole into which a short section of PVC tube was placed with its top edge at ground level. A removable plastic drinking cup (7.3 cm internal diameter at lip) was placed inside the PVC tube. Approximately 2 cm of ethylene glycol and water (1:1), and a few drops of detergent, were placed in the cup. A circular 15 cm diameter plastic lid was suspended over the trap on wire pins to limit flooding by rainwater. Pitfall traps were set on 7 December 2007 and emptied on 15 December 2007.

Cup contents were sieved (250 µm mesh), rinsed with water, and stored in a solution of 70% ethanol/30% water prior to sorting. An Olympus binocular microscope (10× to 40× magnification) was used to sort invertebrates into ordinal groups. Juvenile Coleoptera (beetles), Lepidoptera (moths and butterflies), and Diptera (flies) were not counted. Adult Coleoptera and Diptera were further sorted into recognisable taxonomic units (RTUs), which were catalogued and identified to the lowest practical taxonomic level. The identification of Diptera was assisted by collaboration with international experts for selected families.

The location and vegetation/habitat types present at pitfall trap sites are briefly described in Table 1.

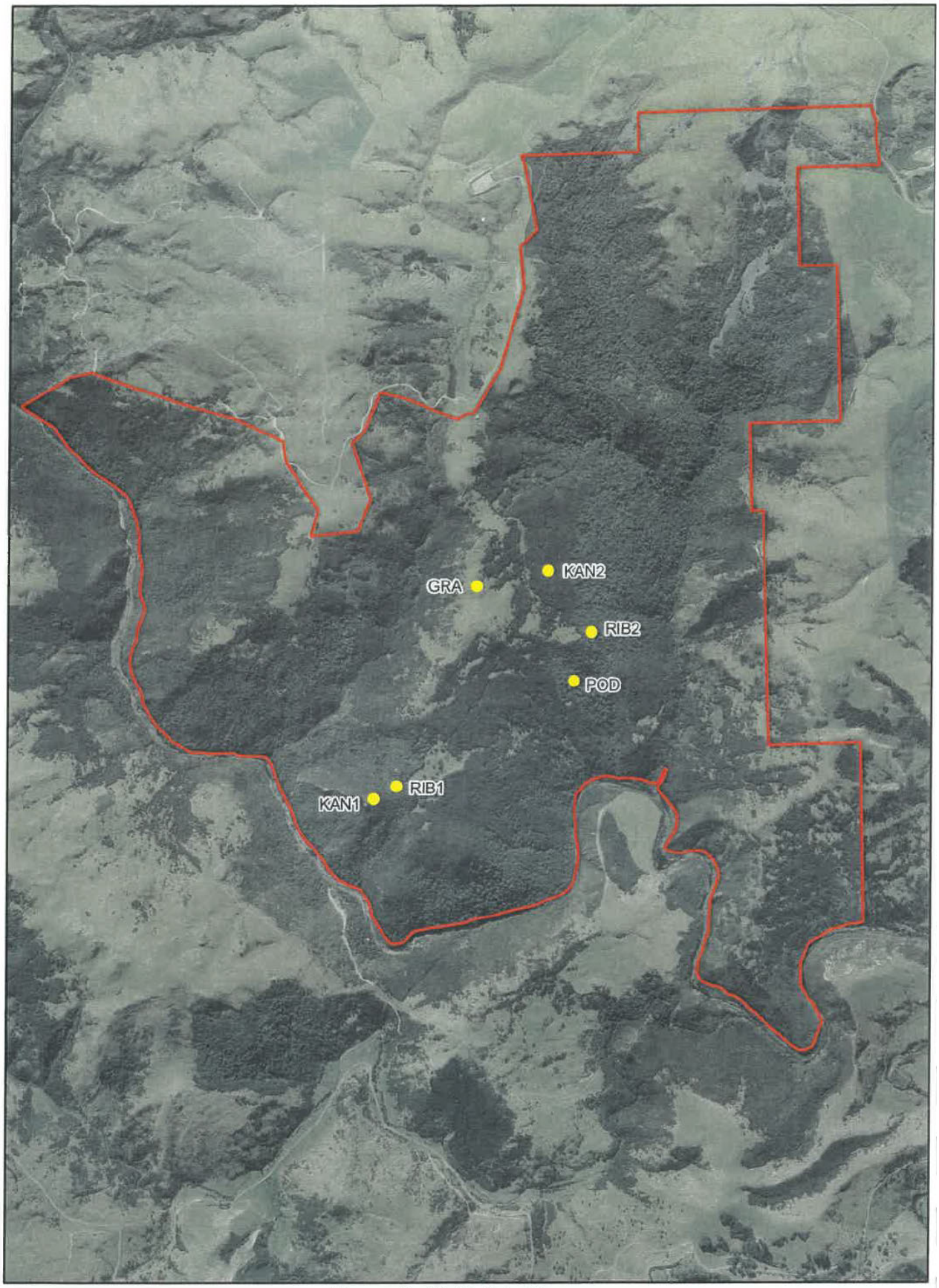


Figure 2. Mt Watkin Reserve Invertebrate sampling sites

Table 1: Vegetation/habitat types in Mt Watkin Scenic Reserve where pitfall traps were set. GPS coordinates were averaged over several readings.

Code	Habitat Type	GPS Coordinates
GRA	Ridge top and hillslope grassland dominated by cocksfoot, mouse-ear hawkweed, and sweet vernal, but also containing scattered narrow-leaved snow tussock, porcupine shrub, bracken, silver tussock, golden spaniard, *Bulbinella angustifolia*, and a few gorse shrubs. The area is rocky.	E2319355 N5511066
KAN1	Dry primary kanuka forest on ridge top near the edge of a scarp. The understorey is open with *Helichrysum lanceolatum* and *Coprosma* spp. The ground cover is predominantly litter, moss, cocksfoot, sweet vernal, and *Acaena juvenca*.	E2318938 N5510200
KAN2	Secondary kanuka forest on hillslope with an open understorey of *Coprosma rotundifolia*, putaputaweta, and *Rubus cissoides*. Hound's tongue fern, Yorkshire fog, and litter cover the ground. Kanuka has been previously harvested for firewood in parts of this stand and the forest is tracked.	E2319643 N5511129
POD	South-facing hillslope with large totara, matai, and a few kahikatea emergent above mapou, *Coprosma rotundifolia*, *C.areolata*, and podocarp saplings. Groundcover mainly comprises *Blechnum* spp., *Polystichum* spp., a few *Leptopteris hymenophylloides*, and litter. Several small, ephemeral watercourses (dry at time of site visits) are present nearby.	E2319750 N5510680 (estimate[1])
RIB1	Ribbonwood and kowhai form a canopy over mahoe and *Coprosma* spp. on west-facing hillslopes. *Polystichum neozelandicum* subsp. *zerophyllum*, *Cardamine debilis*, *Acaena juvenca*, rocks, and bare earth are present at ground level.	E2319031 N5510251
RIB2	Kowhai and ribbonwood dominate the forest canopy with some kanuka and narrow-leaved lacebark. The understorey is predominantly *Coprosma* spp. and *Muehlenbeckia australis*, with a groundcover of litter, cocksfoot, foxglove, and cleavers. This type is located on an east-facing hillslope and is bisected by an old vehicle track.	E2319819 N5510878

Soil samples were also taken from the POD site (refer to Table 1) to check for the presence of soil-dwelling Coleoptera. These beetles were extracted from the soil by flotation, and stored, catalogued, and identified as described above.

In addition to the invertebrate sampling described above, records of Lepidoptera from Mt Watkin were obtained from Brian Patrick (New Zealand Butterfly Enterprises) and relevant information is summarised in this report.

3.4.1 Analysis of invertebrate sample data

Invertebrate diversity indices (relative abundance, taxon richness) were compared between vegetation types using 1-way analysis of variance (ANOVA) in Microsoft Excel. Multivariate analyses were undertaken using the statistical software package PAST (Hammer *et al.* 2001). Invertebrate community composition was compared

[1] The GPS unit was unable to obtain a reading through the dense forest canopy.

between vegetation types using 1-way analysis of similarities (ANOSIM). Bray-Curtis similarities of fourth-root transformed species abundance data were used because they are unaffected by joint species absences between samples (Quinn and Keough 2002). Fourth-root transformation downplays the importance of abundant species while retaining most of the original abundance information (Clarke 1993). ANOSIM R values of below 0.25 indicate groups which are barely separable, R >0.5 groups that are overlapping but clearly different and R >0.75 groups that are well separated (Clarke and Warwick 1994). For illustrative purposes, non-metric multi-dimensional scaling (MDS) of invertebrate samples was also undertaken using the same similarity matrices as used for ANOSIM. The MDS algorithm plots samples based on their similarity: samples which are close together are more similar in species composition than samples which are further apart. The similarity percentage (SIMPER) function was used to find invertebrate taxa that discriminated between vegetation types. This is achieved by calculating the average dissimilarity between every sample in the first group (vegetation type) paired with every sample in the second group (and so on), then computing species contributions to this average.

4. VEGETATION AND HABITATS

The field survey delineated twenty-eight vegetation types within Mt Watkin Scenic Reserve, and these are shown in Figure 3. Descriptions of these vegetation types are provided below.

4.1 Matai-totara/ribbonwood-kowhai-broadleaf forest

Forest with emergent matai (*Prumnopitys taxifolia*) and/or totara (*Podocarpus totara*) occurs extensively in the main gully south of Mt Watkin/Hikaroroa (Plate 1) as well as in scattered patches on slopes above the Waikouaiti River. The largest matai are between 800-1,250 mm in diameter, while totara are generally smaller (up to 750 mm diameter). These emergent matai and totara trees are mostly sparse to scattered, but in several areas they are locally dominant and more closely approximate the canopy of relatively unmodified primary forest. Other emergent podocarps include rimu (*Dacrydium cupressinum*) and kahikatea (*Dacrycarpus dacrydioides*) but these are much less frequent. Ribbonwood (*Plagianthus regius*), kowhai (*Sophora microphylla*), and broadleaf (*Griselinia littoralis*) are the main canopy species, but narrow-leaved lacebark (*Hoheria angustifolia*), mahoe (*Melicytus ramiflorus*), tarata (*Pittosporum eugenioides*), and putaputaweta (*Carpodetus serratus*) are all common, and a range of other broadleaved trees are present at lower frequency. The understorey mostly comprises *Coprosma areolata* and *C. rotundifolia*, but totara and matai regeneration is locally frequent, and a pulse of mahoe, putaputaweta, and kaikomako (*Pennantia corymbosa*) regeneration testifies to recent release from grazing pressure. The ground cover is largely made up of ferns, including shield fern (*Polystichum vestitum*), *Polystichum neozelandicum*, hen and chicken fern (*Asplenium bulbiferum*), and button fern (*Pellaea rotundifolia*), but there are often small grassy glades in which exotic herbs and grasses such as wall lettuce (*Mycelis muralis*), nipplewort (*Lapsana communis*), ragwort (*Senecio jacobaea*), cleaver (*Galium aparine*), cocksfoot (*Dactylis glomerata*), and Yorkshire fog (*Holcus lanatus*) are common. The threatened climber *Brachyglottis sciadophila* was largely restricted to this forest type, generally on the lower gully slopes.

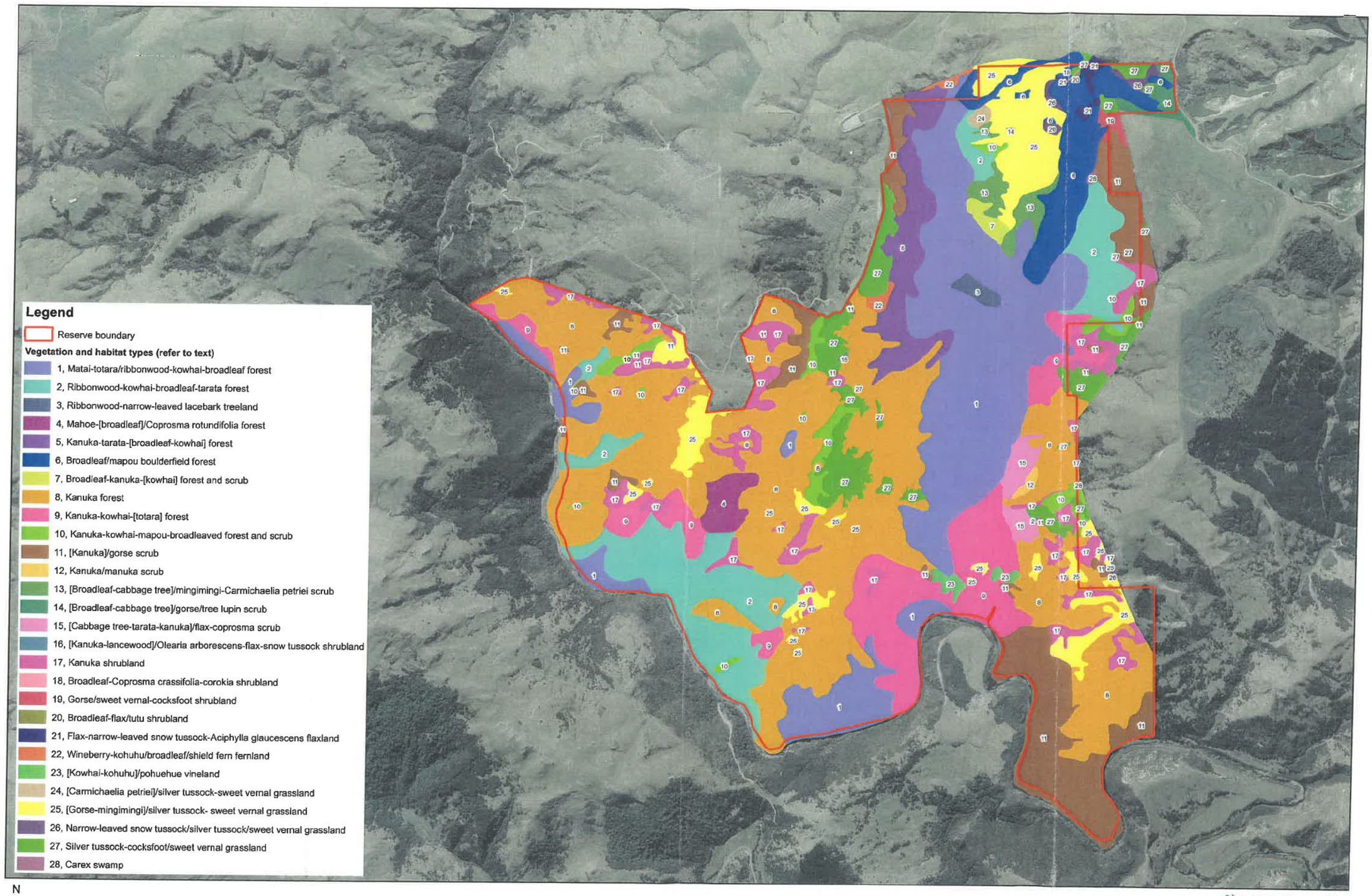


Figure 3. Vegetation and Habitats in Mt Watkin Scenic Reserve

Wildlands
Scale: 1:17,500
Date: 04/03/08
Cartographer: RPB

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Plate 1: Matai-totara/ribbonwood-kowhai-broadleaf forest in the base of the main gully below Mt Watkin/Hikaroroa.

4.2 Ribbonwood-kowhai-broadleaf-tarata forest

This forest type corresponds loosely to the forest type described above but often occurs on drier substrates and does not contain emergent podocarps, because either site conditions are too dry or the podocarps have been removed by historic logging. Kanuka (*Kunzea ericoides*) is often present as minor component of the canopy, with kohuhu (*Pittosporum tenuifolium*) and mapou (*Myrsine australis*) prevalent on steeper, rocky slopes. As well as the two species of *Coprosma* described above, mingimingi (*Coprosma propinqua*), *C. crassifolia*, C. *rhamnoides* and *C. virescens* are locally frequent in the understorey. In dry sites the understorey often includes *Helichrysum lanceolatum*, *Lophomyrtus obcordatum*, *Melicope simplex*, tree nettle (*Urtica ferox*), and Corokia cotoneaster. *Polystichum neozelandicum* is the main fern species on dry slopes. On gentle slopes that have been much-used by cattle, exotic herbs and grasses are common in the understorey, but the native herb *Acaena juvenca* and the small grass *Poa matthewsii* are locally abundant where there is more canopy shading.

4.3 Ribbonwood-narrow-leaved lacebark treeland

A widely-spaced treeland of tall ribbbonwood and some narrow-leaved lacebark and kowhai occurs in an area subject to previous heavy grazing on the western side of the upper gully below Mt Watkin/Hikaroroa (Plate 2). At the top of the treeland stand, a grove of matai and fierce lancewood (*Pseudopanax ferox*) occurs on a rocky knoll, with tree nettle in the understorey. A few smaller trees of mahoe and *Coprosma*

rotundifolia are present elsewhere, and there are occasional tangles of pohuehue (*Muehlenbeckia australis*) and leafless lawyer (*Rubus squarrosus*). Through most of the treeland, the ground cover comprises dense tall grassland in which cocksfoot, hemlock (*Conium maculatum*), nipplewort, cleaver, perennial ryegrass (*Lolium perenne*), and Californian thistle (*Cirsium arvense*) are prominent. This vegetation type represents a substantially modified example of what was previously likely to have been matai-totara/ribbonwood-kowha-broadleaf forest, as described above.



Plate 2: Ribbonwood-narrow-leaved lacebark treeland in a formerly heavily-grazed area on the western side of the main gully below Mt Watkin/Hikaroroa.

4.4 Mahoe-[broadleaf]/*Coprosma rotundifolia* forest

A stand of forest in which mahoe is the main canopy species occurs on the western slope of the smaller gully that flows into the Waikouaiti River. Here the landform has a moderate slope and the soil appeared deeper and less rocky compared to the remainder of the site. Scattered trees of broadleaf, tarata, mapou, and putaputaweta also occurred in the canopy, while the understorey mostly comprised *Coprosma rotundifolia*, *C. areolata*, and saplings of putaputaweta. Ground cover species included shield fern, kiwakiwa (*Blechnum fluviatile*), *Asplenium hookerianum*, *A. richardii*, and the orchid *Pterostylis graminea*. The climber white rata (*Metrosideros diffusa*) was prominent in this vegetation type.

4.5 Kanuka-tarata-[broadleaf-kowhai] forest

A strip of forest dominated by kanuka and tarata is present on the upper western slopes of the main gully below Kerr Road. Scattered trees of broadleaf and kowhai also occur in the canopy. This forest type forms a zone between grassland and gorse scrub immediately adjacent to Kerr Road and matai-totara/ribbonwood-kowhai-broadleaf forest on the lower slopes.

4.6 Broadleaf/mapou boulderfield forest

Broadleaf is the dominant canopy species in areas of forest on the volcanic boulderfields (Plate 3) that radiate from Mt Watkin/Hikaroroa. Kowhai, *Coprosma linariifolia*, tarata, and mahoe are also canopy species but at lower abundance. These forest stands often contain vigorous regeneration of mapou. Other understorey species include the slender form of *Melicytus flexuosus*, *Coprosma linariifolia*, *C. rigida*, and *C. virescens*. Groves of *Fuchsia perscandens* are often present on the forest margins. Hound's tongue fern (*Microsorum pustulatum*) is usually abundant in the ground tier, forming extensive patches. Exotic ground layer species such as sweet vernal (*Anthoxanthum odoratum*), wall lettuce, and cocksfoot are sparsely present, along with the native ferns *Asplenium appendiculatum*, *Polystichum neozelandicum*, shield fern, and hen and chicken fern, and occasional bush flax (*Astelia fragrans*).



Plate 3: Patches of broadleaf/mapou forest on a 250 m-long tongue of volcanic boulderfield extending southward from the slopes of Mt Watkin/Hikaroroa. [Kanuka]-gorse scrub is visible at top left.

4.7 Broadleaf-kanuka-[kowhai] forest and scrub

Patches of forest and scrub with abundant kanuka and broadleaf, and scattered kowhai, are mixed with areas of coprosma scrub above matai-totara/ribbonwood-kowhai-broadleaf forest on the eastern side of the main gully below Mt Watkin/Hikaroroa. As with most areas of vegetation on the uppers slopes of this gully, this is a successional vegetation type affected by previous cattle grazing.

4.8 Kanuka forest

Forest in which kanuka forms an almost exclusive canopy cover occurs widely within the reserve, particularly in the southwestern part of the site. Most of this vegetation is secondary in nature (Plate 4) and probably developed following fires used as a vegetation clearance tool for pastoral farming. The understorey and ground cover vegetation varies widely beneath the kanuka canopy, from relatively bare soil and litter in younger, shadier stands, to tall exotic grasses in more modified sites where light availability is greater, and shrubs of *Coprosma rhamnoides* and *Helichrysum lanceolatum* on very dry sites where kanuka may have occurred as primary forest. One such site is located on thin soils above a large bluff overlooking the Waikouaiti River. In this location, the native herbs *Acaena juvenca* and *Lagenifera strangulata* are present in the ground layer along with hound's tongue fern, and the small mistletoe *Korthalsella salicornioides* was locally abundant. Kanuka forest on the western slope of the main gully has been affected by partial clearance for firewood harvesting and 4WD tracks, and contains several grassy clearings.



Plate 4: Secondary kanuka forest on the upper western slopes of the main gully south of Mt Watkin/Hikaroroa. The break evident in the middle distance shows where firewood has been harvested previously.

4.9 Kanuka-kowhai-[totara] forest

Kanuka, while the most abundant canopy species, shares the canopy with kowhai, and to a lesser extent narrow-leaved lacebark, ribbonwood, kohuhu, broadleaf, and mahoe, particularly in parts of the main gully adjacent to matai-totara forest (Plate 5). Totara trees are sometimes present within these stands. The understorey generally comprises abundant *Coprosma rhamnoides* and *Helichrysum lanceolatum*. Many small herbs, grasses, and ferns occur on the forest floor, including *Lagenifera strangulata*, *Galium propinquum*, *Stellaria parviflora*, *Acaena novae-zelandiae*, *Hydrocotyle heteromeria*, *Poa matthewsii*, *Asplenium hookerianu*, button fern, and *Polystichum neozelandicum*. Exotic tall pasture grasses and herbs are also often present. These kanuka stands will be the quickest to succeed to a more complex podocarp/broadleaved forest.

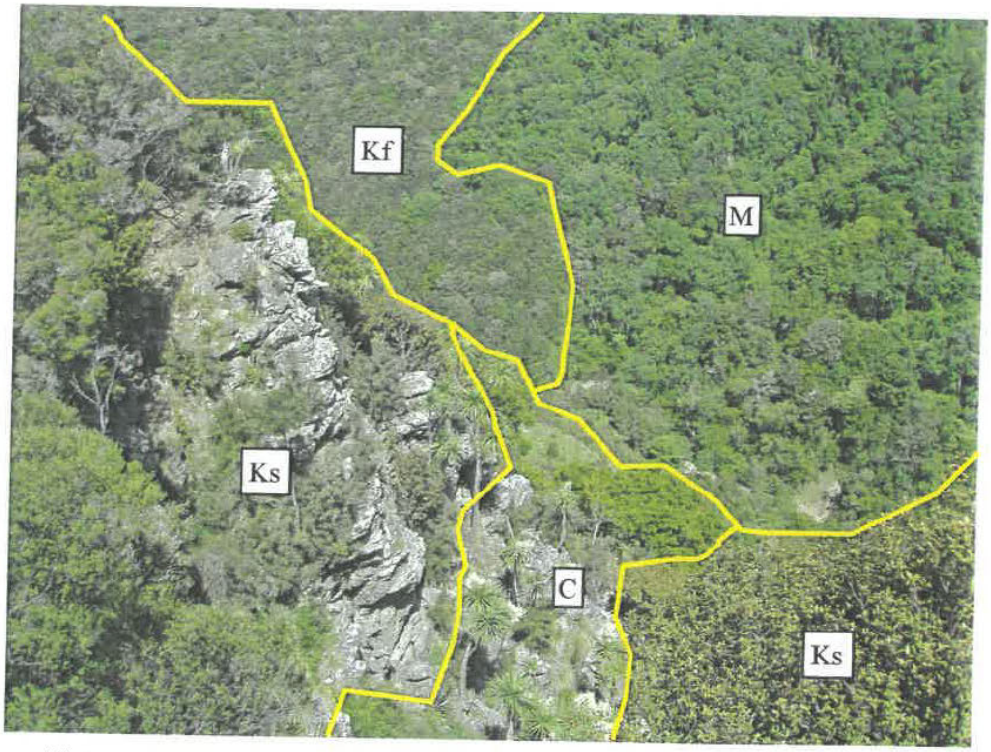


Plate 5: Four vegetation types in the main gully south of Mt Watkin/Hikaroroa: kanuka-kowhai-[totara] forest (Kf), matai-totara/ribbonwood-kowhai forest (M), kanuka-kowhai-mapou-broadleaf scrub (Ks), and cabbage tree-kanuka-tarata/coprosma-flax scrub (C).

4.10 Kanuka-kowhai-mapou-broadleaf forest and scrub

Steep rocky schist slopes and cliffs are scattered throughout the site, and support a distinctive, diverse, sometimes relatively open vegetation in which kanuka, kowhai, mapou, and broadleaf are the main woody species (Plate 5). Open sites within this vegetation provide habitat for shrubs of manuka (*Leptospermum scoparium*), *Carmichaelia petriei*, mingimingi, gorse (*Ulex europaeus*), *Coprosma crassifolia*, porcupine shrub (*Melicytus alpinus*), fierce lancewood, and *Helichrysum lanceolatum*.

Herbaceous species typical of these sites include *Gingidia grisea*, *Vittadinia australis*, turutu (*Dianella nigra*), *Senecio quadridentatus*, *S. glomeratus*, and *Haloragis erecta*. The tussock grasses - narrow-leaved snow tussock (*Chionochloa rigida*) and blue tussock (*Poa colensoi*) - are also frequent on these rocky sites, together with hound's tongue fern and bracken (*Pteridium esculentum*).

4.11 [Kanuka]/gorse scrub

Scattered groves of kanuka are emergent above dense gorse scrub and occur adjacent to the northwestern and northeastern (Plate 3) margins of the reserve, and cover an extensive area in the southeast, on slopes above the Waikouaiti River. Smaller areas of gorse scrub are present in the western part of the reserve. Other shrub species are locally important in these shrublands, but are generally a minor component. Grassy clearings are also sometimes present. These areas of gorse scrub can be expected to slowly succeed to indigenous forest. Where practical, the stands near boundaries could be contained by establishing belts of dense indigenous forest (including fast-growing species such as kanuka, cabbage tree, kohuhu, wineberry (*Aristotelia serrata*), and broadleaf) on their margins.

4.12 Kanuka/manuka scrub

A steep slope part way down the eastern side of the main gully provides localised habitat for a stand of kanuka and manuka scrub of relatively low stature. Grassy clearings, bracken, and shield fern occupy gaps in this scrub.

4.13 [Broadleaf-cabbage tree]/mingimingi-*Carmichaelia petriei* scrub

Dense scrub in which mingimingi and *Carmichaelia petriei* share dominance occurs immediately above forest areas on steep slopes associated with small spurs. Emergent trees of broadleaf and cabbage tree (*Cordyline australis*) are scattered through these scrub areas.

4.14 [Broadleaf-cabbage tree]/gorse/tree lupin scrub

A locally dense scrub of gorse and tree lupin (*Lupinus arboreus*) occurs at the base and on the margins of the rock 'glacier' in the vicinity of the disused stone quarry on the eastern side of Mt Watkin/Hikaroroa. Scotch broom (*Cytisus scoparius*) is locally common on the northern side of this vegetation and occasionally present elsewhere, along with Himalayan honeysuckle (*Leycesteria formosa*). Small emergent trees of broadleaf and cabbage tree are scattered through this scrub, and charred stumps indicate a previous vegetation cover of broadleaf forest. Exotic pasture grasses and weeds occur in gaps. Gorse, tree lupin, and Scotch broom are all advancing upslope at this location. These shrubs have the potential to invade and adversely affect both remnants of narrow-leaved snow tussock grassland and steep flaxland on the eastern side of Mt Watkin/Hikaroroa. A high priority should be given to controlling and eventually eradicating infestions of exotic woody weeds at this location.

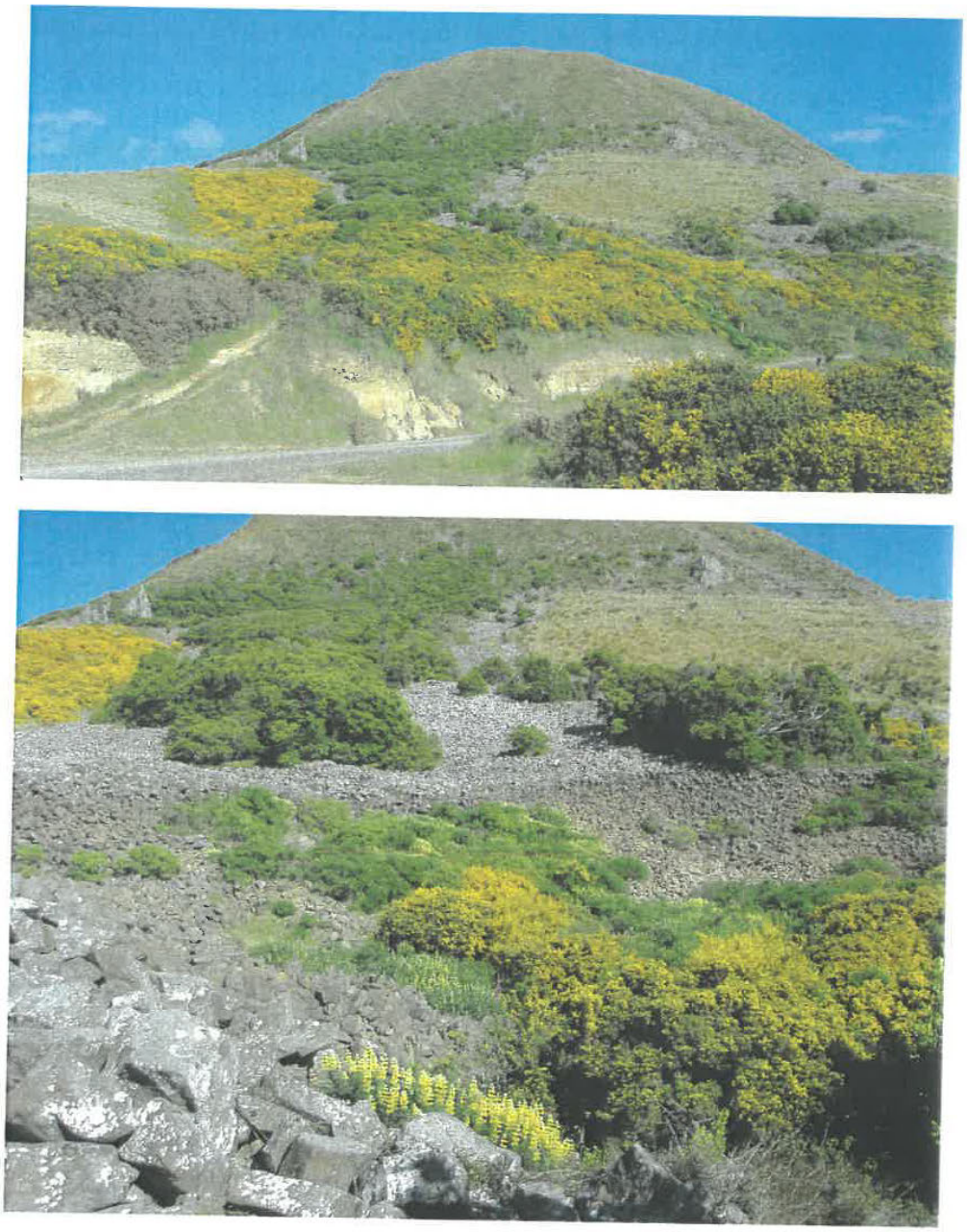


Plate 6: Top: general view of gorse-tree lupin scrub on the eastern side of Mt Watkin/Hikaroroa. Bottom: closer view showing advance of tree lupin and gorse into boulder field at the former stone quarry site.

4.15 [Cabbage tree-tarata-kanuka]/ flax-coprosma scrub

A shrubland of flax (*Phormium tenax*) and *Coprosma* spp. occurs on broken cliffs and rubble slopes above the lower part of the main gully south of Mt Watkin/Hikaroroa (Plate 5), and in a small area of rubble slope habitat above the Waikouaiti River in the western part of the site. Scattered small trees of tarata, kanuka, and cabbage tree are

emergent from this shrubland, with occasional lancewood (*Pseudopanax crassifolius*). Bracken and sweet vernal are the predominant species in shrubland gaps, with occasional narrow-leaved snow tussock and blue tussock.

4.16 [Kanuka-lancewood]/*Olearia arborescens*-flax-snow tussock shrubland

Rock outcrops on the ridge near the hut and woolshed support shrubland vegetation in which small trees of kanuka and lancewood occur above frequent *Olearia arborescens*, flax, and narrow-leaved snow tussock. Golden spaniard (*Aciphylla aurea*) and *Blechnum vulcanicum* are also common, along with *Gaultheria antipoda*, *Brachyglottis bellidioides*, *Celmisia gracilenta*, and scattered *Gingidia grisea*.

4.17 Kanuka shrubland

Scattered to moderately dense stands of kanuka are widespread at the site, chiefly on ridges where factors retarding succession to forest (e.g. fire, grazing, mechanical clearance, dry soils, rocky sites) have been or remain important influences. A range of other shrubs generally occurs at lower abundance in these shrublands. These include gorse, *Coprosma* spp., matagouri, and Scotch broom. Shrubland gaps are generally occupied by sweet vernal and other exotic pasture grasses and weeds.

4.18 Broadleaf-*Coprosma crassifolia*-corokia shrubland

In a restricted location on rocky slopes on the west side of the summit ridge of Mt Watkin/Hikaroroa, there is a distinctive shrubland of broadleaf, *Coprosma crassifolia*, corokia (*Corokia cotoneaster*), and *Raukaua anomalus*. Flax and narrow-leaved snow tussock are prominent in this shrubland, together with bracken and golden spaniard.

4.19 Gorse/sweet vernal-cocksfoot shrubland

A shrubland of scattered gorse in the northeastern part of the site contains a small population of *Aciphylla subflabellata* (Plate 7) among dense, ungrazed sweet vernal and cocksfoot with scattered silver tussock (*Poa cita*), narrow-leaved snow tussock, and maori onion (*Bulbinella angustifolia*). Small herbs are sparsely distributed within the dense grass swards, but several native species including *Acaena caesiiglauca*, *Helichrysum filicaule*, *Anaphalioides bellidiodes*, *Hydrocotyle novae-zelandiae*, and *Geranium microphyllum* are present, as well as the exotics Scotch thistle (*Cirsium vulgare*), mouse-ear chickweed (*Cerastium fontanum*), and white clover (*Trifolium repens*).



Plate 7: Two small plants of *Aciphylla subflabellata* in dense grassland within gorse/sweet vernal-cocksfoot shrubland.

4.20 Broadleaf-flax/tutu shrubland

A sparse shrubland of broadleaf, flax, and tutu (*Coriaria sarmentosa*) is associated with rock outcrops on the flanks of Mt Watkin/Hikaroroa. Hound's tongue fern, blue tussock, and *Gingidia grisea* are common associate species. These outcrops have been invaded by scattered gorse and tussock hawkweed (*Hieracium lepidulum*), the latter restricted to dry ledges where it is in competition with *Gingidia grisea*. Thickets of *Fuchsia perscandens*, holy grass (*Hierochloe redolens*), and tutu are often associated with steep ground below this outcrop vegetation.

4.21 Flax-narrow-leaved snow tussock-*Aciphylla glaucescens* flaxland

Steep slopes on the eastern side of the summit ridge of Mt Watkin/Hikaroroa support a distinctive flaxland in which flax, narrow-leaved snow tussock, and *Aciphylla glaucescens* are the dominant species (Plate 8). This flaxland also supports a large population of *Gingidia grisea*, and frequent golden spaniard, maori onion, lawyer (*Rubus cissoides*), with hound's tongue fern and blue tussock locally prominent on rocky sites.



Plate 8: Flax, narrow-leaved snow tussock, and *Aciphylla glaucescens* growing in steep flaxland on the east face of Mt Watkin/Hikaroroa. White flowers at lower right are *Gingidia grisea*.

4.22 Wineberry-kohuhu/broadleaf/shield fern fernland

Local forest clearings in the northwest of the site contain fernland in which dense groves of shield fern are present, with emergent wineberry (*Aristotelia serrata*), kohuhu, and broadleaf. Pohuehue is also common in these fernlands, with gorse and mingimingi locally present.

4.23 [Kowhai-kohuhu]/pohuehue vineland

In the south of the main gully, not far from the Waikouaiti River, pohuehue vineland occupies two sizeable gaps in kanuka forest. Kowhai and kohuhu trees are sparsely emergent above these vinelands.

4.24 [*Carmichaelia petriei*]/silver tussock-sweet vernal grassland

On a dry hillside in the northwest of the site, shrubs of *Carmichaelia petriei* and occasional kanuka are present with sparse narrow-leaved snow tussock and silver tussock above abundant sweet vernal and frequent mouse-ear hawkweed (*Hieracium pilosella*). Particularly dry banks provide habitat for the native sun orchid (*Thelymitra longifolia*) and onion orchid (*Microtis unifolia*). Bracken, white clover, vetch (*Vicia sativa*), sheep's sorrel (*Rumex acetosella*), and *Acaena novae-zelandiae* are additional ground cover species.



Plate 9: Shrubs of *Carmichaelia petriei* and kanuka and tussock grasses in a sward of sweet vernal and mouse-ear hawkweed on a dry hillside.

4.25 [Gorse-mingimingi]/silver tussock-sweet vernal grassland

Also in the northwest of the site, sparse gorse, mingimingi, and occasional matagouri (*Discaria toumatou*) and Scotch broom are scattered in grassland comprising dense sweet vernal and scattered silver tussock and narrow-leaved snow tussock. Mouse-ear hawkweed is locally abundant in dry microhabitats, while moister swales support cocksfoot, Yorkshire fog, maori onion, hard tussock (*Festuca novae-zelandiae*), and *Celmisia gracilenta*.

4.26 Narrow-leaved snow tussock/silver tussock/sweet vernal grassland

Small, degraded patches of narrow-leaved snow tussock grassland are present in scattered localities on the flanks of Mt Watkin/Hikaroroa. Silver tussock is usually frequent, with sweet vernal abundant between tussocks. Flax, maori onion, and *Aciphylla glaucescens* present at lower density, with occasional patches of tutu on small terraces. Small herbs such as *Celmisia gracilenta*, *Hydrocotyle novae-zelandiae*, and *Ranunculus multiscapus* are distributed sparsely within these grassland patches.

4.27 Silver tussock-cocksfoot/sweet vernal grassland

Silver tussock is the main tussock species, in a matrix of cocksfoot and abundant sweet vernal, in more heavily-grazed sites adjacent to the narrow-leaved snow tussock grassland described above *Aciphylla glaucescens* is frequent among silver tussocks on the upper slopes. Similar grassland covers extensive areas of the central ridge south of Kerr Road, where the matrix of exotic grasses is taller and more rank, particularly in moist sites where tall cocksfoot is present. In dry sites, mouse-ear hawkweed and patotara (*Leucopogon fraseri*) are locally common.



Plate 10: *Aciphylla glaucescens* in flower in silver tussock grassland on the eastern slopes of Mt Watkin/Hikaroroa.

4.28 Carex swamp

Wetlands are very scarce within the reserve but small, widely-scattered examples are present where the effects of groundwater seepage, topography, and soil character combine to restrict drainage. All of the examples seen were small swamps in which purei (*Carex secta*), *C. virgata*, and/or *C. geminata* were the dominant species. The exotics soft rush (*Juncus effusus*) and jointed rush (*J. articulatus*) were usually present, together with typical exotic wetland herbs creeping buttercup (*Ranunculus repens*) and musk (*Mimulus guttatus*). Additional native species include hard rush (*Juncus edgariae*), kiokio (*Blechnum novae-zelandiae*), and mingimingi.

5. FLORA

5.1 Species recorded

A total of 253 vascular plant species were recorded at the site, of which 179 (71%) were native and 74 (29%) exotic (Appendix 1). This represents a high diversity of indigenous plant species, reflecting the richness of dry forest and rock outcrop habitats which are prevalent at the site. In addition, a number of species were only recorded on the upper slopes of Mt Watkin/Hikaroroa, which provides distinctive habitats within the reserve.

While bryophytes (mosses, liverworts, and hornworts) were not surveyed, a number of these non-vascular plant species have also been recorded on Mt Watkin (Appendix 2). This list would vastly underestimate the number of bryophyte species within the reserve as a whole.

5.2 Threatened, uncommon and data deficient plants

Eight of the species recorded at the site (Table 3; Figure 4) are currently classified as nationally threatened or uncommon (as per de Lange *et al.* 2004). The New Zealand threat classification system has recently been restructured (Townsend *et al.* 2008), and a revision of threat rankings according to the restructured system should be published in 2008. Many threat rankings are likely to change because of these revisions, and this is likely to affect the threat status of species listed in Table 3. Most of these species are likely to be classified as 'At Risk' or 'Naturally Uncommon', with 'Threatened' status being reserved for species with smaller populations and/or more rapid declines in overall population size (Townsend *et al.* 2008). It will be necessary to review the rankings of these species when the new classification becomes available.

Table 3: Nationally threatened, uncommon, and data deficient plants recorded within Mt Watkin Scenic Reserve during the December field surveys. Threat status is given according to de Lange *et al.* 2004.

Species	Threat Status	Habitat
Aciphylla subflabellata	At Risk - Sparse	Grassland
Brachyglottis sciadophila	Chronically Threatened - Gradual Decline	Forest
Gingidia grisea (*Gingidia* aff. *montana* (b) CHR 103349; North Otago)	Range Restricted	Rock outcrops
Korthalsella salicornioides	At Risk - Sparse	Kanuka forest
Lepidium desvauxii	Data Deficient	Rock outcrops
Pseudopanax ferox	At Risk - Sparse	Forest; rock outcrops
Tupeia antarctica	Chronically Threatened - Gradual Decline	Forest
Vittadinia australis	Data deficient	Rock outcrops

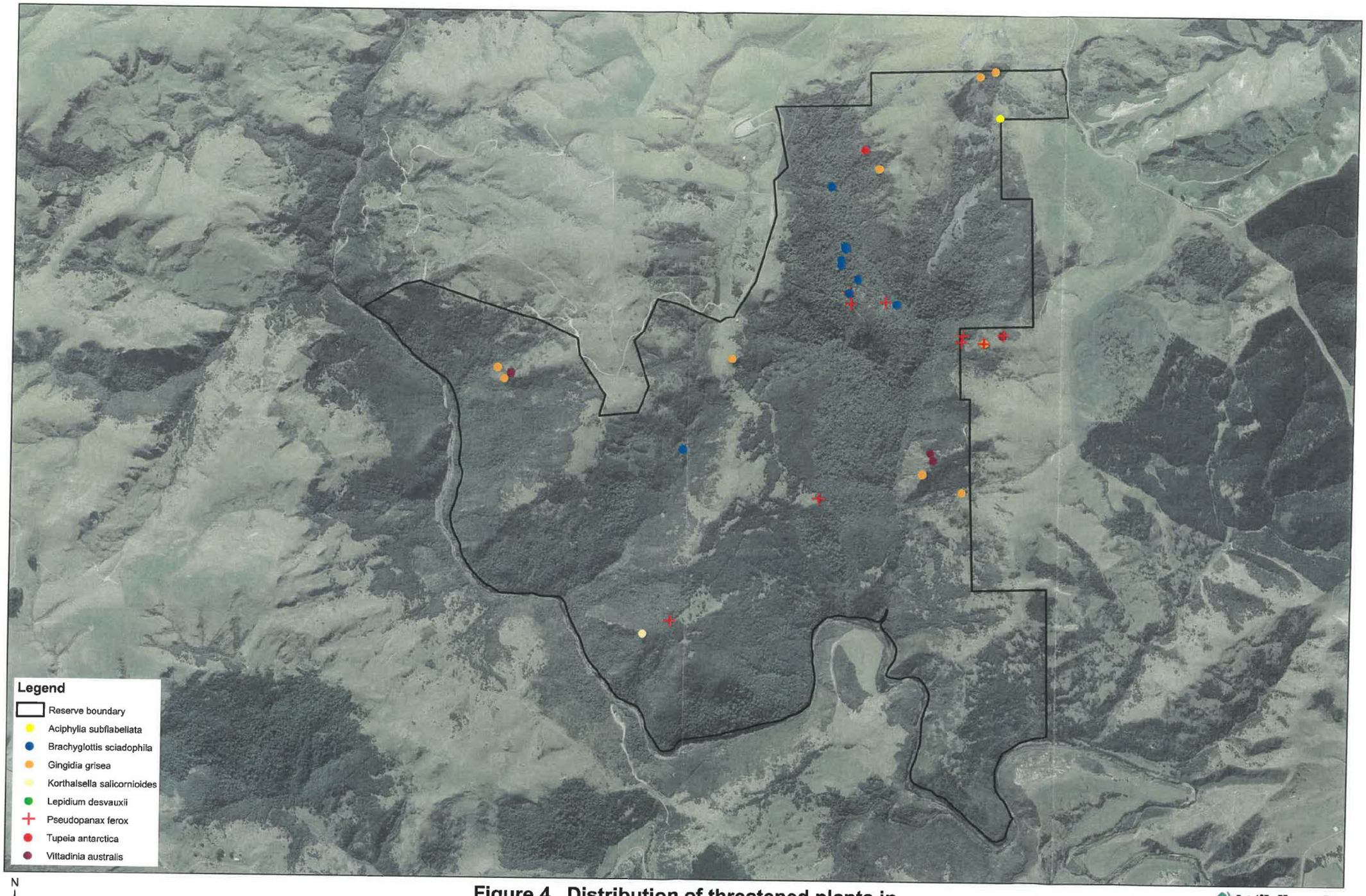


Figure 4. Distribution of threatened plants in Mount Watkin Scenic Reserve

Brief descriptions of these threatened and uncommon plants, their local distributions in the Dunedin area, and their habitats and population locations within Mt Watkin Scenic Reserve are provided below. While all the populations that were seen were recorded, it is highly likely that additional populations are present as many parts of the reserve were not traversed. Apart from Aciphylla subflabellata, Brachyglottis sciadophila, and Gingidia grisea, which were recorded by Allen (1986), the other occurrences of these threatened or uncommon species appear to be new records for the Mt Watkin Scenic Reserve.

5.2.1 *Aciphylla subflabellata*

Aciphylla subflabellata is a small, fine-leaved, bronze-green 'speargrass' that has relatively soft leaves and is palatable to stock. *Aciphylla subflabellata* is relatively widespread east of the Main Divide from North Canterbury to North Otago, but has been eliminated from many parts of its range due to grazing by stock. In the Dunedin area, which is the southern limit for the species, small populations of *Aciphylla subflabellata* are known on cliffs near St Clair, on the slopes of Swampy Summit, and at Sutton Salt Lake near Middlemarch, where it is recovering following exclusion of stock (Peat and Patrick 1995). A single population of seven plants was seen within the reserve, in ungrazed grassland on the southeast slope of Mt Watkin/Hikaroroa (Plate 7; Table 4; Figure 4). It is possibly present in similar habitats elsewhere in the reserve, but being a small, cryptically-coloured species, is not always easily seen.

Table 4: Distribution and population information for the site where *Aciphylla subflabellata* was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinate	Number of Plants
Aciphylla subflabellata	2320643 5512768	7

5.2.2 *Brachyglottis sciadophila*

Brachyglottis sciadophila is a slender vine, with 2-3 cm wide rounded coarsely-toothed leaves. During the survey of Mt Watkin Scenic Reserve it was only observed in matai-totara/ribbonwood-kowhai forest, where it generally grew across the ground surface (Plate 11), sometimes forming tangled patches. However it is capable of forming twining stems to 5 m long and can usually be found draped over its host plant(s). Mature plants produce solitary yellow daisy flowers. In the Dunedin area, *Brachyglottis sciadophila* is known at eight sites on the Otago Peninsula, but is only frequent in two of these (Johnson 2004). It is also known from Heyward Point (Allen 1978). Dry forest is its typical habitat. At Mt Watkin *Brachyglottis sciadophila* was seen in nine locations during the December survey, mostly in the main gully but also in the smaller gully west of the Kerr Road ridge (Figure 4). While it was difficult to identify individuals in tangled patches, a minimum of 100 plants were seen (Table 5).



Plate 11: *Brachyglottis sciadophila*, with typical rounded coarsely-toothed leaves, growing on the ground surface in matai-totara/ribbonwood-kowhai forest in the main gully in Mt Watkin Scenic Reserve.

Table 5: Distribution and population information for sites where *Brachyglottis sciadophila* was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Brachyglottis sciadophila	2319814 5512420	15
Brachyglottis sciadophila	2319885 5512122	10
Brachyglottis sciadophila	2319891 5512111	10
Brachyglottis sciadophila	2319869 5512031	10
Brachyglottis sciadophila	2319868 5512057	15
Brachyglottis sciadophila	2319952 5511960	10
Brachyglottis sciadophila	2319911 5511891	5
Brachyglottis sciadophila	2320145 5511837	10
Brachyglottis sciadophila	2319097 5511106	20

5.2.3 *Gingidia grisea*

Gingidia grisea is a large attractive herb in the carrot family, with large blue-green, dissected leaves, and conspicuous white-flowered inflorescences (Plate 12). It was only recently described (Heenan 2004) and is restricted to North Otago, where rock outcrops are its chief habitat. *Gingidia grisea* has large populations comprising thousands of plants on the Horse and Razorback Ranges, where steep hill country with extensive rock outcrop habitats is available, but many of its low-elevation populations have been lost (Heenan 2004). Within Mt Watkin Scenic Reserve, populations of *Gingidia grisea* were present on almost all of the larger rock outcrops that were visited, and the largest of these populations were on the steep upper slopes of Mt Watkin/Hikaroroa itself, where at least 700 plants were present. Approximately 200 additional plants were seen on rock outcrops at scattered sites elsewhere in the reserve (Figure 4). The vicinity of Mt Watkin is the southern distribution limit for *Gingidia grisea*.



Plate 12: *Vittadinia australis* (left) and *Gingidia grisea* (right) both have blue-green leaves and are associated with thin soils on rock outcrops at Mt Watkin.

Table 6: Distribution and population information for sites where *Gingidia grisea* was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Gingidia grisea	2320615 5513000	100
Gingidia grisea	2320540 5512975	500
Gingidia grisea	2319975 5512875	100
Gingidia grisea	2320677 5511684	15
Gingidia grisea	2320585 5511647	3
Gingidia grisea	2320330 5511097	20
Gingidia grisea	2320292 5510993	100
Gingidia grisea	2320486 5510904	10
Gingidia grisea	2319336 5511559	30
Gingidia grisea	2318206 5511452	5
Gingidia grisea	2318173 5511507	5

5.2.4 *Korthalsella salicornioides*

Korthalsella salicornioides is a small mistletoe that typically grows on the outer branchlets of manuka or kanuka. A population of this species was seen at one location (Table 7), with at least 100 individuals were seen parasitising kanuka on the edge of the large cliff overlooking the Waikouaiti River. This site may be favourable for *K. salicornioides* because the kanuka forest at this location is primary vegetation due to the thin, dry, soils. This would give the host plant (kanuka) a permanent habitat at the site, unlike the secondary stands of kanuka forest which will succeed

over time to broadleaved forest. The cliff-top habitat may also favour *K. salicornioides* because its openness increases light penetration. *Korthalsella salicornioides* is uncommon in the Dunedin area but has been recorded at one location on the Otago Peninsula (Johnson 2004).

Table 7: Distribution and population information for the site where *Korthalsella salicornioides* was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Korthalsella salicornioides	2318912 5510190	>100

5.2.5 *Lepidium desvauxii*

Bushy peppercress (*Lepidium desvauxii*) is a small native cress (Brassicaceae family) that is a bushy shrub to around 50 cm tall. It is chiefly coastal but also occurs in some dry inland habitats. It has been recorded at three sites on the Otago Peninsula (Johnson 2004) and on a property to the east of Mt Watkin. Within the reserve it was seen only in one site (Table 8), on rocky ground in a stand of open kanuka. Its classification as 'data deficient' means that more information is required on its geographic distribution.

Table 8: Distribution and population information for the site where *Lepidium desvauxii* was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Lepidium desvauxii	2320344 5511062	10

5.2.6 *Pseudopanax ferox*

Fierce lancewood (*Pseudopanax ferox*) is a small tree superficially similar to lancewood (*P. crassifolius*), but has narrower, more strongly toothed leaves, and a distinctly ropy trunk in adult trees. It is widespread in both the North and South Islands, but its populations are often small and sparsely distributed. In Otago, fierce lancewood is chiefly found in dry forest sites, particularly where the canopy is reduced in height due to thin, dry, or rocky soils. In the vicinity of Dunedin it is present in six sites on the Otago Peninsula (Johnson 2004), at Heyward Point (Allen 1978), and as a small population of scattered trees on Potato Point. A single fierce lancewood sapling has been recorded near Prospect Park in the Dunedin Town Belt (Wildland Consultants 2006). At Mt Watkin, fierce lancewood was observed in nine locations, which fell into four clusters, either side of the main gully and one at the end of the Kerr Road ridge (Figure 4). Generally these locations had only a few fierce lancewood plants in each, but three sites had slightly larger populations (Table 9). In total, approximately 70 individuals were observed during the survey. Most of the sites where fierce lancewood was recorded were associated with rocky ground in light or open forest where matai, kowhai, and/or ribbonwood were also present. Other sites included ledges on schist cliffs (Plate 13).

Table 9: Distribution and population information for sites where *Pseudopanax ferox* was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Pseudopanax ferox	2319921 5511837	25
Pseudopanax ferox	2319911 5511891	2
Pseudopanax ferox	2319778 5510867	20
Pseudopanax ferox	2320090 5511847	1
Pseudopanax ferox	2320683 5511689	5
Pseudopanax ferox	2320585 5511647	4
Pseudopanax ferox	2320470 5511653	1
Pseudopanax ferox	2320480 5511684	3
Pseudopanax ferox	2319047 5510256	10



Plate 13: Fierce lancewood (*Pseudopanax ferox*) saplings growing on ledges on schist bluffs on the eastern side of the main gully south of Mt Watkin/Hikaroroa.

5.2.7 *Tupeia antarctica*

Tupeia antarctica is a green mistletoe with small white or purple fruit, which is found throughout New Zealand as a parasite of a wide range of host trees, including both native and exotic species. It occurs in Dunedin City on exotic trees lining some Town Belt streets, and at two sites on the Otago Peninsula (Johnson 2004). At Mt Watkin Scenic Reserve, *Tupeia antarctica* was seen only once, parasitic on a putaputaweta tree on the east side of the upper main gully (Table 10; Figure 4).

Table 10: Distribution and population information for the site where *Tupeia antarctica* was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Tupeia antarctica	2319975 5512603	1

5.2.8 *Vittadinia australis*

White fuzzweed (*Vittadinia australis*) is a small native daisy with white flowers and grey-green leaves (Plate 12). White fuzzweed is widespread in Central Otago, but less common in coastal locations, and is no longer present at many sites in the North Island where it was formerly found (Lloyd & Beadel 2004). It is present at one site on the southern side of the Razorback Range, but is uncommon around Dunedin, where it is present at one site on the Otago Peninsula (Johnson 2004). Its consistent presence in sites where there is a low intensity of competition suggests that white fuzzweed struggles to establish in or compete with dense grass swards. Within the reserve, white fuzzweed was present as a cluster of small populations near to the location where bushy peppercress (see Section 5.2.4) was found, and in another location in the west of the reserve where three plants were present on thin soils with sparse ground cover beneath a relatively open canopy of kanuka (Figure 4). Approximately 30 plants were seen (Table 11).

Table 11: Distribution and population information for sites where *Vittadinia australis* was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Vittadinia australis	2320677 5511684	5
Vittadinia australis	5320330 5511097	5
Vittadinia australis	2320344 5511062	5
Vittadinia australis	2320292 5510993	10
Vittadinia australis	5318238 5511481	3

5.2.9 Bryophytes

One of the bryophytes recorded at Mt Watkin/Hikaroroa, the moss *Grimmia longirostris* is classified as 'Naturally Uncommon - Range Restricted' in Hitchmough *et al.* (2007) (Table 12).

Table 12: Threatened non-vascular flora recorded on Mt Watkin. Threat status is from Hitchmough *et al.* (2007).

Species	Common Name	Threat Classification
Grimmia longirostris	moss	Range restricted

5.3 Regionally and locally threatened, uncommon or important plants

In addition to the nine nationally threatened, uncommon, or data deficient plants described above, another 25 locally threatened, uncommon, or otherwise important plant species are present within Mt Watkin Scenic Reserve, as set out in Table 13. Four of these species are listed as 'threatened plants' in Appendix 16A of the Dunedin City District Plan, while ten of the tree species present at Mt Watkin are listed as 'important native tree species' in Appendix 16B. An additional eight species, mostly herbs, are relatively uncommon within Dunedin City District.

Table 13: Locally uncommon or important plants recorded within Mt Watkin Scenic Reserve during the December 2007 field survey. Species listed in Appendix 16A ('threatened plants') or Appendix B ('important native tree species') of the Dunedin City District Plan are indicated.

Species	Appendix 16A	Appendix 16B	Other Information
Acaena profundeincisa			Upland species, uncommon in coastal Otago
Aciphylla glaucescens			Uncommon in Dunedin City District, vunerable to grazing
Asplenium richardii			Uncommon fern in Dunedin City District
Australina pusilla			Small forest herb, uncommon in Dunedin City District, 2 sites on Otago Peninsula
Coprosma virescens	✓		Small tree of dry forest and scrub, uncommon in Dunedin City District
Corokia cotoneaster (corokia)			Small shrub, uncommon in Dunedin City District
Dacrycarpus dacrydioides (kahikatea)		✓	Tall tree of fertile lowland sites, now much reduced and uncommon in Dunedin City District
Dacrydium cupressinum (rimu)		✓	Tall tree of moist forest, reasonably common on slopes of higher hills around Dunedin
Fuchsia perscandens	✓		Sprawling shrub, uncommon in Dunedin City District
Hoheria angustifolia (narrow-leaved lacebark)		✓	Tree of dry forest, often present as a relict on coastal Otago hills.
Ileostylis micranthus	✓		Mistletoe, abundant on the Otago Peninsula but not so common elsewhere
Korthalsella lindsayi			Small cryptic mistletoe uncommon in Dunedin City District
Lastreopsis glabella			Fern of dry forest, local in Dunedin City District
Lophomyrtus obcordata		✓	A small tree of dry forest, sporadic in Dunedin City District.
Melicope simplex (poataniwha)			Small tree of dry forest, sporadic in Dunedin City District
Myoporum laetum (ngaio)		✓	Small tree generally occurring in coastal sites.
Plagianthus regius (ribbonwood)		✓	Tall tree, sporadically present in alluvial and dry forest sites in coastal Otago
Podocarpus totara		✓	Tall tree, largely restricted to

Species	Appendix 16A	Appendix 16B	Other Information
(totara)			alluvial and dry forest sites in Dunedin City District
Prumnopitys taxifolia (matai)		✓	Tall tree of dry and alluvial forest, now much reduced and uncommon in Dunedin City District
Pterostylis graminea			Forest orchid, uncommon in Dunedin City District
Ranunculus multiscapus			Upland buttercup, uncommon in coastal Otago
Rubus squarrosus (leafless lawyer)			A vine found in scattered dry sites in coastal Otago.
Sophora microphylla (kowhai)		✓	Locally common on cliffs and dry coastal hills in Dunedin City District
Scandia geniculata	✓		A small vine of forest edges found in scattered sites in coastal Otago
Streblus heterophyllus (turepo)		✓	A small tree of fertile sites, uncommon in Dunedin City District

6. PEST PLANTS

A relatively low diversity of ecological pest plants were observed within Mt Watkin Scenic Reserve, but those present are capable of having significant adverse effects on ecological values at the site. These species are addressed below.

6.1.1 Chilean flame creeper

Chilean flame creeper (*Tropaeolum speciosum*) is a vine which is well-established in Southland and the Catlins and is becoming increasingly apparent at sites in coastal Otago. Chilean flame creeper has underground stems which ramify beneath the soil and periodically produce fast-growing, slender climbing shoots with light green, 5 or 6-lobed leaves (Plate 14). In well-lit conditions, the masses of foliage produced by these shoots are capable of smothering ground ferns and understorey shrubs, and growing upwards from these into the canopy. Bright red clusters of flowers produce rounded, fleshy blue fruits. These are attractive to birds, which are capable of dispersing fruits considerable distances from parent plants. Foliage usually dies back each winter, but can persist as a dead layer that has a similar smothering effect to the living leaves. While these effects are best expressed on forest edges and in canopy gaps, Chilean flame creeper is quite shade-tolerant and can regenerate from seed in relatively intact forest. Chilean flame creeper is becoming increasingly troublesome because of this combination of traits.



Plate 14: Young Chilean flame creeper (*Tropaeolum speciosum*) foliage creeping over a shield fern in the western part of the Mt Watkin Scenic Reserve, near the Waikouaiti River.

Within Mt Watkin Scenic Reserve, Chilean flame creeper was seen at five discrete locations (Table 14; Figure 5). Small plants were seen at three of these locations (one near the eastern boundary, two in the smaller gully, and one in the centre of the reserve) and were removed, although underground rhizomes are likely to persist at one site. A more extensive infestation of Chilean flame creeper is present in the ground layer and understorey of the fourth site, in the western part of the reserve, close to the Waikouaiti River. This infestation was adjacent to an emergent kahikatea tree which may have been used by the bird that dispersed the initial Chilean flame creeper fruit to this site. An attempt was made to pull out all the aerial shoots (*c.*300) within this patch. None of the plants seen were flowering or fruiting, but the widespread distribution of young Chilean flame creeper plants observed within the reserve indicates that at least one flowering and fruiting population is present somewhere within or near to the reserve, possibly in a central location.

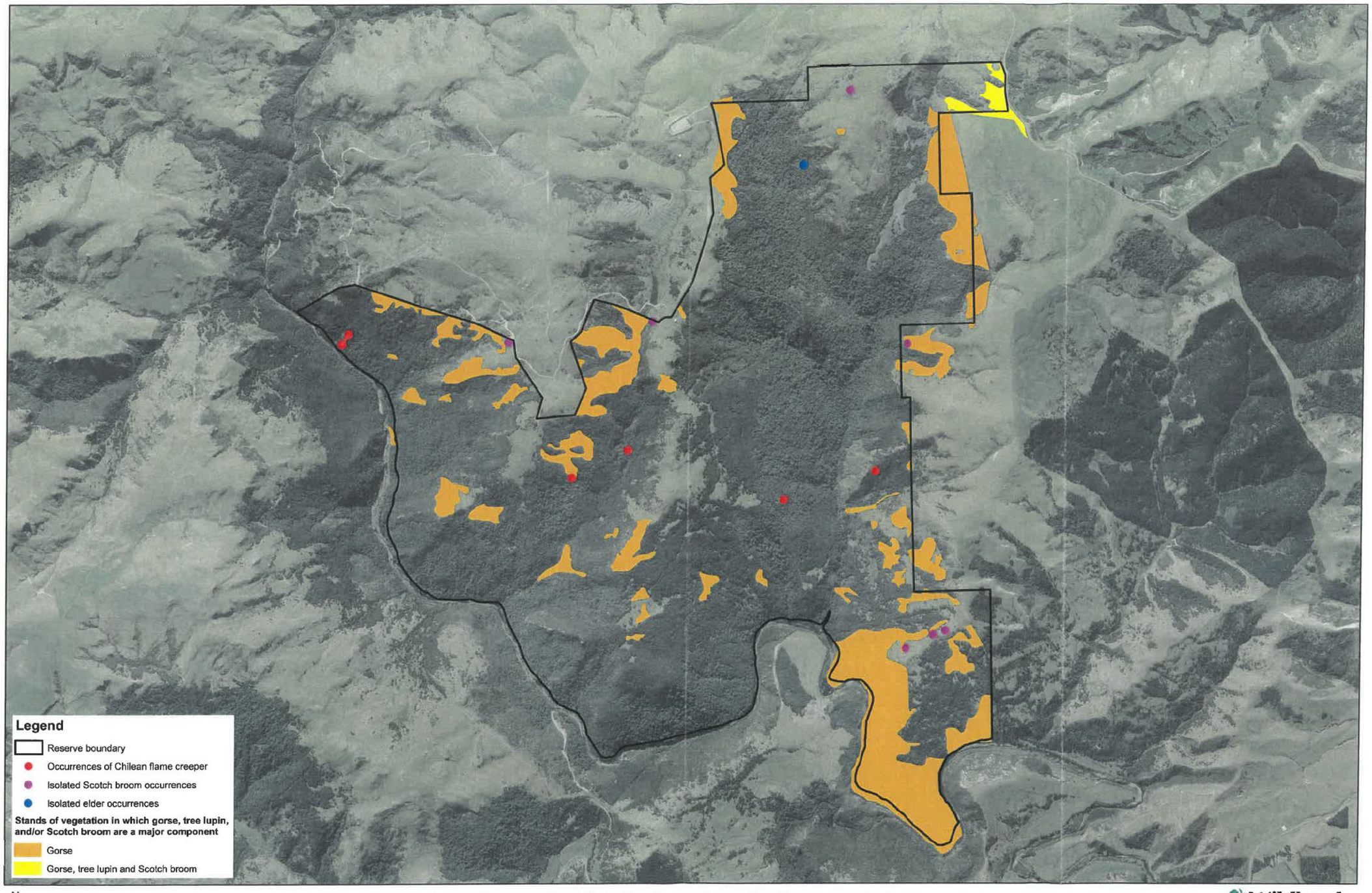


Figure 5. Distribution of ecological weeds in Mount Watkin Scenic Reserve

Bird-dispersed weeds are usually dispersed to sites that the birds habitually use, but for a shade-tolerant fleshy-fruited weed dispersed by forest birds, new infestations could be initiated almost anywhere within the forest, making prediction of occurrences impossible. Chilean flame creeper had not been previously recorded at Mt Watkin, though it is known to be present on private land to the east. It is classified as an 'Unwanted Organism' and is on the National Pest Plant Accord list.

Table 14: Distribution and population information for sites where Chilean flame creeper (*Tropaeolum speciosum*) was recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Tropaeolum speciosum	2320345 5511010	1
Tropaeolum speciosum	2319128 5511114	2
Tropaeolum speciosum	2319892 5510871	20
Tropaeolum speciosum	2318857 5510979	1
Tropaeolum speciosum	2317724 5511638	Edge of large patch
Tropaeolum speciosum	2317757 5511688	Edge of large patch

6.1.2 Gorse

Gorse is present in practically every non-forest habitat within the reserve, and forms a dominant component of the vegetation in many areas, particularly near the margins of the reserve (Figure 5). Gorse is not a long term threat to forest vegetation at the site. Over time those infestations in forest habitat would likely revert to indigenous forest by the operation of natural successional processes, although this could take decades for large infestations where gorse is the overwhelmingly dominant canopy species. Gorse is a more serious threat to the distinctive non-forest vegetation types on rock outcrops and the upper slopes of Mt Watkin/Hikaroroa, and threatened species such as *Aciphylla subflabellata* which grow in these habitats. Advance plants of gorse already occur upslope of the main infestations associated with the gravel quarry, and are present on some rock outcrops (Plate 15).



Plate 15: Gorse overwhelming *Gingidia grisea* on a rock outcrop at the base of Mt Watkin/Hikaroroa.

6.1.3 Scotch broom

Scotch broom has similar effects to gorse, but has a much more restricted distribution within Mt Watkin Scenic Reserve (Figure 5). It is only an important component of vegetation in the gorse-tree lupin scrub on the eastern side of Mt Watkin/Hikaroroa. Another small infestation is present near the top of the smaller gully, but other occurrences seen were only scattered shrubs (Table 16). Three of these occurrences (see the rows shaded in Table 15) occurred low down in the western sector of the reserve above the Waikouaiti River. These are surrounded by forest, do not require control, and were not mapped in Figure 5. Scotch broom is palatable to sheep and goats, and the outlying shrubs at Mt Watkin have often been chewed, but Scotch broom responds very quickly when released from stock browse. Scotch broom has ballistically-dispersed seeds and is able to invade new sites very rapidly. It is likely to become more apparent within the reserve now that the density of browsing animals is low.

Table 15: Distribution and population information for sites where isolated Scotch broom (*Cytisus scoparius*) shrubs were recorded within Mt Watkin Scenic Reserve.

Species	GPS Coordinates	Number of Plants
Cytisus scoparius	2320204 5512883	2
Cytisus scoparius	2320061 5512720	1
Cytisus scoparius	2320495 5511634	2
Cytisus scoparius	2320499 5510124	1
Cytisus scoparius	2320697 5510229	1
Cytisus scoparius	2320587 5510140	3
Cytisus scoparius	2320636 5510208	2
Cytisus scoparius	2318538 5511646	5
Cytisus scoparius	2318206 5511452	3
Cytisus scoparius	2318173 5511507	3

6.1.4 Elder

Elder (*Sambucus nigra*) was seen only once, a mature tree in ribbonwood-kowhai forest in a side gully to the main gully in the north of the reserve (Figure 5). Like Chilean flame creeper, elder has fleshy fruits dispersed by birds. Elder is fast-growing and tolerant of light shade, and could potentially occupy most of the forest habitats within the reserve.

6.1.5 Himalayan honeysuckle

Himalayan honeysuckle (*Leycesteria formosa*) is uncommon within the reserve and was only seen within the gorse-tree lupin scrub on the eastern side of Mt Watkin/ Hikaroroa. It reaches its greatest abundance in moist habitats but is not tolerant of dense canopy shade. It also has fleshy fruits which are dispersed by birds.

6.1.6 *Hieracium* spp.

Mouse-ear hawkweed (*Hieracium pilosella*) and tussock hawkweed (*Hieracium lepidulum*) are both present within the reserve, but the former is much more widespread. Tussock hawkweed was only seen on rock outcrops near the summit of Mt Watkin/Hikaroroa. While these species do compete to some extent with indigenous herbs and grasses, there was no evidence that they were competitively excluding valued species at the site. For example, *Gingidia grisea* is sufficiently robust to grow through mats of mouse-ear hawkweed on the upper slopes of Mt Watkin/Hikaroroa (Plate 16).



Plate 16: *Gingidia grisea* growing through a mat of mouse-ear hawkweed (yellow flowers) on the upper slopes of Mt Watkin/Hikaroroa.

7. AVIFAUNA

Twenty one bird taxa were recorded in Mt Watkin Scenic Reserve during visits in December 2007 (Table 16). Fourteen of these (67%) were native and seven (33%) exotic. South Island rifleman (*Acanthisitta chloris chloris*), eastern falcon (*Falco novaeseelandiae*), and kereru (*Hemiphaga novaeseelandiae*) each have a national threat status of 'Gradual Decline' (Hitchmough *et al.* 2007). The population of South Island rifleman at Mt Watkin appears to represent a regional northern distribution limit in the southeastern South Island, as the most recent national bird census did not record rifleman between Mt Watkin and the Hunters Hills near Waimate (Robertson *et al.* 2007). Mt Watkin Scenic Reserve provides very good habitat for each of these three nationally threatened species. South Island rifleman has extensive habitat within the reserve, being present in both kanuka and podocarp/broadleaved forest vegetation. The extensive groves of kowhai and ribbonwood would provide a particularly important food source for kereru in winter and spring, while rock outcrops and bluffs provide potential nesting habitat for falcon. The range of indigenous forest bird species is an indicator of generally good forest health. The 14 bird species observed during surveys is likely to be less than the actual number of indigenous birds present. For example, morepork (*Ninox novaeseelandiae*) were not observed because surveys were undertaken in daylight, but are likely to be present. Tui (*Prosthemadera novaeseelandiae*) are almost certainly present in the reserve when kowhai is in flower.

Table 16: Avifauna recorded in Mt Watkin Scenic Reserve during the December 2007 survey.

Species	Common Name	Threat Classification
Acanthisitta chloris chloris	South Island rifleman	Gradual Decline
Anthornis melanura melanura	bellbird	Not threatened
Chrysococcyx lucidus lucidus	shining cuckoo	Not threatened
*Emberiza citrinella**	yellowhammer	Exotic
Falco novaeseelandiae 'eastern'	eastern falcon	Gradual Decline
*Fringilla coelebs**	chaffinch	Exotic
Gerygone igata	grey warbler	Not threatened
Rhipidura fuliginosa fuliginosa	South Island fantail	Not threatened
*Turdus merula**	blackbird	Exotic
*Alauda arvensis**	skylark	Exotic
Circus approximans	harrier	Not threatened
Hirundo tahitica	welcome swallow	Not threatened
*Sturnus vulgaris**	starling	Exotic
*Gymnorhina tibicen**	Australasian magpie	Exotic
Petroica macrocephala	tomtit	Not threatened
Larus dominicanus	black-backed gull	Not threatened
Hemiphaga novaeseelandiae	kereru	Gradual Decline
Mouhoua novaeseelandiae	brown creeper	Not threatened
*Carduelis flammea**	redpoll	Exotic
Halcyon sancta	kingfisher	Not threatened
Zosterops lateralis	silvereye	Not threatened

8. FRESHWATER FISH

There are no New Zealand Freshwater Fish Database (NZFFD; NIWA 2008) records for streams within Mt Watkin Scenic Reserve. Thirteen fish species have been recorded in the North Branch of the Waikouaiti River, its tributaries, and below its confluence with the South Branch (Table 17). It is highly likely that some of these species are present within the reserve, as permanent streams of sufficient size to support fish populations are present in the main gully and the smaller gully. Three of the fish species found in the vicinty of the reserve are nationally threatened (as per Hitchmough *et al.* 2007).

Table 17: Freshwater fish recorded in the North Branch of the Waikouaiti River (NBWR) and its tributaries (NBWRT), as well as in the Waikouaiti River (WR) and its tributaries (WRT) downstream of the North Branch-South Branch confluence. Source: New Zealand Freshwater Fish Database (NIWA 2008). Asterisked species are introduced.

Species	Common name	Location	Threat status
Anguilla australis	shortfin eel	NBWR	Not threatened
Anguilla dieffenbachii	longfin eel	NBWR	Gradual Decline
Galaxias brevipinnis	koaro	NBWR, NBWRT	Not threatened
Galaxias depressiceps	flathead galaxias	NBWR	Gradual Decline
Galaxias fasciatus	banded kokopu	WR	Not threatened
Galaxias maculatus	inanga	WR, WRT	Not threatened
Geotria australis	lamprey	WRT	Sparse
Gobiomorphus breviceps	upland bully	NBWR, NBWRT	Not threatened
Gobiomorphus cotidianus	common bully	NBWR	Not threatened
Gobiomorphus gobioides	giant bully	WRT	Not threatened
Gobiomorphus huttoni	redfin bully	WR	Not threatened
Rhombosolea retiaria	black flounder	WRT	Not threatened
*Salmo trutta**	brown trout	NBWR	Exotic

9. HERPETOFAUNA

9.1 Previous records

There are no Bioweb herpetofauna records for Mt Watkin Reserve (Bioweb 2007), and a November 2007 search by two lizard experts, undertaken in good weather on boulderfields east of the summit, did not find any lizards (M. Tocher, Department of Conservation, *pers. comm.*). However, two lizard taxa have been recorded within 10 km of the reserve (Table 18). McCann's skink (*Oligosoma maccanni*) is relatively widespread further inland. The closest record for the 'Otago large' gecko (*Hoplodactylus* aff. *maculatus*) is *c.*7.5 km from the reserve. The reserve would provide good habitat for jewelled gecko (*Nautilinus gemmeus*) but these have not been recorded from the site recently.

Table 18: Herpetofauna recorded within 10 km of Mt Watkin Scenic Reserve (Bioweb 2007).

Species	Common Name	Date of Record	Closest Recorded Location	Threat Classification
Hoplodactylus aff. *maculatus*	Otago large gecko	08-06-87	Three O'Clock Stream	Gradual Decline
Oligosoma maccanni	McCann's skink	20-11-83	Bucklands Crossing	Not threatened

9.2 2007 survey

Two McCann's skink (identified by M. Tocher, Department of Conservation) were caught in pitfall traps placed in grassland for the capture of invertebrates (see Section 2.4 and Table 1 for trap location and pitfall trapping details). Both animals were released upon discovery. An unidentified skink was also observed in exotic grassland on the edge of kanuka forest. A single whistling frog (*Litoria ewingii*) was observed near a rotting log located in grassland beside kanuka forest (C. Hewitt and C. Rate pers. comm.).

10. TERRESTRIAL INVERTEBRATES

10.1 Lepidoptera records from Mt Watkin

Eighty-four Lepidoptera taxa have been recorded from Mt Watkin/Hikaroroa (Appendix 3). Most of these are common and/or widespread species, although three are nationally threatened or uncommon (Table 19). *Cephalissa siria* (Nationally Endangered) is a small day-active orange species and their larvae feed exclusively on *Fuchsia perscandens*. The species is extinct at its type locality (Dunedin) and is now rare and local in southern New Zealand from coastal to montane areas. Mt Watkin/ Hikaroroa is a major stronghold for this moth species due to the relative abundance of its host plant. *Gingidiobora* n.sp.[1] (Nationally Endangered) is endemic to Eastern Otago (Peat & Patrick 1995), and has larvae which feed on *Gingidia grisea*, which is also abundant on the upper slopes of Mt Watkin/Hikaroroa. *Asterivora* n.sp. is a small day-active species and their larvae feed by leaf-mining on *Brachyglottis bellidioides*. The species is rarely found and known from only a handful of southern New Zealand localities in the montane to low alpine zone. Although not currently classified as threatened, it is poorly known and possibly should be ranked. Other terrestrial species recorded by B. Patrick and other authors are listed in Appendix 3.

Table 19: Threatened and uncommon terrestrial invertebrates recorded from Mt Watkin/Hikaroroa by B. Patrick (pers. comm.).

Species	Group	Threat Classification
Asterivora n.sp.	Lepidoptera (Choreutidae)	Not threatened
Cephalissa siria Meyrick	Lepidoptera (Geometridae)	Nationally Endangered
Gingidiobora n.sp.[5]	Lepidoptera (Geometridae)	Nationally Endangered

[1] Listed as *Gingidiobora subobscurata* species complex "eastern Otago" in Hitchmough *et al.* (2007).

10.2 2007 survey

Almost 3,000 invertebrates were collected in pitfall traps during the current survey. From these, 18 invertebrate orders were identified (Table 20). Mites (Acari) and springtails (Collembola) were numerically dominant in pitfall catches. RTUs, many of which were identified to genus or species, are listed in Appendix 3.

Diptera (flies) and Amphipoda (amphipods) were noticeably more abundant in less-modified forest vegetation samples from the POD, RIB1, and RIB2 habitats (refer to Table 1), as compared with the kanuka and grassland sample sites. In contrast, Araneae (spiders) were most abundant in grassland pitfall samples, and Orthoptera (weta) were more abundant in kanuka and grassland sites than in more intact forests in which podocarps, ribbonwood and/or kowhai were dominant species. The composition of the Dipteran and Coleopteran invertebrate fauna is discussed in more detail below.

Table 20: Number of invertebrates caught in pitfall traps in Mt Watkin Scenic Reserve, December 2007. Vegetation/habitat type codes are listed in Table 1. Tick indicates presence (not counted).

Order	Vegetation Type Code						Total
	POD	RIB1	RIB2	KAN1	KAN2	GRA	
Acari	✓	✓	✓	✓	✓	✓	✓
Amphipoda	121	33	129	15	3	21	322
Annelida	-	1	-	-	-	1	2
Araneae	16	27	166	29	115	459	812
Blattodea	-	-	-	-	1	-	1
Chilopoda	1	1	-	-	-	-	2
Coleoptera	35	204	50	20	82	59	450
Collembola	✓	✓	✓	✓	✓	✓	✓
Diplopoda	5	2	10	-	3	12	32
Diptera	187	165	114	78	37	41	622
Gastropoda	2	18	5	1	15	-	41
Hemiptera	3	9	8	11	73	13	117
Hymenoptera	13	48	11	21	18	59	170
Lepidoptera	1	4	1	1	4	1	12
Opiliones	27	21	32	19	55	5	159
Orthoptera	-	6	3	11	57	25	102
Pseudoscorpiones	3	6	1	6	6	-	22
Thysanoptera	-	2	-	1	1	2	6
Total	**414**	**547**	**530**	**213**	**470**	**698**	**2,872**

The KAN1 habitat type had a significantly lower mean number of invertebrates per trap than the other vegetation types (1-way ANOVA: $F_{5,59} = 4.418$, $p = 0.002$). RIB1 had a significantly higher mean number of RTUs per trap than KAN1 (1-way ANOVA: $F_{5,59} = 2.784$, $p = 0.026$). Further analyses of invertebrate diversity indices were not undertaken due to the short sampling period and subsequent low catches of invertebrates.

Invertebrate community composition differed significantly between vegetation types R = 0.685, p <0.001), with large (R≥0.75) to moderate (R≥0.5) differences between most groups. The most similar invertebrate communities (POD and RIB2) were located close together, however RIB1 and RIB2, which also had similar invertebrate composition, were geographically distant from each other, illustrating the over-riding importance of vegetation type. The invertebrate samples of podocarp/ribbonwood-kowhai forest and ribbonwood-kowhai forest were more similar to each other than they were to kanuka or grassland, while podocarp/ribbonwood-kowhai forest was most dissimilar to secondary kanuka forest and grassland (Table 21). These results, and the MDS plot (Figure 6) show that the composition of invertebrates caught by pitfall traps was related to a gradient in vegetation modification.

Table 21: ANOSIM of invertebrate community based on Bray-Curtis similarity of fourth-root transformed abundance data. The table is ranked from the most similar sample pairs to the least similar pairs.

Groups	R	p
POD and RIB2	0.442	<0.001
RIB2 and RIB1	0.470	<0.001
POD and RIB1	0.610	<0.001
RIB 1 and KAN2	0.644	<0.001
RIB2 and GRA	0.656	<0.001
POD and KAN1	0.665	<0.001
KAN1 and RIB2	0.671	<0.001
KAN1 and GRA	0.716	<0.001
KAN1 and KAN2	0.716	<0.001
GRA and KAN2	0.755	<0.001
RIB2 and KAN2	0.770	<0.001
KAN1 and RIB1	0.821	<0.001
GRA and RIB1	0.849	<0.001
POD and KAN2	0.865	<0.001
POD and GRA	0.887	<0.001

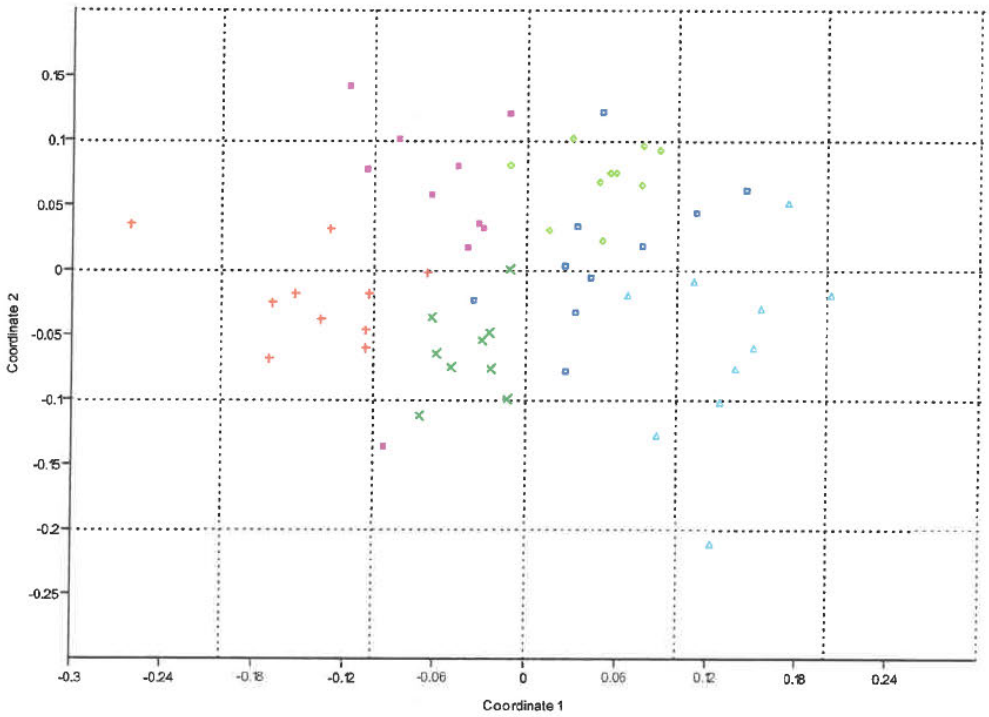


Figure 6: Non-parametric multi-dimensional scaling (nMDS) plot of invertebrate community composition based on Bray-Curtis similarity of fourth-root transformed abundance data. One outlying sample (RIB28) has been removed from this plot for clarification. Symbols: pink filled square: RIB1, blue open square: KAN1, green open diamond: KAN2, red cross: POD, green x: RIB2, blue open triangle: GRA.

Invertebrate taxa which characterised vegetation types are shown in Table 22. Araneae (spiders) contributed the most to community dissimilarities, being most commonly sampled in GRA. The possibly new species *Pristoderus* cf. *undosus* (Coleoptera) was collected only in samples RIB1, RIB2, and POD, all from less-modified forest. Many previous studies have shown a correlation between invertebrate and plant communities, which is often attributed to abiotic factors, vegetation composition and structure, and/or plant productivity (e.g. Rae *et al.* 2006).

Table 22: SIMPER analysis of the invertebrate community undertaken across all vegetation types. Untransformed abundance data is presented for ease of interpretation. Only the 15 taxa contributing the greatest average dissimilarity between vegetation types are listed.

Taxon	Contribution	Cumulative %	Mean Abundance					
			POD	RIB1	RIB2	KAN1	KAN2	GRA
Araneae (spiders)	16.74	22.88	1.6	2.7	16.6	2.9	11.5	45.9
Allophylopsis lineata (Diptera)	8.746	34.83	16	11.5	4.5	1.3	1.6	0.2
Amphipoda	7.82	45.52	12.1	3.3	12.9	1.5	0.3	2.1
Opiliones (harvestmen)	3.262	49.98	2.7	2.1	3.2	1.9	5.5	0.5
Pristoderus cf. *undosus* Coleoptera)	3.252	54.42	0.2	10.5	1.7	0	0	0
Hemiptera (bugs)	2.991	58.51	0.3	0.9	0.8	1.1	7.3	1.3
Anostostomatidae (ground weta)	2.854	62.41	0	0.6	0.3	1.1	5.7	2.5
Non-formicid Hymenoptera	2.787	66.22	1.3	4.5	1.1	2.1	1.8	3.1
Chloropidae (Diptera)[1]	2.117	69.12	0	0.1	0.5	4	0.3	0.9
Ctenognathus otagoensis (Coleoptera)	1.391	71.02	0	0.9	0	0	3.2	0
Brachyolus sp. (Coleoptera)	1.32	72.82	0	2.9	0.3	0	0	0.1
Gastropoda (snails)	1.232	74.51	0.2	1.8	0.5	0.1	1.5	0
Tricimbra deansi (Diptera)	1.203	76.15	0	1.7	2.1	0	0	0.2
Staphylinidae (Coleoptera)	1.115	77.67	0	1.9	0	0	1.4	0.2
Formicidae (Hymenoptera)	1.021	79.07	0	0.3	0	0	0	2.8

Diptera (flies)

The dipteran fauna is characteristic of forest lacking open water habitats. There are no characteristic aquatic flies, no *Scatella* or *Ephydrella* shore flies (Ephydridae), and no midges (Chironomidae). The species of *Hilara*, and low numbers of *Dilophus nigrostigma* and *Hydrellia enderbii* were the only taxa characteristic of moist/aquatic habitats (Macfarlane *et al.* 1998, 1999, Macfarlane 2007), and probably originate from the small *Carex* swamps that are sparsely present within the reserve. It is possible that some *Hilara* species oviposit in moist forest soils (all the specimens caught were females), which may account for their presence in the pitfall trap samples at Mt Watkin. The *Chelipoda* record, from a genus whose New Zealand members are strongly associated with native forest, provides further support for a predominatly forest-dwelling fly fauna at Mt Watkin, while *Gaurax flavoapicalis* is typical of forest

[1] *Gaurax flavoapicalis* and *Eutricimbra* n.sp. were lumped together during sorting of samples.

edges. There is a higher than usual level of wingless fly species in New Zealand (Macfarlane & Andrew 2001) and this is reflected in the collection of at least two species of wingless Sciaridae even if one of these species may be an introduced species (Mohrig & Jashoff 1999). This record is a new and appreciated addition to the New Zealand Diptera species list.

There is a relatively low diversity of Diptera species recorded (e.g. in the Tachinidae, and compared to studies of Mycetophilidae trapped in the canopy), probably because of the pitfall trapping method used, the dryish mid-summer period, the relatively dry forest floor, and the sometimes steep slopes on which the traps were set. Despite this low diversity, the number of undescribed fly species is reasonably high. The presence of an undescribed species of *Zygomyia* is surprising given the extra taxonomic work done recently on this genus (the genus in New Zealand is relatively large on a world basis). Considering there are now over 600 known genera of flies in New Zealand (Macfarlane & Andrew 2001, Macfarlane *et al.* in prep), it is noteworthy to have come across what appear to be two additional genera of Sciarodea. In addition to these possible new taxa, the *Xenura picata* (Helomyzidae) record (Plate 17) represents a new southern distribution limit for this species, which was previously known only as far as Christchurch.

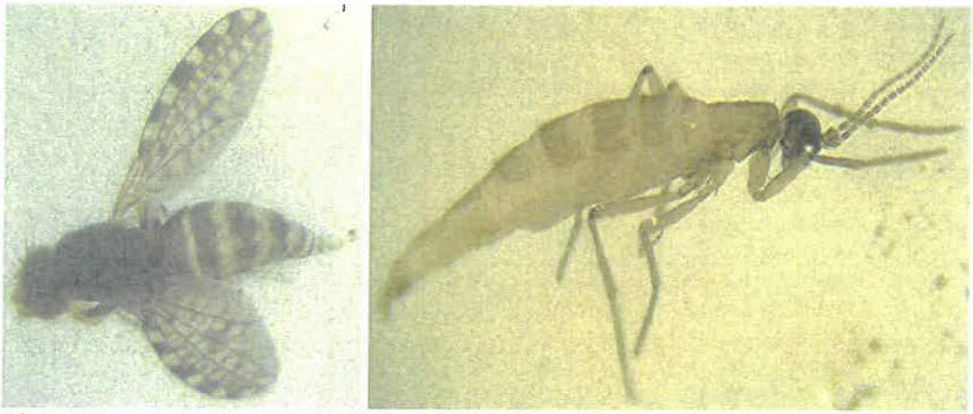


Plate 17: Left: *Xenura picata* from Mt Watkin, which establishes a new southern distribution limit for the species. Right: A female specimen of the undescribed species of *Neopynixia* recorded at Mt Watkin.

The dipteran invertebrate fauna indicates that Mt Watkin Scenic Reserve is a valuable native forest remnant, which on the basis of an incomplete knowledge of forest flies has at least four species that until now have not been recognised from native forest. Such forest remnants have considerable value in maintaining a "congregation" of native fly species. As most invertebrate surveys concentrate on beetles, this study has additional value in recording fly taxa.

Coleoptera (beetles)

Two beetles of interest were collected. A single specimen of *Bryobates* sp.1 (Chrysomelidae) was caught in a pitfall trap in dry kanuka forest (KAN1). This is probably a new species with limited distribution. *Pristoderus* cf. *undosus* (Zopheridae) may also be a new species, and was caught in POD (2 specimens), RIB2 (17 specimens), and RIB1 (105 specimens).

Although the sampling method led to a bias towards ground-dwelling species, the high number of species and individuals collected indicates a healthy forest environment. The Carabidae, sometimes treated as an indicator group because of its position at the top of the invertebrate food-chain, included five species ranging from small to medium in size.

Perhaps notable is the absence of larger Carabidae such as *Megadromus* and *Mecodema*. A number of the species including *Odontria ?striata*, *Mimopeus opaculus*, *Pristoderus bakewelli* and *Zeadelium aeratum* are generalists in terms of habitat requirements, being just as at home in open environments as they are in forest. The majority, however, are limited to true forest habitats.

There are indications that Mt Watkin represents a transition zone; both between lowland and subalpine fauna, and between the coastal south and the coastal north. For example, it would be more usual to find the Chysomelid genera *Bryobates* and *Chaetocnema* in subalpine tussock or herbfields. Further, the zopherid *Pristoderus* cf. *undosus* is not known from localities south of Mt Watkin and may represent the southern limit of a more northerly distribution. It is possible that this species is in fact *P. undosus* itself but, if so, it is a varietal form which in itself is noteworthy.

The minute, blind, depigmented carabid *Zeanillus* sp. 1 is a true soil-dweller, living below the humus layer and can be taken as an indication that this specialised habitat has not been significantly degraded. This group is currently under review and it can be anticipated that the many species yet to be described will show patterns of limited distribution.

Apart from the observations above, the assemblage of beetle species is typical of that found in other Otago forest sites.

10.3 Freshwater invertebrates

There are no records for freshwater invertebrates within Mt Watkin Scenic Reserve. However, koura (*Paranephrops zealandicus*) has been recorded in the Waikouaiti River and its tributaries (Table 23), and is likely to be present in the two major streams within the reserve. Koura have a status of 'Chronically Threatened - Gradual Decline' in Hitchmough *et al.* (2007).

Table 23: Freshwater invertebrates recorded in the North Branch of the Waikouaiti River (NBWR) and its tributaries (NBWRT). Source: New Zealand Freshwater Fish Database (NIWA 2007).

Species	Common Name	Location	Threat Status
Paranephrops zealandicus	koura	NBWR, NBWRT	Gradual Decline

11. PEST ANIMALS

Pigs (*Sus scrofa*), goats (*Capra hircus*), sheep (*Ovis aries*), and one feral cat (*Felis catus*) were seen during the surveys.

Feral pigs had caused extensive and widespread rooting within the reserve, particularly in habitats with grassy ground cover vegetation, and those where bracken was growing in rubbly soil. The effects of soil disturbance by pig rooting include the creation of 'seed beds' for woody weeds such as gorse and broom, and delaying natural succession by uprooting native broadleaved tree seedlings in kanuka forest. The significance of these effects is more difficult to assess. Of greater concern is the targeting of particular species by pigs. Elsewhere, for example, pigs are known to target and uproot species of *Aciphylla*. There was no evidence of this at Mt Watkin, but the small population of *Aciphylla subflabellata* would be particularly vulnerable.

Feral goats were seen only in the western part of the reserve, where they were observed crossing the Waikouaiti River and were present on rock outcrops on the lower slopes above it. Goats can have severe effects on the regeneration of native forest systems by heavily browsing palatable shrubs and saplings and ringbarking mature trees. By simultaneously reducing recruitment and advancing tree mortality, goat browse thus has the potential to cause relatively rapid canopy collapse or shifts in canopy and understorey composition. When goats are at low abundance, these effects are generally localised to areas favoured by goats, such as sunny faces with overhanging rock outcrops. At greater population levels, the effects of goats on vegetation become more widespread.

Sheep (*Ovis aries*) were seen on the Kerr Road ridge, where they were observed in kanuka forest as well as in grassland. Sheep were also seen on the eastern lower slopes of Mt Watkin/Hikaroroa, where a dilapidated boundary fence gives accesss to adjacent farm stock. These sheep seemed to be topographically-restricted to this location, with the steep face of Mt Watkin/Hikaroroa preventing access to the west, and boulder fields preventing access further south. Where they have access to forest areas, sheep are likely to be retarding natural succession by selectively browsing on platatable broadleaved tree species such as mapou, mahoe, and tarata.

A single feral cat was seen in grassland and kanuka forest in the north western part of the site. Cats are almost certainly preying on native birds and lizards within Mt Watkin Scenic Reserve.

Possums (*Trichosurus vulpecula*), hedgehogs (*Erinaceus europaeus*), stoats (*Mustela erminea*) ferrets (*M. furo*), ship rats (*Rattus rattus*), and mice (*Mus musculus*) are all likely to be present within the reserve, and having adverse effects on indigenous flora and fauna.

12. SIGNIFICANT FEATURES

12.1 Important geological sites and landforms

Mt Watkin Scenic Reserve contains the nationally important 'Mt Watkin basalt boulder stream', which has previously been assessed as vulnerable to complete destruction by human actions (Hayward and Kenny 1998). Volcanic boulderfields have been identified as an originally rare ecosystem that is a national priority for protection (MfE/DOC 2007).

12.2 Threatened land environments

The Threatened Land Environment classification (Walker *et al.* 2007) is a national classification of indigenous land cover which assessed the amount of indigenous cover remaining, and the extent to which this indigenous cover is legally protected. These assessments were made at the scale of land environments (LENZ - Leathwick *et al.* 2003). Most of Mt Watkin Scenic Reserve falls within the 'Chronically Threatened' (10-20% of its original indigenous vegetation cover remaining) and 'At Risk' (20-30% of its original indigenous vegetation cover remaining) categories of the Threatened Land Environment Classification (Figure 7). The summit slopes of Mt Watkin contain land within the 'Less Reduced and Better Protected' category, which has >30% indigenous vegetation cover remaining of which >20% is protected, and there is a small amount of 'At Risk' land, with >30% indigenous cover left, but <20% protected.

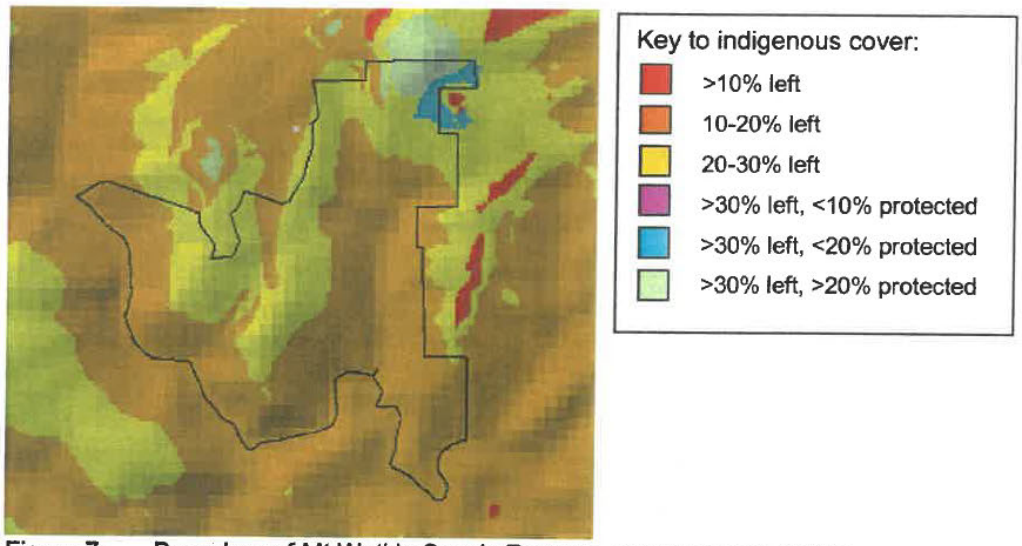


Figure 7: Boundary of Mt Watkin Scenic Reserve superimposed on the Threatened Land Environment classification for the surrounding area.

12.3 Vegetation and habitats

Mt Watkin/Hikaroroa itself is a distinctive ecological feature with a diverse range of species and vegetation types, and the reserve as a whole supports a high diversity of vegetation types and indigenous plant species. The reserve contains the largest area of matai-totara/ribbonwood-kowhai forest remaining in coastal Otago, and this forest also has high value as a representative example of the dry coastal forest that would have cloaked most of the coastal hills. This forest provides important habitat for threatened bird and invertebrate fauna.

12.4 Habitat 'island'

Mt Watkin is an 'island' of biodiversity in a largely farmed landscape, but is close to two other ecologically-valuable forest remnants. The reserve is, however, large in size, and is relatively compact, meaning that a large area of potential core habitat (unaffected by edge effects) is available. The catchment of the two main streams within the reserve are largely covered by indigenous vegetation, and the reserve provides approximately 6 km of indigenous riparian habitat on the true left side of the Waikouaiti River.

12.5 Plant species

Mt Watkin Scenic Reserve provides habitats for populations of eight nationally threatened, uncommon, or data deficient species. The reserve is a stronghold for *Gingidia grisea* and has the largest population of this species at its southern limit of distribution. The reserve also supports good populations of *Brachyglottis sciadophila* and fierce lancewood, and small populations of the remaining nationally threatened/uncommon species. An additional 24 plant species found at Mt Watkin are locally threatened, uncommon, or otherwise important within the Dunedin City District. These figures represent a particularly high concentration of nationally and locally threatened and uncommon species for a single site. Threatened and uncommon mistletoe species are well-represented (four species) at the site.

12.6 Fauna

Fourteen indigenous bird species were recorded within the reserve during the field survey, but this will be less than the actual number of native birds within the reserve. Three of the bird species seen are nationally threatened and the reserve provides excellent habitat for each of these.

The reserve will provide habitat for populations of indigenous fish, and it is possible that nationally threatened fish species are present.

Two nationally threatened invertebrates are known from Mt Watkin Scenic Reserve, and an additional seven uncommon or undescribed species are also present.

Overall assessment

Mt Watkin Scenic Reserve, although modified in part and with a history of fire and grazing, has exceptional values for indigenous biodiversity.

13. FUTURE MANAGEMENT

13.1 Fire

The forest vegetation at Mt Watkin Scenic Reserve is highly vulnerable to fire. As most rural fires originate from out-of-control burn offs on agricultural land, preventing and/or controlling any such fires near the reserve is critical. Accidental fires could also result from the activities of visitors to the reserve, or from sparks caused by use of machinery such as chainsaws and vehicles. A prohibition on lighting fires within the reserve should be considered, and staff and contractors working in the reserve should carry fire extinguishers if working with machinery that could cause sparks. The high value and vulnerability of the reserve should be communicated to the relevant rural fire authority.

13.2 Boundaries

Fences on some reserve margins are in poor condition and would potentially allow stock to enter the reserve. These fences should be repaired to a stock-proof standard after mustering or otherwise removing any stock from the reserve.

The fenced boundary of the reserve differs from the legal boundary in several places on its northern and eastern margins. In general, these fencing deviations favour the reserve, i.e. private land is more often fenced into the reserve than *vice versa*. No important areas of indigenous vegetation or habitat that are legally within the reserve have been fenced out of it, but some valuable ecological areas on private land have been fenced within the reserve. These include cliffs and rock outcrops adjacent to the eastern boundary of the reserve. It is recommended that the Council formalises the existing boundaries through consultation and negotiation with adjacent landholders.

An additional boundary issue is that the legal boundary on the northern side of the reserve does not include the summit and northern slopes of Mt Watkin/Hikaroroa. These areas include tussock grassland, rock outcrop, and boulder field habitats of ecological importance. It is recommended that the Council negotiate with the adjacent landholder with a view toward purchasing these areas and adding them to the reserve.

13.3 Pest plant control

13.3.1 Chilean flame creeper

There appears to be no practical control method available that can completely kill established Chilean flame creeper plants without also destroying other vegetation. In small infestations, mechanical control of aerial shoots can be readily achieved by regular pulling, but once the underground rhizome has ramified it becomes impossible to fully extract from among the roots of other plants, and new aerial shoots are rapidly produced from remaining rhizome fragments. Removal of aerial stems is however a useful strategy if carried out sufficiently regularly (at the beginning and end of summer may be appropriate for the infestations at Mt Watkin) to prevent flowering and fruiting. The Department of Conservation has been undertaking chemical trials in Southland, Otago, and Canterbury to assess the best chemical control methods for

Chilean flame creeper, but the full results of these are not yet available. Application of 6% Grazon by hand spraying of aerial shoots has been effective at killing above-ground shoots, and damages the underground rhizome system, but new tendrils typically resprout the following summer. Care needs to be taken so that any adjacent desirable plants are not sprayed. It is not yet known whether further application of herbicide to resprouting shoots can kill plants entirely. Despite these difficulties, eradication of Chilean flame creeper is a high priority at Mt Watkin Scenic Reserve.

Surveillance for Chilean flame creeper should be routinely undertaken by all staff and contractors working in the reserve, and the public should be encouraged to report any sightings of it. Surveillance in summer would have a greater chance of revealing flowering infestations by concentrating on forest edges and gaps where Chilean flame creeper would grow more quickly and reach a flowering stage earlier than if present beneath a canopy.

13.3.2 Gorse

Invasion of neighbouring properties by gorse stands on reserve boundaries could be reduced by controlling the marginal gorse sufficiently to allow planting of a shady indigenous buffer. Some control of outlying shrubs of gorse has been undertaken in the reserve, and this is supported. Care should be taken to avoid spraying any regenerating indigenous woody species if spraying gorse in forest habitat. Indigenous forest regeneration should always be encouraged where the environment would support forest, because this represents the most sustainable, long term, and ecologically desirable solution to the problem of gorse infestations. Surveillance for gorse is readily achieved in late spring/early summer when mass flowering of the species is typical.

13.3.3 Scotch broom

Isolated Scotch broom shrubs are a high priority for control, particularly those that are present in grassland on the southeast slopes of Mt Watkin/Hikaroroa (Figure 5). The infestation in the head of the smaller gully should be contained by establishing appropriate indigenous forest vegetation on its margins. Spraying with herbicide could also help but care should be taken to avoid damage to existing indigenous woody vegetation at this site. Scotch broom usually flowers slightly later than gorse, and has a brighter yellow flower, which aids surveillance.

13.3.4 Elder

Elder is at low abundance in the reserve and eradication should be the goal. Cutting trees and application of herbicide to the cut stumps is the preferred method of control, but elder is a very capable resprouter, and cut stumps should be checked annually in summer for regeneration, until no regeneration is seen. Elder can also regenerate from cut branches in damp conditions, but this may be less problematic at Mt Watkin, where dry forest predominates. Stacking any cut branches off the ground can also help. Surveillance for elder is best done in late spring when mature trees of elder present large panicles of white flowers.

13.3.5 Himalayan honeysuckle

Himalayan honeysuckle is at low abundance within the reserve and eradication of this weed should be the goal.

13.4 Pest animal control

Sheep should be removed from the reserve.

The control of pest animals at the site is problematic because pests at the site have large expanses of suitable surrounding habitat and highly mobile species such as pigs and goats can reinvade rapidly. This means that pest monitoring and/or control within the reserve must be undertaken regularly. The greatest benefit to the ecosystems at Mt Watkin would be from integrated pest management actions directed at the whole suite of pest animals that are present. In addition to controlling pest animals within the reserve, an effort should be made to consult and cooperate with adjacent landholders with the goal of achieving sustained control of pest animals in the surrounding area, thus reducing reinvasion rates at Mt Watkin.

13.5 Threatened and uncommon plants

The chief requirements for maintenance of threatened plant species at the site are ongoing control of woody weeds and pest animals.

Of the nationally threatened, uncommon, and data deficient species, there is no shortage of potential habitats at the site for *Gingidia grisea*, fierce lancewood, *Tupeia antarctica*, or *Brachyglottis sciadophila*. While kanuka is abundant and extensive at the site, much of this is secondary in nature, and *Korthalsella salicornioides* was only seen in primary kanuka forest on a cliff top (although as an inconspicuous species it may occur elsewhere). This site appears to offer secure habitat for *K. salicornioides*. A moderately large amount of grassland habitat is currently available for *Aciphylla subflabellata*, but this is likely to become more limited in future due to the expansion of native and exotic woody vegetation within the reserve. As the population of *Aciphylla subflabellata* is small, vulnerable to pig rooting, and close to its southern distributional limit, enhancing this population by propagating and replanting in suitable habitats would have merit, and help to preserve the existing value of the reserve as a habitat for threatened and uncommon species. The existing population of *Aciphylla subflabellata* should be marked and staff and contractors notified of its presence, to avoid any inadvertent damage caused by activities such as herbicide spraying or revegetation. The habitats of *Vittadinia australis* and *Lepidium desvauxii* are more limited, and have probably become more so due to the expansion of exotic grass swards. *Vittadinia australis* and *Lepidium desvauxii* now persist only where environmental constraints result in sparse above-ground vegetation cover.

Many of the locally threatened, uncommon, or otherwise important plant species have large populations within the reserve, and those that are more sparsely distributed generally have plentiful habitat that is likely to be enhanced as areas currently dominated by exotic vegetation achieve greater dominance of indigenous species over time.

13.6 Threatened avifauna

Integrated pest control of exotic predators including possums, cats, ferrets, stoats, hedgehogs, and rats would assist the breeding success of South Island rifleman and kereru within the reserve. This would also benefit populations of other indigenous birds at the site, as well as lizards and invertebrates (including the control of mice).

13.7 Species reintroductions

There are no plant species obviously missing from Mt Watkin Scenic Reserve, but the population of *Aciphylla subflabellata* could be enhanced as described above. While matai and totara (and probably kahikatea and rimu also) are under-represented as canopy trees, natural regeneration of these species is occurring. In the absence of further disturbance, these will become increasingly apparent as emergent trees. However it would probably take hundreds of years to develop forest similar in structure to the original forest at the site.

The large size, predominantly forested nature, and permanent water sources of Mt Watkin Scenic Reserve mean that it could probably support indigenous fauna that are no longer present in east Otago. These could potentially include birds such as kiwi (*Apteryx* spp.), South Island kaka (*Nestor meridionalis meridionalis*), South Island saddleback (*Philesturnus carunculatus carunculatus*), and red-crowned kakariki (*Cyanoramphus novaeselandiae*), or reptiles such as tuatara (*Sphenodon punctatus*). Reintroduction of these and other birds would depend heavily on eradication of predators from the reserve, which is currently only sustainable in conjunction with predator-proof fences that prevent reinvasion. Construction of a predator-proof fence around Mt Watkin Scenic Reserve would probably be feasible, especially if neighbouring landholders allowed the fenced boundary to be varied from the legal boundary so as to take advantage of easier terrain. However a fence such as this would cost several million dollars at current rates, and require ongoing monitoring and maintenance. Before any such fencing is proposed, it would also be necessary to undertake detailed assessments of the suitability of the Mt Watkin site for reintroduced fauna, on a species-by-species basis. In the meantime, sustained control of the predators listed above would do much to benefit the indigenous fauna currently present at Mt Watkin, and would enhance the prospects of mobile species such as kaka self-introducing, if only on a temporary basis, from successful pest-proof sanctuaries elsewhere (such as the Orokonui Ecosanctuary near Waitati, some 20 km south of Mt Watkin).

13.8 Vegetation restoration

The indigenous woody vegetation within Mt Watkin Scenic Reserve will, given adequate control of pest animals and weeds, be self-maintaining and able to expand naturally into most areas currently dominated by grassland. Natural successional processes should be fostered to achieve this. Intervention by restoration planting could however be used as a strategic tool to help contain weed spread within the site. For example, if gorse, tree lupins, and Scotch broom are controlled on the eastern slopes of Mt Watkin, then a band of forest could be established, above and parallel to Mt Watkin Road, to act as a barrier to future spread of woody weeds from roadsides.

Any such restoration planting should be carefully designed and ensure that only locally-sourced appropriate indigenous species are planted in appropriate habitats.

13.9 Further ecological surveys

Fish and aquatic values were not assessed (apart from a desktop review) for this report, but it is very likely that the two major streams within the reserve support populations of native fish. It is recommended that these streams are surveyed to determine what species and values are present, and any related management requirements.

A survey of grassland habitats in the vicinity of Mt Watkin/Hikaroroa would be justified, to assess whether additional plants/populations of *Aciphylla subflabellata* are present, and if absent, where they could be replanted.

13.10 Monitoring

No monitoring should be undertaken within the reserve without a clear concept of the 'question' that the proposed monitoring is designed to answer. Careful conceptualisation and design can ensure that costly and uninformative monitoring schemes are rejected and that there is no 'monitoring for monitoring's sake'. Basic regular management-related monitoring (and systematic recording) is required for fencing, pest plants, and large vertebrate pest animals (goats, pigs, and domestic stock).

Some further potential monitoring strategies are discussed broadly below.

The known population of *Aciphylla subflabellata* is small and readily accessible and could easily be monitored to assess survival and recruitment.

Monitoring of vegetation succession within the reserve could be achieved by establishing permanently-marked vegetation plots in appropriate vegetation types. If such monitoring is undertaken it is recommended that this includes sites in mature forest to assess podocarp regeneration, kanuka forest to assess regeneration of broadleaved trees, and grassland to assess colonisation by kanuka and/or exotic weeds. The presence of pig rooting or other animal sign could also be noted in these plots.

If any predator control is undertaken, it is recommended that monitoring is undertaken using tracking tunnels or trapping prior to and following pest control, to assess the effectiveness of pest control and determine thresholds for intervention. Five-minute bird counts, or assessment of nesting success could be undertaken for selected bird species, to help assess the effectiveness of pest control.

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APPENDIX 1

LIST OF VASCULAR PLANT SPECIES RECORDED DURING THE 2007 SURVEY

Exotic species are marked with an asterisk.
Abundance codes: A = abundant; F = frequent; O = occasional; R = rare or localised.

Species	Common Name	Plant Type	Abundance
*Acaena agnipila**	Australian sheeps burr	dicot herb	O
Acaena anserinifolia		dicot herb	O
Acaena caesiiglauca		dicot herb	O
Acaena juvenca		dicot herb	O
Acaena novae-zelandiae		dicot herb	O
Acaena profundeincisa		dicot herb	R
*Achillea millefolium**	yarrow	dicot herb	O
Aciphylla aurea	golden spaniard	dicot herb	O
Aciphylla glaucescens		dicot herb	R
Aciphylla subflabellata		dicot herb	R
*Agrostis capillaris**	browntop	grass	F
*Aira caryophyllea**	hair grass	grass	O
Anaphalioides bellidioides		dicot herb	R
*Anthoxanthum odoratum**	sweet vernal	grass	A
*Arctium minus**	burdock	dicot herb	O
*Arenaria serpyllifolia**	sandwort	dicot herb	O
Aristotelia serrata	wineberry; makomako	tree	O
Arthropodium candidum		monocot herb	R
Asplenium appendiculatum		fern	F
Asplenium bulbiferum	hen and chicken fern	fern	F
Asplenium flabellatum		fern	F
Asplenium hookerianum		fern	F
Asplenium lyallii		fern	O
Asplenium richardii		fern	R
Astelia fragrans	bush flax	monocot herb	R
Australina pusilla		dicot herb	R
*Bellis perennis**	daisy	dicot herb	O
Blechnum chambersii		fern	O
Blechnum fluviatile	kiwakiwa	fern	O
Blechnum novae-zelandiae	kiokio	fern	O
Blechnum penna-marina		fern	O
Blechnum procerum		fern	O
Blechnum vulcanicum		fern	O
Brachyglottis bellidioides		dicot herb	O
Brachyglottis sciadophila		vine	O
*Brassica napus**	rape	dicot herb	R
*Bromus hordeaceus**	soft brome	grass	O
Bulbinella angustifolia	maori onion	monocot herb	O
*Callitriche stagnalis**	starwort	dicot herb	R
Calystegia tuguriorum		vine	A
*Capsella bursa-pastoris**	shepherds purse	dicot herb	O
Cardamine debilis		dicot herb	O
*Cardamine hirsuta**		dicot herb	O
Carex breviculmis		sedge	R
Carex forsteri		sedge	O

Species	Common Name	Plant Type	Abundance
Carex geminata		sedge	R
*Carex ovalis**	oval sedge	sedge	R
Carex secta	purei	sedge	R
Carex virgata		sedge	R
Carmichaelia petriei		shrub	O
Carpodetus serratus	putaputaweta	tree	F
Celmisia gracilenta		dicot herb	O
*Centaurium erythraeum**	centaury	dicot herb	O
Centella uniflora		dicot herb	R
*Cerastium fontanum**	mouse-ear chickweed	dicot herb	O
Chionochloa rigida subsp. *rigida*	narrow-leaved snow tussock	tussock grass	O
*Cirsium arvense**	Californian thistle	dicot herb	O
*Cirsium vulgare**	Scotch thistle	dicot herb	O
Clematis foetida		vine	O
Clematis marata		vine	O
Clematis paniculata	clematis	vine	O
Collobanthus muelleri		dicot herb	O
*Conium maculatum**	hemlock	dicot herb	O
Coprosma areolata		tree	F
Coprosma crassifolia		tree	O
Coprosma linariifolia		tree	F
Coprosma propinqua	mingimingi	shrub	F
Coprosma rhamnoides	shrub	shrub	F
Coprosma rigida		shrub	R
Coprosma rotundifolia		tree	F
Coprosma rugosa		shrub	O
Coprosma tayloriae		shrub	F
Coprosma virescens		shrub	R
Cordyline australis	cabbage tree; ti kouka	tree	O
Coriaria sarmentosa	tutu	shrub	O
Corokia cotoneaster	corokia	shrub	R
Cortaderia richardii	toe toe	tussock grass	R
*Crepis capillaris**	hawksbeard	dicot herb	F
Cyathea smithii	soft tree fern	tree fern	O
*Cynosurus cristatus**	crested dogstail	grass	F
*Cytisus scoparius**	Scotch broom	shrub	O
Dacrycarpus dacrydioides	kahikatea	tree	R
Dacrydium cupressinum	rimu	tree	R
*Dactylis glomerata**	cocksfoot	grass	F
Dianella nigra	turutu	monocot herb	O
Dichondra brevifolia		dicot herb	O
*Digitalis purpurea**	foxglove	dicot herb	F
Discaria toumatou	matagouri	shrub	O
*Dryopteris filix-mas**	male fern	fern	O
Earina autumnalis	Easter orchid	orchid	R
Einadia allanii		vine	R
*Epilobium ciliatum**		dicot herb	R
Epilobium nummularifolium		dicot herb	R
Epilobium pubens		dicot herb	R
Epilobium rotundifolium		dicot herb	R
Euchiton audax		dicot herb	O
Festuca novae-zelandiae	hard tussock	grass	R
*Festuca rubra**		grass	O
Fuchsia excorticata	fuchsia; kotukutuku	tree	O
Fuchsia perscandens		shrub	O
*Galium aparine**	cleaver	dicot herb	F

Species	Common Name	Plant Type	Abundance
Galium propinquum		dicot herb	O
Gaultheria antipoda	false beech	shrub	O
Gaultheria macrostigma		shrub	F
*Geranium dissectum**	cut-leaved cranesbill	dicot herb	O
Geranium microphyllum		dicot herb	O
Geranium sessiliflorum		dicot herb	O
Gingidia grisea		dicot herb	O
Griselinia littoralis	broadleaf; papauma	tree	A
Gunnera dentata		dicot herb	R
Haloragis erecta	shrub	shrub	R
Hebe salicifolia	koromiko	shrub	O
Helichrysum filicaule	slender everlasting	dicot herb	O
Helichrysum lanceolatum		shrub	F
*Hieracium lepidulum**	tussock hawkweed	dicot herb	R
*Hieracium pilosella**	mouse-ear hawkweed	dicot herb	F
Hierochloe redolens	holy grass	grass	R
Histiopteris incisa	water fern	fern	O
Hoheria angustifolia	narrow-leaved lacebark	tree	F
*Holcus lanatus**	Yorkshire fog	grass	O
Huperzia varia		fern ally	O
Hydrocotyle heteromeria		dicot herb	O
Hydrocotyle moschata		dicot herb	O
Hydrocotyle novae-zelandiae		dicot herb	O
*Hypericum androsaemum**	tutsan	shrub	R
*Hypochaeris radicata**	catsear	dicot herb	F
Hypolepis millefolium	thousand-leaved fern	fern	O
Ileostylis micranthus		shrub	R
*Juncus articulatus**	jointed rush	rush	R
Juncus edgariae	hard rush	rush	R
*Juncus effusus**	soft rush	rush	R
Juncus pauciflorus		rush	R
Korthalsella lindsayi		mistletoe	R
Korthalsella salicornioides		mistletoe	R
Kunzea ericoides	kanuka	tree	A
Lagenifera strangulata		dicot herb	F
*Lapsana communis**	nipplewort	dicot herb	F
Lastreopsis glabella		fern	R
Lepidium desvauxii	bushy peppercress	dicot herb	R
Leptopteris hymenophylloides		fern	O
Leptospermum scoparium	manuka	tree	O
Leucopogon fraseri	patotara	subshrub	F
*Leycesteria formosa**	Himalayan honeysuckle	shrub	R
Libertia ixioides	mikoikoi	monocot herb	O
*Linum catharticum**	purging flax	dicot herb	O
*Lolium perenne**	perennial ryegrass	grass	O
Lophomyrtus obcordata		tree	O
*Lotus pedunculatus**	lotus	dicot herb	O
*Lupinus arboreus**	tree lupin	shrub	R
Luzula picta		rush	O
*Marrubium vulgare**	horehound	dicot herb	O
*Matricaria discoidea**	rayless chamomile	dicot herb	O
Melicope simplex	poataniwha	tree	O
Melicytus alpinus	porcupine shrub	shrub	O
Melicytus ramiflorus	mahoe	tree	F
Metrosideros diffusa	white rata	vine	R
Microlaena stipoides		grass	O

Species	Common Name	Plant Type	Abundance
Microsorum pustulatum	hound's tongue fern	fern	A
Microtis unifolia	onion orchid	orchid	O
*Mimulus guttatus**	musk	dicot herb	R
*Mimulus moschatus**	monkey musk	dicot herb	R
Muehlenbeckia australis	pohuehue	vine	F
Muehlenbeckia complexa	pohuehue	vine	O
*Mycelis muralis**	wall lettuce	dicot herb	O
Myoporum laetum	ngaio	tree	R
Myrsine australis	mapou	tree	F
Myrsine divaricata	weeping mapou	tree	R
Nematoceras trilobus		orchid	R
Nertera setulosa		dicot herb	R
Olearia arborescens		shrub	O
Oreomyrrhis ramosa		dicot herb	R
Oxalis exilis		dicot herb	R
Ozothamnus leptophyllus	tauhinu	shrub	R
Parentucellia viscosa	tarweed	dicot herb	O
Parsonsia heterophylla		vine	F
Pellaea rotundifolia	button fern	fern	F
Pennantia corymbosa	kaikomako	tree	O
Phormium tenax	flax	monocot herb	O
Pimelea prostrata		dicot herb	R
*Pinus radiata**	radiata pine	tree	R
Pittosporum eugenioides	tarata; lemonwood	tree	F
Pittosporum tenuifolium	kohuhu	tree	F
Plagianthus regius	ribbonwood	tree	A
*Plantago lanceolata**	narrow-leaved plantain	dicot herb	O
Poa cita	silver tussock	tussock grass	F
Poa colensoi	blue tussock	tussock grass	O
Poa matthewsii		grass	F
*Poa pratensis**	smooth meadow grass	grass	O
Podocarpus totara	totara	tree	F
Polystichum neozelandicum		fern	F
Polystichum vestitum	shield fern	fern	F
Prumnopitys taxifolia	matai	tree	F
*Prunella vulgaris**	self heal	dicot herb	O
Pseudognaphalium luteo-album		dicot herb	R
Pseudopanax colensoi	three finger	tree	R
Pseudopanax crassifolius	lancewood; horoeka	tree	F
Pseudowintera colorata	horopito; pepper tree	tree	O
Pteridium esculentum	bracken	fern	O
Pterostylis graminea		orchid	R
Pterostylis montana		orchid	O
Pyrrosia eleagnifolia	leather leaf fern	fern	F
Ranunculus foliosus		dicot herb	R
Ranunculus multiscapus		dicot herb	R
*Ranunculus repens**	creeping buttercup	dicot herb	O
*Rosa rubiginosa**	briar rose	shrub	R
Rubus cissoides	lawyer	vine	F
Rubus fruticosus agg.*	blackberry	vine	R
Rubus schmidelioides	lawyer	vine	O
Rubus squarrosus	leafless lawyer	vine	O
*Rumex acetosella**	sheeps sorrel	dicot herb	F
*Rumex obtusifolius**	broad dock	dicot herb	R
Rytidosperma gracile		grass	F
*Rytidospermum racemosum**		grass	O

Species	Common Name	Plant Type	Abundance
*Sambucus nigra**	elder	tree	R
Scandia geniculata		vine	R
Schefflera digitata	pate; seven finger	tree	R
Schizeilema trifoliolatum		dicot herb	R
Schoenus pauciflorus		rush	R
Scleranthus biflorus		dicot herb	R
Scleranthus uniflorus		dicot herb	O
Senecio glomeratus		dicot herb	R
*Senecio jacobaea**	ragwort	dicot herb	O
Senecio minimus		dicot herb	O
Senecio quadridentatus		dicot herb	R
*Senecio sylvatica**		dicot herb	R
Senecio wairauensis		dicot herb	R
Solanum laciniatum	poroporo	shrub	O
*Sonchus oleraceus**	puha	dicot herb	R
Sophora microphylla	kowhai	tree	A
*Stachys silvatica**	hedge woundwort	dicot herb	R
*Stellaria alsine**	bog stitchwort	dicot herb	R
*Stellaria media**	chickweed	dicot herb	R
Stellaria parviflora		dicot herb	O
Streblus heterophyllus	turepo	tree	O
*Tanacetum parthenium**	tansy	dicot herb	R
*Taraxacum officinale**	dandelion	dicot herb	O
Thelymitra longifolia	white sun orchid	orchid	O
*Trifolium dubium**	suckling clover	dicot herb	O
*Trifolium pratense**	red clover	dicot herb	R
*Tropaeolum speciosum**	Chilean flame creeper	vine	R
Tupeia antarctica		shrub	R
*Ulex europaeus**	gorse	shrub	A
Uncinia rubra		sedge	R
Uncinia scabra		sedge	O
Uncinia sp.		sedge	O
Uncinia uncinata		sedge	O
Urtica ferox	tree nettle	shrub	O
Urtica incisa	nettle	dicot herb	O
*Verbascum thapsus**	woolly mullein	dicot herb	R
*Veronica arvensis**	field speedwell	dicot herb	O
*Vicia sativa**	vetch	dicot herb	O
Vittadinia australis	white fuzzweed	dicot herb	R
Wahlenbergia gracilis		dicot herb	O

APPENDIX 2

LIST OF NON-VASCULAR PLANT SPECIES RECORDED AT 'MT WATKIN'

Note: There is some uncertainty surrounding several of the names ascribed to previously collected moss and liverwort taxa. If a more recent name applies to a collected taxon, then the old name is listed in the 'Notes' column. Collected taxon without corresponding current names are omitted.

Species	Notes
Mosses	
Andreaea mutablis	Recorded as *Andreaea rupestris*[2]
Brachythecium salebrosum[2]	
Brachythecium velutinum[3]	
Bryum blandum[2]	
Fallaciella gracilis	Recorded as *Camptochaete gracilis*[2]
Campylopus clavatus[2]	
Catagonium nitens subsp. *nitens*	Recorded as *Catagonium politum*[2]
Cryphaea tenella[2]	
Cuspidatula monodon[5]	1500 ft
?Dicranoloma menziesii	Recorded as *Dicranoloma menziesii* var. *rigidum*[2]
Ditrichum cylindricarpum	As synonym *Ditrichum elongatum*[2]
Schistidium apocarpum	Recorded as *Grimmia apocarpa*[2]
Grimmia incrassicapsulis	Recorded as *Grimmia inaequalis*[2,4]
Grimmia longirostris[1]	At Risk - Range Restricted[1]
Grimmia pulvinata var. *africana*[2]	
Grimmia trichophylla[2]	
Hypnum chrysogaster	Recorded as *Stereodon chrysogaster*[2]
Leptostomum inclinans[2]	
Macrocoma tenue subsp. *tenue*	Recorded as *Macromitrium eucalyptorum*[2]
Orthotrichum hortense[2]	
Philonotis pyriformis	Recorded as *Philonotis australis* and *Philonotis australis* var. *surculigera*[2]
Racomitrium crispulum[2]	
Racomitrium pruinosum	Recorded as *Racomitrium lanuginosum* var. *pruinosum*[2]
Syntrichia princeps	Recorded as *Tortula tenella*[2]
?Weissia patula	Recorded as *Weisia viridula*[2]
Liverworts	
Cuspidatula monodon[5]	
Frullania falciloba[6]	On rock
Frullania media	Recorded as *Frullania fugax* var. *media*[6]

1 Hitchmough *et al.* (2007)
2 Martin (1951)
3 Allison (1952)
4 Sainsbury (1945)
5 Hodgson (1946)
6 Hodgson (1949)

APPENDIX 3

INVERTEBRATES OF MT WATKIN SCENIC RESERVE

All taxa were collected during the 2007 survey unless otherwise stated.
Exotic species are indicated with an asterisk.

ORDER/Family	Notes
LEPIDOPTERA (moths and butterflies)[1]	
Crambidae	
Eudonia critica	Small black & white species that is day-flying and whose larvae feed on mosses on rock faces. Widespread but local in distribution in mainly montane areas
Eudonia chalara	Common early summer species of grasslands in the montane zone. It is widespread and common
Eudonia leptalea	Widespread and common species with larvae a sod webworm - conspicuous in open areas
Eudonia minualis	Widespread and common species with larvae feeding on mosses
Eudonia philerga	Widespread and common species with larvae feeding on mosses on tree trunks
Eudonia sabulosella	Ubiquitous species of open grasslands where its larvae are sod web-worms
Eudonia submarginalis	Widespread and common species with larvae feeding on mosses
Gadira acerella	Elegant species that is widespread and common. Larvae feed within mosses on rockfaces
Orocrambus melitastes	Common day-flying species of southern New Zealand grasslands. Larvae feed in grass tillers
Orocrambus flexuosellus	Ubiquitous grassland species throughout New Zealand
Orocrambus ramosellus	Widespread and common species with larvae feeding on grasses in damp areas
Orocrambus vittellus	Widespread and common species with larvae feeding on grasses in dry areas
Scoparia rakaiensis	Widespread and but local species - life history unknown
Udea marmarina	Widespread species of forest edge where the larvae feed on *Urtica ferox* and other related species
Udea flavidalis	Widespread and common species with larvae feeding on various climbers and herbs
Geometridae	
Aponotoreas insignis	Bright orange day-flying species of snowgrass areas. Larvae feed on *Chionochloa* species and can be very common from montane to alpine areas in mid to late summer
Asaphodes beata	Widespread and common species with larvae feeding on various herbs in damp places
Asaphodes chlamydota	Elegant species that is widespread in shrubland areas where the larvae feed on *Clematis* species - only locally common

[1] List of Lepidoptera and accompanying notes supplied by Brian H. Patrick, New Zealand Butterfly Enterprises Ltd, 9 Mayfair Grove, Alexandra 9320, based on ten expeditions to Mount Watkin between 1983 and 2005. Relevant references include Patrick (1997), Patrick *in press*, and Peat and Patrick (1995).

ORDER/Family	Notes
Asaphodes abrogata	Widespread orange day-flying species of grasslands and other open areas. Larvae feed on herbs including *Plantago*. Adults are abundant in late summer
Cephalissa siria	Small day-active orange species whose larvae feed exclusively on *Fuchsia perscandens.* The species is rare and local in southern New Zealand from coastal to montane areas. This locality is a major stronghold for the moth species with so much of the hostplant straggling over the basaltic scree
Chloroclystis inductata	Widespread and common species with larvae feeding on various herbs and shrub flowers - mainly lowland species
Chloroclystis filata	Self-introduced from Tasmania - larvae feed on various flowers - now widespread and common
Dasyuris partheniata	Pretty day-flying orange species whose larvae feed on the leaf material of various speargrass species including here *Aciphylla glaucescens, A.aurea* and *A.subflabellata*. Species has widespread but patchy distribution in coastal to low alpine areas of South & North islands
Declana junctilinea	Widespread and common species with larvae feeding on various native shrubs - lowland to montane zone
Declana leptomera	Widespread and common species with larvae feeding on various shrubs and trees
Epicyme rubropunctata	Widespread and common species with larvae feeding on *Haloragis* and *Gaultheria*
Gingidiobora new species	Rare species, endemic to Eastern Otago (Peat & Patrick 1995). Larvae feed on *Gingidia grisea*. Adults large and grey
Hydriomena rixata	Widespread and common species with larvae feeding on various herbs in wet places
Helastia corcularia	Widespread and common species with larvae feeding on mosses and various herbs and low shrubs
Ischalis fortinata	Widespread and common species with larvae feeding on *Polystichum* ferns - often found to low alpine zone - attractive species
Orthoclydon praefectata	Widespread species with larvae feeding on flax. The large white adults are distinctive and sometimes common
Xanthorhoe semifissata	Widespread and common species with larvae feeding on various native and exotic crucifer herbs - found to low alpine zone
Xyridacma alectoraria	Large and widespread species with larvae on broadleaf and *Pseudopanax*
Glyphipterigidae	
Glyphipterix achlyoessa	Widespread day-active species of grasslands. Larvae bore into grass stems
Glyphipterix barbata	Widespread species of snowgrass areas where the larvae bore into *Chionochloa* tillers. Adults are day-active and can be very common
Glyphipterix nephoptera	Widespread grassland species of southern New Zealand. Larvae feed in grass stems, both native and exotic
Noctuidae	
Aletia virescens	Large and widespread species of montane to alpine areas with larvae on herbs
Graphania nullifera	Largest noctuid in New Zealand - larvae feed within taproot of various speargrass species including here *Aciphylla glaucescens, A.aurea* and *A.subflabellata.* Species has widespread distribution from coastal (now rare) to alpine zone. Type locality Waikouaiti.
Graphania insignis	Common and widespread species with larvae feeding on various herbs
Graphania mutans	Widespread and common species with larvae feeding on various native and exotic herbs
Graphania mollis	Widespread and common species with larvae feeding on various native and exotic grasses

ORDER/Family	Notes
Graphania ustistriga	Widespread and common species with larvae feeding on various native and exotic shrubs and herbs
Graphania plena	Widespread and common species with larvae feeding on various native and exotic herbs
Graphania omoplaca	Widespread and common species with larvae feeding on various native and exotic grasses
Graphania morosa	Widespread and common species with larvae feeding on various sedges and grasses
Graphania rubescens	Widespread and common species with larvae feeding on various native and exotic grasses, sedges and herbs
Persectania aversa	Widespread and common species with larvae feeding on various native and exotic grasses
Feredayia graminosa	Gorgeous green species that is widespread in distribution. Larvae feed on mahoe
Meterana ochthistis	Widespread and common species with larvae feeding on various native shrubs
Meterana stipata	Large, common and widespread species with larvae feeding only on *Muehlenbeckia*
Rictonis comma	Widespread and common species with larvae feeding on various native and exotic grasses and herbs
Tmetolophota steropastis	Widespread and common species with larvae feeding on flax
Tmetolophota propria	Widespread and common species with larvae feeding on various native and exotic grasses
Tmetolophota atristriga	Widespread and common species with larvae feeding on various native and exotic grasses
Choreutidae	
Asterivora new species	Small day-active species whose larvae feed by leaf-mining on *Brachyglottis bellidioides*. The species is rarely found and known from only a handful of southern New Zealand localities in montane to low alpine zone
Lycaenidae	
Lycaena new species	Copper butterfly species that is widespread in eastern Otago with larvae feeding on *Muehlenbeckia complexa* and *M.australis*
Zizina oxleyi	Small southern blue butterfly is common here where the larvae feed on introduced clover species. Presumably its natural hostplant was a prostrate native broom which once grew here. Species common from Central Otago northwards but only local in eastern Otago and not found closer to Dunedin
Oecophoridae	
Gymnobathra sarcoxantha	Widespread southern New Zealand species of forest to low alpine zone. Larvae carry protective case and feed on litter. Female flightless
Hierodoris s-fractum	Brightly coloured day-active species of southern New Zealand shrublands. Larvae feed on leaf litter in these situations. Species is widely spread
Izatha peroneanella	Attractive green species that is widespread and common, with larvae on dead wood
Leptocroca asphaltis	Common dull-coloured species of shrubland areas in southern New Zealand where its larvae feed on leaf litter and decaying vegetation. Female is flightless
Tingena ombrodoca	Dull-coloured species of shrublands where its larvae feed on leaf litter. This is a common species emerging as adults in early spring
Tingena apertella	Widespread forest species with larvae on leaf litter
Trachypepla anastrella	Widespread and common species with larvae feeding on leaf litter in forest
**Tachystola acroxantha*	Australian species introduced and now common and widespread. Larvae in litter and on detritus

ORDER/Family	Notes
Psychidae	
Mallobathra perriseuta	Day-flying small bronzy casemoth species that is widespread in southern New Zealand shrublands and forests. Larvae feed from within a case on leaf litter
Reductoderces new species	Small algal cases on rock faces, are the larval home for a new species. Fragile males fly in late winter seeking out the flightless females clinging to their cases. Eggs are laid back into female case and larvae disperse from there to feed on algae on rock surfaces. Species only known from eastern Otago and can be locally common
Rhathamictis new species	Small larval cases are found on rock faces where the larvae feed on detritus and lower plants. Males fly on frosty mornings in late winter seeking out flightless females. Widespread in eastern Otago but never common
Tineidae	
Tinea mocholota	Day-flying species of shrublands and forested areas. This small brown species is widespread and common
Dryadaula myrrhina	Day-flying species of forests and shrublands. Larvae unknown. Species widespread in early spring
Opogona comptella	Australian species that is now locally common around human habitation – larvae on detritus
Tortricidae	
Ctenopseustis obliquana	Widespread and common species with larvae feeding on various shrubs
Capua semiferana	Widespread and common species with larvae feeding on leaf litter - coastal to montane areas
Harmologa amplexana	Common species of shrubland areas where the larvae are polyphagous on a range of species including *Olearia, Muehlenbeckia* and *Corokia*
Merophyas leucaniana	Widespread and common species with larvae feeding on various grasses
New genus and species	Common and widespread species of grassland where larvae construct silk runways and feed on various herbs
Nymphalidae	
Argyrophenga antipodum	The tussock butterfly is common on Mount Watkin. The species was first described from Waikouaiti and remains abundant in the area as it has adapted to feeding on many exotic grasses in addition to its natural host plants of *Poa* and *Chionochloa* species
Hepialidae	
Wiseana copularis	Common and widespread porina moth species
Pyralidae	
Patgoniodes farinaria	Widespread and common species with larvae feeding on various native and exotic *Senecio* species
Carposinidae	
Heterocrossa gonosemana	Widespread and common species with larvae feeding on seeds of broadleaf
Pterophoridae	
Platyptilia falcatalis	Widespread but local species with larvae on hebe flowers
Lyonetidae	
**Leucoptera spartifoliella*	Introduced tiny white species whose larvae mine stems of exotic broom
Plutellidae	
Chrysorthenches porphyritis	Widespread and common species with larvae feeding on totara foliage
Coleophoridae	
**Coleophora trifolii*	Introduced species that is now common - larvae feed on clover flowers

ORDER/Family	Notes
ACARI (mites)	
AMPHIPODA (amphipods)	
ANNELIDA (segmented worms)	
ARANEAE (spiders)	
CHILOPODA (millipedes)	
COLEOPTERA (beetles)[1]	
Byrrhidae (pill beetles)	
Synorthus sp.1	Pit trap
Carabidae (ground beetles)	
Ctenognathus otagoensis	Pit trap
Holcaspis placida	Pit trap
Lecanomerus latimanus	Pit trap
Oregus aereus	Pit trap
Zeanillus sp.	Washed soil sample. J Nunn. Summit Mt Watkin Road. Tussock. Minute, blind, soil-dwelling
Cerambycidae (longhorn beetles)	
Nodulosoma posticale	Pit trap
Prionoplus reticularis[2]	The huhu is New Zealand's largest beetle and widespread throughout the main islands. Larvae feed in rotten wood.
Somatidia longipes	Pit trap
Chrysomelidae (leaf beetles)	
Adoxia sp.1	Pit trap
Bryobates sp.1	Pit trap. Probably a new species with limited distribution
Chaetocnema sp.	Pit trap
Clambidae (minute beetles)	
Clambus sp.1	Pit trap
Coccinellidae (ladybirds)	
Rhyzobius sp.1	Pit trap
Rhyzobius sp.2	Pit trap
Cryptophagidae (silken fungus beetles)	
Paratomaria crowsoni	Pit trap
Curculionidae (weevils)	
Abantiadinus sp.	Washed soil sample. Pitfall trap
Brachyolus sp.1	Washed soil sample. Pitfall trap
Catoptes sp.1	Pit trap
Crisius sp.1	Pit trap
Hypotagea sp.	Washed soil sample
Irenimus sp.	Pit trap
Pachyderris sp.1	Pit trap
Peristoreus sp.1	Pit trap
Phrynixus sp.1	Pit trap
*sp.	Pit trap; introduced to control thistles
Dermestidae (carpet beetles)	
Trogoderma Indet.	On speargrass flower. Mt Watkin summit
Elateridae (click beetles)	
Ctenicera sp.1	Pit trap
Gen. 1 sp.1	Pit trap
Holoparamecus sp.	Pit trap
Latridiidae (minute scavenger beetles)	
**Aridius nodifer*	Pit trap
Enicmus sp.1	Pit trap
Lithostygnus sp.1	Pit trap
Melanophthamma fulgurita	Pit trap

[1] Coleoptera identified by John Nunn.

[2] Collected by B.H. Patrick.

ORDER/Family	Notes
Leiodidae (round fungus beetles)	
Inocatops compactus	Pit trap
Inocatops Indet.	Litter sample, boulder bank. J. Nunn
Paracatops sp.1	Pit trap
Mycetophagidae (hairy fungus beetles)	
"*Triphyllus*" sp.1	Pit trap
Ptiliidae (feather-winged beetles)	
Acrotrichis sp.1	Pit trap
Notoptenidium sp.	Pit trap
Scarabaeidae (scarabs)	
Odontria ?striata	Washed soil sample. Pit trap
Costelytra zealandica	Pit trap. Common grass grub beetle
Scydmaenidae (ant-like stone beetles)	
Maorinus sp.	Pit trap
sp.	Pit trap
Staphylinidae (rove beetles)	
Subfamily Aleocharinae	
Oligota ?hudsoni	Washed soil sample.
Indet sp.1	Washed soil sample. Probably a true soil-dweller.
Indet sp.2	Washed soil sample. Probably a true soil-dweller.
Subfamily Omaliinae	
Stenomalium sp.	
Subfamily Paederinae	
Hyperomma sp.1	Pit trap
Subfamily Pselaphinae	
Eupinogitus sulcipennis	Pit trap
Indet. (tribe Euplectitae)	Washed soil sample
Sagola sp.1	Pit trap
Subfamily Staphylininae	
Maorothius brouni	Pit trap
Tenebrioninae (darkling beetles)	
Mimopeus opaculus	Pit trap
Zeadelium aeratum	Pit trap
Trogossitidae (bark-gnawing beetles)	
Rentonellum sp.1	
Zopheridae (ironclad beetles)	
Chorasus sp.	Pit trap
Pritoderus cf. *undosus*	Pit trap. Perhaps another new species
Pritoderus bakewelli	Pit trap
COLLEMBOLA (springtails)	
Isotomidae	
Poduridae	
Suborder Symphypleona	
DICTYOPTERA (cockroaches and mantids)	
Suborder Blattodea (cockroaches)	
DIPLOPODA (centipedes)	
DIPTERA (flies)[1]	
Anisopodidae	
Sylvicola undulata	Probably has larvae that inhabit rotten wood. Could be prey for *Ectinorynchus castaneus*
Bibionidae	
Dilophus nigrostigma	Common species from wetland - marsh
Calliphoridae	

[1] Diptera identifications and notes from Rod Macfarlane.

ORDER/Family	Notes
Pollenia pernix	Recorded from the Wellington district to Stewart island and from sea level up to 1,500 m in the Nelson district
Cecidomyidae	
?*Lestremia* sp.[1]	Male needed for species identification. Two *Lestremia* species identified from New Zealand are introduced and associated with forest. Of these, this specimen could be *Lestremia leucophaea* which has been collected in coastal Canterbury
Ceratopogonidae	
Forcipomyia	The last six antenna segments are missing on these specimens, which makes subgenus identification impossible
Forcipomyia (subgenus *Forcipomyia*)	Could well be an undescribed species. The subgenus is not aquatic unlike some other subgenera and the subgenus is species rich on a world basis and generally associated with forest
Chloropidae	
Eutricimbra n.sp.	
Gaurax flavoapicalis	A common species possibly among other things associated with bird dung and maybe insect carrion
Tricimbra deansi	A little known species associated with broadleaf native forest. Wingless
Dolichopodidae	
Chrysotus n.sp	Appears to be a new species in the *C. neozelandicus, C. chaetopalpis, C. chaetoproctus* species group, but differing in several characteristics from descriptions of these species
Mycropygus vagans	one of the more common species of this moderately-sized genus. genus seems to favour forest
Parentia mobile	One of the commoner long-legged fly species among long grass and perhaps moister areas
Drosophilidae	
Scaptomyza fuscitarsis	Abundant in open areas including longer grassland
Empididae	
Chelipoda n.sp.	Probably belongs to the *C. oblinita, C.oblata, C. australpina* species group, which are only known from quite limited (less than 5) specimens. The genus *Chelipoda* is relatively species diverse in New Zealand. The known New Zealand species have a strong association with native forest.
Hilara sp.	A considerable number of the 50 plus species in this genus are undescribed.
Hilarempsis subdita	Probably originates from waterway or waterway margin as larva.
Ephydridae	
Ditrichophora ?new undescribed species	Could be a little known new species also collected from only the Bay of Plenty (Paradise valley) and Hurunui river, North Canterbury and represented by just three specimens before the last visit of Mathis
Hydrellia enderbii	
Psilopa metallica	Common species in denser moist grassland or a crop like lucerne seems to be associated with litter
Helomyzidae	
Allophylopsis lineata	Typical forest genus.
?*Aneura* n.sp.	Does not key to any of the genera in this family; may be an undescribed species
Xenura picata	Previously recorded distribution from Auckland to Christchurch (Harrison 1959), thus quite an extension to the published distribution
Heleosciomyidae	
Napaeosciomyza spinicosta	

[1] identification by Mathias Jaschhof, Germany.

ORDER/Family	Notes
Keroplatidae	
Ceratolion vitripennis	
Lonchopteridae	
**Lonchoptera bifurcata* (Fallen)	an introduced species common among grassland and crops apparently breeding where there is rotting litter from the sward/crop
Muscidae	
probably *Spilogona* auct species	this may well be an undescribed species
Spilogona n.sp.	
Mycetophilidae (fungus gnats)	
Anomalomyia guttata	One of the most abundant native mycetophilids
Mycetophila luteolateralis	Previously recorded elsewhere in forest
Mycetophila marshalli	One of 24 Mycetophila species (three undescribed) identified from Hinewai reserve by Matile (Ward *et al.* 1999).
Parvicellula ruficoxa	Known from Ohakune to Christchurch and samples from Hinewai (Ward *et al.* 1999).
Zygomyia n.sp	This species does not fit descriptions for this genus
Zygomyia n.sp. nr. *Z. nigrohalterata*	Differs to *Z. nigrohalterata* in several obvious respects, notably the body is virtually black not brown, the legs apart from the coxa are not yellow, the antennal segments are about as long as they are wide (not twice as long as wide)
Phoridae	
Aphiura breviceps	One of the commoner endemic species in New Zealand
?Macroselia longiseta	Uncertain determination; may also be *Triphlebia* sp.
Megaselia sp.	The genus includes several adventive species. Many of the endemic species may well be undescribed
Psychodidae	
Psychoda sp.	Difficult to key out as specimens damaged
Sciaridae	
?Bradysia sp.1	Species difficult to identify, even when slide mounted
?Bradysia sp.2	
?Bradysia sp.3	
?Bradysia sp.4	
?Bradysia sp.5	
Corynoptera sp.1	The dominant genus for Sciaridae in New Zealand. Species determination relies on male genitalia
Corynoptera sp.2	
Epidapus chaetovenosus	Also recorded from Brooklyn reserve near Middlemarch (Derraik *et al.* 2001).
Epidapus sp.	A most interesting find differing in several characteristics from described species. The female seems to have a very small brachypterous wing which would limit their ability to disperse. If the males have wings, then associating the males and females will be difficult.
Sphaeroceridae	
Kimosina thomasi	A common species often recorded in grassland and apparently associated with litter
Syrphidae	
Helophilus hochstetteri	
Tachinidae	
sp.	Damaged specimen
Therevidae	
Ectinorynchus castaneus	Species type from Otago, larvae probably predacious, possibly in wood
Ectinorynchus micans	Some differences to the description of the species, so it may represent an undescribed species; recorded from the Dunedin district and elsewhere.

ORDER/Family	Notes
Tipulidae	
sp.1	Large species with spotted wings
sp.2	Quite large, almost without spotting in wings
GASTROPODA (snails)	
HEMIPTERA (bugs)	
Lygaeidae	
Metagerra obscura[1]	This species is wing dimorphic. The 'short-membrane form', which is restricted to the south-eastern lowlands of the South Island, was collected at 475 m asl on Mt Watkin (Malipatil 1976).
HYMENOPTERA (bees, wasps, and ants)	
Formicidae (ants)[2]	
Subfamily Formicinae	
Prolasius advena	Widely distributed throughout New Zealand.
Subfamily Myrmicinae	
Huberia striata	Widely distributed throughout New Zealand.
Monomorium antarcticum	This generalist species is widely distributed throughout New Zealand.
Bombidae	
**Bombus terrestris*[3]	Introduced bumblebee.
OPILIONES (harvestmen)	
ORTHOPTERA	
Acrididae (grasshoppers)	
Sigaus australis[4]	Large flightless grasshopper that is widespread, and relatively common in subalpine-alpine habitats throughout the South Island
Anostostomatidae (ground weta)	
sp.	
PSEUDOSCORPIONES (false scorpions)	
THYSANOPTERA (thrips)	

1 Malipatil (1976).
2 Identifications by SR confirmed by Joanna Rees, Landcare Research, Nelson.
3 Identification by SR. There were several other unidentified non-formicid Hymenoptera specimens collected at Mt Watkin.
4 Collected by B.H. Patrick.

PLANTING LISTS FOR SELECTED FOREST, WETLAND AND COASTAL ECOSYSTEMS IN OTAGO



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Contract Report No. 6408

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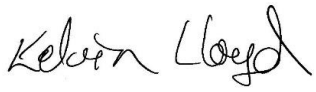
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1. INTRODUCTION

In 2020 the Otago Regional Council commissioned Wildland Consultants to map potential natural terrestrial ecosystems across Otago, based on the Singers and Rogers (2014) classification of indigenous ecosystem types. Sixty-one potential terrestrial ecosystem types were mapped across Otago. The region was largely covered by indigenous forest prior to human arrival, but with significant areas of tussock grassland and other alpine ecosystems above treeline, and wetlands above and below treeline. The Council has now commissioned Wildland Consultants to provide advice on ecologically appropriate plant species that could be used for planting projects within 23 of the mapped ecosystems. This report describes the methods that were used to compile the planting lists, and summarises the outputs of the project.

1.1 Project brief

The 23 ecosystems that planting lists are requested from are outlined in Table 1. The requirements were for the lists to comprise ecologically appropriate plant species that could be used in revegetation projects and which would be generally available in plant nurseries. Other information required by the Council included information on fully grown size, broad environmental tolerances and benefits to indigenous fauna. Additionally, information regarding intra-regional variation of species composition within ecosystems was to be incorporated, and suggestions for inclusion of Threatened or At Risk plant species.

Table 1: Otago ecosystems that planting lists were required for.

Singers & Rogers (2014) Ecosystem[1]	Potential distribution in Otago
Beech Forest Ecosystems	
CDF3 Mountain beech forest	Western rainshadow valleys
CLF9 Red beech, podocarp forest	Western valleys
CLF10.3 Red beech, silver beech forest	Western mountains
CLF11.2 Silver beech forest (upland)	Western and southern Otago
CLF11.3 Silver beech forest (lowland-montane)	Western and southern Otago, Waipori Gorge, Silverpeaks
CLF12 Silver beech, mountain beech forest	Western valleys
Podocarp/broadleaved Forest Ecosystems	
CLF1 Hall's tōtara, mountain celery pine, broadleaf forest	Central Otago ranges
CLF2 Hall's tōtara forest [dune forest]	Coastal stable dunes
CLF4.2 Kahikatea, totara, matai,forest	Lowland valleys, coastal hills, and downlands
CLF4.3 Kahikatea, tōtara, matai forest (rimu-miro dominant)	Dunedin hills
CLF6.1 Kāmahi, southern rātā, podocarp forest	South-eastern hills
CLF6.5 Kāmahi, southern rātā, podocarp forest	South-eastern hills
CLF13 Matai, broadleaf forest	Central Otago basins
MF3 Matai, tōtara, kahikatea, broadleaved forest	Coastal plains and terraces

[1] With addition of CLF4.3 and CLF13

Singers & Rogers (2014) Ecosystem[1]	Potential distribution in Otago
MF4 Kahikatea podocarp forest	Coastal plains and terraces
Wetland Ecosystems	
WL10 Oioi restiad rushland/reedland	Estuary margins
WL16 Red tussock, *Schoenus pauciflorus* tussockland	Central Otago uplands
WL18 Flaxland	Lowland
WL20 Coprosma, twiggy tree daisy scrub	Lowland
WL22 Carex, *Schoenus pauciflorus* sedgeland	Lowland-montane
Coastal Ecosystems	
DN3 Pīkao sedgeland	Coastal dunes
DN5 Oioi, knobby clubrush sedgeland	Coastal dunes
CL5 Harakeke, *Hebe elliptica*, flaxland/rockland	Coastal cliffs

2. METHODS

Descriptions of ecosystems were based on the information provided in Singers and Rogers (2014) and the references therein, as well as other sources of information for Otago descriptions of these ecosystems. Plant lists for each ecosystem type were based on key species described in Singers and Rogers (2014) and references therein, as well as reports and plant lists from Otago, observations from iNaturalist, Wildlands reports and Wildlands staff knowledge. Literature was reviewed for information on the ecological restoration of specific ecosystems. Consideration was given to including plant species that have been classified as Threatened and At Risk (de Lange et al. 2018; Johnson 1994). The Flora of New Zealand series, field guides, and the New Zealand Plant Conservation Network website were consulted for information on potential height growth of the listed species. Environmental tolerances and growth rates in Otago conditions were based on Wildlands experience in both personal and professional planting projects.

An excel database was compiled using these sources of information, and contains information about the plant species including current status within the New Zealand Threat Classification System, plant form, uppermost heights (for plants that grow to one metre and over), environmental tolerances, growth rate, information regarding benefits for indigenous fauna, and any additional relevant information regarding planting. Specific information regarding intraregional or climatic/environmental variations of species composition is discussed within the ecosystem descriptions within the report, as well as other important considerations that should be taken into account when restoring these ecosystems.

3. BEECH FOREST ECOSYSTEMS

3.1 Planting considerations

As beech forest ecosystems (CDF3; CLF9; CLF10.3; CLF11.2; CLF11.3 and CLF12) are dominated by indigenous beech species, the majority of plantings should reflect this. Beech seedlings survive considerably better when provided with shelter (van Galen *et al.* 2021). It is therefore beneficial to plant understory species in conjunction with beech

trees, so long as these understorey species are not to densely planted that they outcompete the young beech seedlings, which are poor competitors. Dense herbaceous or fern cover should be cleared or avoided as beech seedlings have poor survival in dense ground cover (Wardle 1984). Alternatively, beech seedlings can be planted adjacent to coarse woody debris to provide shelter, and through decomposition, nutrition. Controlling weeds and protecting seedlings from herbivores such as goats will also significantly improve survival in areas where these are issues (van Galen *et al.* 2021).

Beech trees have an obligate symbiotic relationship with ectomycorrhizal fungi, and the nature of the soil fungal community may affect planting success. Because of this reliance on ectomycorrhizal fungi, New Zealand beech species are often slow to regenerate or spread beyond forest boundaries, particularly into landscapes that have been cleared. Many landscapes requiring restoration are likely to be limited by an absence of ectomycorrhizal species. There is limited research into how best to reintroduce these vital fungal communities back into degraded soil. Nursery propagation mixes could be inoculated with suitable mycorrhizae (such as mixing in a small proportion of soil collected from beech forest). Alternatively, mānuka (*Leptospermum scoparium*), which shares with indigenous beech a relationship with ectomycorrhizal fungi, can be planted at sites to favourably alter the mycorrhizal communities present in the soil, prior to planting beech trees. Under this scenario, beech trees would need to be planted in gaps within the manuka to avoid early competitive effects (Tulod and Norton 2020).

3.2 Beech forest ecosystems in Otago

3.2.1 Overview

Six beech forest ecosystem types and subtypes are present in Otago (Table 1), and these, and variation within them, are briefly described in the sections below.

3.2.2 CDF3 Mountain beech forest

In Otago, forest dominated by mountain beech is found in cool, dry climates (low mean annual temperature of ~7°C) on steep slopes (11-45°) in the drier rainshadow mountains east of the Main Divide. Mountain beech forest is mostly found above 700 metres above sea level but can be found at lower elevation on poorer soils. It has low diversity, and the vast majority of the canopy and saplings are composed of mountain beech (*Fuscospora cliffortiodes*). At high altitudes in cool dry conditions the canopy may be entirely composed of mountain beech, with a sparse understory. In wetter areas, still at high altitude, *Coprosma pseudocuneata* and mountain celery pine (*Phyllocladus alpinus*) may be found in the subcanopy and understory also.

In warmer and low elevation areas mountain beech forest is more diverse. It is still largely dominated by mountain beech, but podocarps and broadleaved trees may be found in the subcanopy, and small leaved shrubs in the understorey.

Where cool dry areas meet warmer or more humid areas (e.g. in the Queenstown area), transitional zones occur, often with mixes of mountain beech, red beech (*Fuscospora fusca*), and silver beech (*Lophozonia menziesii*).

3.2.3 CLF9 Red beech, podocarp forest

In Otago, red beech-podocarp forest is found close to the Main Divide in cool climates at around 450-850 metres altitude, on alluvial terraces and on gentle hillslopes with deep, fertile, well drained soils. It has low diversity, and the canopy may be dominated by red beech. At higher altitudes silver beech becomes increasingly abundant before transitioning into red beech-silver beech forest (CLF10). At lower altitudes and on alluvial sites podocarps are more frequent and rimu (*Dacrydium cupressinum*) and miro (*Prumnopitys ferruginea*), may be present in the canopy, with broadleaved species such as pōkākā (*Elaeocarpus hookerianus*), makomako (*Aristotelia serrata*) and piripiriwhata (*Carpodetus serratus*) in the subcanopy. The ground cover is usually dominated by crown fern (*Blechnum discolor*) with occasional other ferns and herbs.

3.2.4 CLF10.3 Red beech, silver beech forest

Red beech-silver beech forest is found in a mid-slope belt in mild to cool temperatures and sub-humid to high rainfall areas near the Main Divide, or on well drained terraces. The forest has low diversity and the canopy comprises a mix of red and silver beech, with red beech being more common at lower altitudes or warmer sites and silver beech being more abundant at higher altitude and in cooler sites.

With increasing altitude this ecosystem usually transitions into silver beech forest (CLF11) and shrubs such as *Coprosma pseudocuneata*, and *Archeria traversii* may be present in the understorey.

At lower altitudes diversity increases and there may be scattered emergent podocarps such as rimu, miro, Hall's totara (*Podocarpus laetus*), but beech species still dominate.

At higher elevation a subtype of silver beech forest is present on upper mountain slopes with higher rainfall. The canopy comprises silver beech and there is often a shrubby sub-canopy including mountain toatoa (*Phyllocladus alpinus*), kāpuka/broadleaf (*Griselinia littoralis*), kōtukutuku/fuchsia (*Fuchsia excorticata*) and small-leaved shrubs.

3.2.5 CLF11.3 Silver beech forest

CLF11.3 represents the lower elevation subtype of silver beech forest on lower and mid-slopes. Silver beech is still usually the sole dominant canopy species, but there is occasional emergent rimu, and on alluvial terraces kahikatea (*Dacrycarpus dacrydioides*). Also found at low altitudes are broadleaved trees such as kapuka, kōtukutuku, patē/seven-finger (*Schefflera digitata*), mapou (*Myrsine australis*), horoeka/lancewood (*Pseudopanax crassifolius*), and kātote/soft tree fern (*Cyathea smithii*).

3.2.6 CLF12 Silver beech-mountain beech forest

Silver beech-mountain beech forest occurs in transition zones between cool humid and cool sub-humid climates on dry steep slopes (13-38°). The canopy is dominated by silver beech and mountain beech. Weeping mapou (*Myrsine divaricata*), kāpuka/broadleaf, and *Pseudopanax* and *Coprosma* species are found in the subcanopy and understory.

In the south and cooler areas, in addition to silver beech and mountain beech, Hall's totara and red beech may be found in the subcanopy. Small trees species such as pōkākā, piripiriwhata, and three finger (*Pseudopanax colensoi*) may be present, and small-leaved coprosma shrubs in the understorey, before grading into alpine shrubland at higher elevations. In the drier part of its range, such as on the western side of Lake Hawea, the subcanopy includes Hall's totara, pitpat (*Pittosporum patulum*), horoeka/lancewood and a diversity of small-leaved shrub species.

4. PODOCARP/BROADLEAVED FOREST ECOSYSTEMS

4.1 Planting considerations

When restoring podocarp/broadleaved forest, attaining canopy closure quickly is important to help suppress competing exotic grass swards, which can smother new plantings in the early stages. Fast-growing trees should therefore dominate the initial plantings. Shelter is also a key consideration, as a limited suite of indigenous broadleaved trees do well in exposed conditions. Use of faster-growing and robust early-successional species will provide shelter for the longer-lived and generally slower-growing species which can be planted later, or spaced between the early-successional trees. Most podocarps and broadleaved trees are adapted to establishment in the shade of a forest canopy, exploiting light gaps where available. Broadleaved and early-successional trees reach reproductive maturity early and thus can start contributing seed for natural regeneration in as few as five years after planting. Natural regeneration will however only occur in the absence of exotic grass swards, which is another reason to promote early attainment of canopy closure.

A significant gradient is present between dry and moist podocarp/broadleaved forests and this is reflected in the formation of a third subtype of CLF4 to cover the rimu-miro dominant forests in moist soils on the Dunedin hills.

In freer draining habitats, ecologically appropriate successional tree species can be selected. Kānuka (*Kunzea robusta*) shares an ecological range with CLF4 in Otago, and can be used to provide shelter or a continuous canopy that podocarp and broadleaved trees can regenerate under. Makahikatoa (*Kunzea serotina*) is confined to the inland basins of Otago and can be used as an early-successional tree when planting in ecosystems CLF1 and CLF13.

Podocarps and other long-lived trees should be planted at least five metres apart. Other species can be planted 1-2 metres apart where attainment of early canopy closure is important.

4.2 Podocarp/broadleaved ecosystems

Nine podocarp/broadleaved forest types and subtypes are present in Otago (Table 1) and the distribution of these podocarp/broadleaved forest types are briefly summarised in the sections below.

4.2.1 CLF1 Hall's totara, mountain celery pine, broadleaf forest

Hall's tōtara, mountain celery pine, broadleaf forest was found inland on the slopes of the dry block ranges of Central Otago. The canopy would have been dominated by Hall's totara and mountain toatoa at higher elevations and kāpuka/broadleaf (*Griselinia littoralis*), piripiriwhata, horopito (*Pseudowintera colorata*), and kohuhu (*Pittosporum tenuifolium*) at lower elevations, and in drier habitats, narrow-leaved lacebark (*Hoheria angustifolia*), kowhai (*Sophora microphylla*), and fierce lancewood (*Pseudopanax ferox*). Small leaved *Olearia* and *Coprosma* shrubs would also have been present.

4.2.2 CLF13 Mataī, broadleaf forest

Mataī, broadleaf forest is likely to have occupied alluvial flats, plains, and terraces in inland valley floors in Central Otago. There is no remaining CLF13 vegetation in Otago, but it would likely have comprised matai, kāpuka/broadleaf, kowhai, mānatu/ribbonwood, narrow-leaved lacebark, mapou, and fierce lancewood.

4.2.3 CLF2 Hall's totara forest [dune forest]

CLF2 comprises coastal podocarp forest growing on free-draining sandy soils. The forest comprises abundant Hall's tōtara and/or lowland totara, with lowland totara more common on the more recent dunes, and Hall's totara on the older dunes. Older dunes have a greater diversity of podocarp species, including mataī, miro, rimu, and kahikatea. In moister dune habitats in the Catlins, older dunes also contain a diversity of broadleaved tree species, including kāmahi (*Pterophylla racemosa*) and pōkākā.

4.2.4 CLF4.2 Kahikatea, totara, matai forest

Kahikatea-tōtara-matai forest occurs on hillslopes and on free draining older alluvial terraces of moderate fertility, in cool areas that receive less than <1,000 mm annual rainfall.

Lowland totara, kahikatea, and mataī would have dominated this forest type which has been widely cleared for agricultural use. Rimu would also have been present but at lower abundance. Broadleaved canopy trees in this forest type include narrow-leaved lacebark, mānatu/ribbonwood, tarata (*Pittosporum eugenioides*), māhoe (*Melicytus ramiflorus*), and kapuka/broadleaf, with smaller trees of horoeka/lancewood, kotukutuku/fuchsia, horopito, piripiriwhata, and kaikomako (*Pennantia corymbosa*) in the subcanopy or in riparian sites. Small-leaved trees and shrubs such as *Coprosma crassifolia*, mingimingi (*Coprosma propinqua*), and turepo (*Lophomyrtus obcordata*) are prominent in the understorey. Shield fern (*Polystichum vestitum*) and species of *Asplenium* form the main ground cover along with herbs such as *Acaena juvenca*.

In drier coastal sites, kōwhai, ngaio (*Myoporum laetum*), scented tree daisy (*Olearia fragrantissima*), and fierce lancewood can be more prominent in this forest type, with lowland tōtara and mataī the only podocarps.

4.2.5 CLF4.3 Kahikatea, totara, matai forest

This subtype of CLF4 is the common forest type on the moister hills around Dunedin, generally on volcanic landforms. The podocarps rimu, miro, Hall's totara are usually dominant, with the broadleaved pōkākā also an emergent tree. The canopy between the emergent trees is generally dominated by kapuka/broadleaf, kotukutuku, and mahoe, with three finger (*Pseudopanax colensoi*) and *Raukaua simplex* as subcanopy trees. Crown fern is the dominant ground layer species.

4.2.6 CLF6.1 Kāmahi, southern rātā, podocarp forest

This subtype of kāmahi, southern rātā, podocarp forest is present in humid climates typically with acidic soils and podzols on shallow to moderate hillslopes, and is present only in the south-western part of Otago, in the more humid Catlins. This forest type comprises emergent rimu, miro, and locally Hall's totara, over a canopy of kāmahi and southern rātā (*Metrosideros umbellata*).

4.2.7 CLF6.5 Kāmahi, southern rātā, podocarp forest

The second subtype of CLF6 is present on brown soils near Kaitangata and in the eastern Catlins, and contains a greater diversity of podocarp species including mataī, lowland tōtara, and occasionally kahikatea. Māhoe, kotukutuku/fuchsia, tarata, kapuka/broadleaf, piripiriwhata, and kātote/soft tree fern are present in the subcanopy, with hupiro (*Coprosma foetidissima*), and crown fern common in the understorey/ground cover (Wildland Consultants 2014a).

4.2.8 MF3 Mataī, tōtara, kahikatea, broadleaved forest

Mataī, tōtara, kahikatea, broadleaved forest would have been found on semi-fertile and fertile loam soils on older alluvial terraces, but has largely been cleared for agricultural use. Lowland tōtara, mataī, and kahikatea would have been common, with occasional rimu. Also present in the canopy and subcanopy are broadleaved species such as kāpuka/broadleaf mānatu/ribbonwood, tarata, māhoe, five-finger (*Pseudopanax arboreus*), and kaikomako.

4.2.9 MF4 Kahikatea forest

Forest dominated by kahikatea would have comprised a tall forest on poorly drained plains and terraces, such as the lower Taieri Plain and in many other lowland areas with gleyed soils with rich brown to black topsoil and a permanently high water-table. Mataī and lowland totara would have been present in areas of better drainage. Other species such as tī kouka/cabbage tree (*Cordyline australis*), horopito, and *Coprosma rotundifolia*, would also have been present, with abundant small-leaved shrubs in the understorey. Very little remains of this forest type.

5. COASTAL ECOSYSTEMS

5.1 Planting considerations

Coastal systems are naturally dynamic and also strongly affected by exposure and salt spray. Plants adapted to live in these habitats deal capably with exposure and salt spray, but can be destroyed by dynamic processes such as dune mobility and storm-induced erosion. During periods with an unusually high frequency of severe storms, dune erosion can accelerate. In periods without further dune erosion, if pīkao (*Finicia spiralis*) remains, it will gradually extend down the eroded dune face, renewing the process of sand entrapment and repairing the eroded dune face. This natural dune repair process is relatively slow and full recovery can take years after a period of severe dune erosion (Dahm *et al.* 2005).

Foredune plantings without additional preparatory management interventions have the best chance of success on prograding coasts or where storm events and associated dune erosion occurs infrequently. Progradational coasts can be identified through analysis of past shoreline position using historic photographs. Contemporary beach and dune morphology can also provide clues to current shoreline dynamic conditions. A wide dry beach above the high tide line, a concave shape to the beach profile, wide sequence of foredunes dominated by dune-building species, and active colonisation of the back beach by dune plants are often indicators of a recent period of shoreline progradation. Many beaches however are likely to be erosional or experience frequent foredune erosion. Erosion is also likely to accelerate due to sea level rise and changes in storm frequency and wave climates. In such cases dune planting is best undertaken over a wide onshore/offshore zone with the goal of promoting natural dynamism and enhanced resilience (i.e. management at the landscape scale). Allowing some sand mobility to allow for dune rollback will be important for long term resilience. Reshaping and retreat of the seaward foredune to remove the existing dune scarp and to decrease the frequency of erosive events may also be required. Any plantings on the coastal margin are going to be vulnerable to erosion. This is a natural coastal process. The best way to promote resilience to establish large areas of indigenous species at the dune system or sub-dune system, meaning that loss in one area will be offset (hopefully) but survival and recovery elsewhere.

Indigenous primary dune plants (pīkao, sand tussock, etc) will not thrive if planted in conjunction with marram. We recommend the removal of marram over medium to larger areas prior to or in conjunction with pīkao (and other species) planting to both provide the necessary sand movement for pīkao to thrive and also decrease the competitive effects of marram. Dunes formed by marram will support pīkao, but their morphology will be quite different than the dunes formed by pīkao and other indigenous dune building species. In some cases it may be desirable to reshape the dunes, either mechanically or by allowing allow wind erosion to reshape the dunes to a form in equilibrium with the local wind climate prior to or in conjunction with planting.

Marram dunes are not good at recovering following an erosion event compared to pīkao dunes. Recovery following erosion can be promoted by creating wide dunes, vegetated with indigenous species with a gently sloping seaward face, set back from the high tide line as far as possible. Allowing dunes to develop through wind-blown sand deposition

and the vertical growth of the vegetation can assist with erosion control by allowing the development of a deep root and rhizome network.

Overall the best approach is to assist with erosion control is to allow for wide dunes, a sequence of dunes or dune system management at the dune system scale allowing for sand movement and those processes critical for dune adaptation, recovery and resilience.

When restoring a coastal dune system it is important to first ensure that the foredunes (DN3) have a good cover of pīkao to prevent sand blowing in from the beach before attempting to revegetate rear dune areas (such as DN5). In areas that have been significantly modified there must be sufficient space between development and the sea to form a sustainable dune. If the space is inadequate, it will be necessary to create more space before proceeding with dune restoration. It is very important to remove any clay fill or soil that has been placed on the frontal dune - particularly on the seaward face as pīkao must be planted directly into loose clean sands. Many systems may be dominated by exotic species, such as marram grass (*Ammophila arenaria*). Care should be taken when removing large areas of exotics as this could result in blowouts or erosion, particularly on exposed dynamic coastal dunes. This can be avoided by implementing a programme of gradual replacement of exotics with indigenous species (Dahm *et al.* 2005). However, it must also be recognised that dune mobility is an integral component of active dunes and prevention of all sand movement is contrary to the restoration of these threatened ecosystems. Restoration of active dunes may require inducement of sand mobility prior to or in conjunction with planting of indigenous species to be effective.

Once the seaward dune face has a good cover of pīkao and other sand binding species, attention can be given to planting back dune areas. Due to the severity of climate along the coast (principally onshore salt-laden winds) there is a clear zonation of vegetation from the foredune through to rear dunes and ultimately lowland forest. Immediately landward of the pīkao dominated foredune, low growing sedge and rushes grade into woody ground cover indigenous species followed by an increasing diversity of shrubs that merge into trees of increasing height progressing inland. This zonation will vary from site to site depending on climatic and environmental factors and width of undeveloped duneland. Trees and shrubs planted too close to the beach are unlikely to survive or grow well due to severe wind abrasion and saltburn and also risk loss to undermining during periods of coastal erosion (Dahm *et al.* 2005). Protection from rabbit browse may also be needed.

Problems with damage to vegetation cover arise when beach access is poorly managed (pedestrians, motorbikes and vehicles). Well-located and frequent accessways and good signage can prevent pedestrians from walking over indigenous vegetation, as well as restrictions on vehicle access to the beach or dune systems.

Indigenous dune plants must be sourced well in advance of planting projects and commercial nurseries usually require at least 12 months notice. Pīkao may have to be specifically ordered if a large number are going to be required, as they are not common stock.

In Otago, *Pimelea lyallii* can be found in coastal systems in the Catlins as far north as Cannibal Bay (Burrows 2009). Because of its limited natural distribution in southern Otago it is not suitable for planting in coastal systems further north.

5.2 Coastal ecosystem types

Four coastal ecosystem types were selected for planting lists, comprising two dune ecosystem types, a wetland ecosystem type, and a coastal cliff ecosystem type.

5.2.1 CL5 Harakeke, Hebe elliptica flaxland/rockland

Harakeke, shore hebe (*Veronica elliptica*), flaxland/rockland is present on coastal cliffs, stacks, rockland and colluvial slopes, such as along the South Otago and Catlins coastline or the Otago Peninsula, and have been less modified by human activity. Soils on cliffs tend to be shallow, except in clefts and are very high in organic matter as they are formed largely through the accumulation of peat. Plants in these communities must be tolerant of salt spray and saline conditions. Typically, there are mosaics of shore hebe and harakeke (*Phormium tenax*), and coastal grasses, herbs, rushes, and ferns (Wildland Consultants 2014b) including blue shore tussock (*Poa astonii*), holy grass (*Hierochloe redolens*), knobby clubrush (*Ficinia nodosa*) indigenous ice plant (*Disphyma australe*), New Zealand spinach (*Tetragonia implexicoma*), coastal spleenwort (*Asplenium obtusatum*), and halophytic herbs including saltmarsh species but also Cook's scurvy grass (*Lepidium oleraceum*), shore cress (*L. tenuicaule*), and bushy peppercress (*L. desvauxii*).

5.2.2 DN3 Pīkao sedgland

Pīkao sedgeland is found on seaward facing foredunes and within mobile dune habitats, although most of these systems throughout Otago are now very modified. In these areas there is a high degree of sand movement. The foredunes in particular are very exposed and sparsely vegetated, with the exception of pīkao (*Ficinia spiralis*). The presence of pīkao generally creates a low undulating hummocky dune profile behind the foredunes, creating protected micro-sites that are moist with reduced sand movement that can support other coastal species. Other species on these more stable dune habitats include *Acaena pallida*, shore bindweed (*Calystegia soldanella*), and sand coprosma (*Coprosma acerosa*).

5.2.3 DN5 Oioi, knobby clubrush sedgland

Oioi, knobby clubrush sedgeland is associated with more stable dunes on rapidly accreting coastlines. Dune plains are formed behind mobile dunes, that erode sand down to the water table and often include a mosaic of both dry deflation hollows and seasonally wet areas, and ephemeral wetlands may be formed. Small sedges, herbs and turf forming species may be present on young dunes, while older dunes may support taller plants such as oioi, knobby clubrush and toetoe (*Austroderia richardii*).

5.2.4 WL10 Oioi restiad rushland/reedland

Oioi restiad rushland/reedland is found along the freshwater and brackish margins of estuaries, tidal rivers, coastal lagoons and some inland lakes. This vegetation type is

found on a range of soils, beginning as silt and accumulating peat to develop more organic soils over time. The water table fluctuates and is often below the surface in summer. Dense groves of oioi are typical of this habitat, often with scattered harakeke and mingimingi. Other species that may be present are saltmarsh ribbonwood (*Plagianthus divaricatus*), sharp spike sedge (*Eleocharis acuta*), three square (*Schoenoplectus pungens*) and *Carex flagellifera* (Wildland Consultants 2004). In coastal areas salt-marsh species may also be present.

6. WETLAND ECOSYSTEMS

6.1 Planting considerations

Having appropriate wetland hydrology is fundamental, as if the hydrological regime does not suit the planted species, they will be killed either because of intolerance of conditions that are too wet, or because terrestrial species are able to invade and compete. There are numerous resources available to help guide wetland restoration, such as the wetland restoration handbook published by Manaaki Whenua[1].

Many wetland species die back in winter and are best planted within the active growing season (spring or early summer for most species).

When planting out rush species it is important that the water level is not above the height of the plant shoots, as these act much like a snorkel, providing a passage for oxygen to diffuse down to the growing plant.

Direct seeding can be done onto moist or wet sites that are bare, but not onto areas that are flooded or inundated.

6.2 Wetland ecosystems

Four freshwater wetland ecosystems were selected for the development of planting lists, being the more common wetlands encountered in Otago (Wildland Consultants 2020). Three of these are productive lowland swamp wetlands, while the fourth is an upland fen wetland. The three productive lowland swamp wetlands, WL18, WL20 and WL22, provide important habitat for South Island fernbird (*Poodytes punctatus*) and Australasian bittern (*Botaurus poiciloptilus*) in Otago.

6.2.1 WL16 Red tussock, *Schoenus pauciflorus* tussockland

In Otago, WL16 was mapped across gully wetlands in higher rainfall upland areas, especially the Lammermoor/Lammerlaw Range. Narrow-leaved snow tussock (*Chionochloa rigida* subsp. *rigida*) is commonly present in these wetlands, with copper tussock (*Chionochloa rubra* subsp. *cuprea*) more restricted. Sphagnum moss (*Sphagnum cristatum*) is often extensive. Shrubs include bog pine (*Halocarpus bidwillii*) and inaka (*Dracophyllum longifolium*), and *Veronica odora* may occur on the wetland margins. Rautahi (*Carex coriacea*), *Carex sinclairii*, *Carpha alpina* and bog rush (*Schoenus pauciflorus*) are often common in wetter areas.

[1] https://www.landcareresearch.co.nz/publications/wetland-restoration/

6.2.2 WL18 Flaxland

In Otago, flaxland vegetation has been significantly reduced in extent, as flax swamps were formerly extensive on estuary and lake margins in lowland and coastal areas. These have been widely drained as they have productive soils that are used for agriculture. Many examples do persist, particularly in gentle-gradient gullies in South Otago. Flax swamps are typically dominated by harakeke, with frequent mingimingi, above pukio (*Carex secta*) and sward-forming *Carex* sedges, kiokio (*Blechnum novae-zelandiae*), and toetoe. Flaxlands merge into WL20 *Coprosma*, twiggy tree daisy scrub as shrub cover increases.

6.2.3 WL20 Coprosma, twiggy tree daisy scrub

As noted above, WL20 differs from WL18 in the diversity and abundance of shrubs. These include mingimingi, *Olearia bullata*, *O. lineata*, mānuka, weeping mapou, tī kouka, horoeka/lancewood, and *Coprosma dumosa*. Harakeke, pukio and *Carex geminata* are generally common in these wetlands.

6.2.4 WL22 *Carex, Schoenus pauciflorus* sedgeland

Carex, *Schoenus pauciflorus* sedgeland is commonly found in hill-country gullies in Otago. They are dominated by sedges, and have a diversity of *Carex* species as well as *Schoenus pauciflorus*. Pukio and rautahi are the most common species of *Carex*, and *Carex diandra* is present in some wetlands. Toetoe and *Olearia bullata* are commonly present. At higher altitudes *Schoenus pauciflorus* and *Carex sinclairii* are more abundant.

7. RARE PLANT SPECIES

Thirty one Threatened and At Risk vascular plant species are included in the planting lists. Table 2 lists these species along with their threat classifications and the Otago ecosystems they are appropriate for.

Table 2: Threatened and At Risk plant species (de Lange *et al.* 2018) that can be included in planting programmes for the 23 selected ecosystems.

Species	Threat Classification	Otago Ecosystem
Acaena pallida	At Risk-Declining	DN3, DN5
Anisotome lyallii	At Risk-Relict	CL5
Carex tenuiculmis	At Risk-Declining	WL18, WL20, WL22
Celmisia lindsayi	At Risk-Naturally Uncommon	CL5
Coprosma acerosa	At Risk-Declining	DN3, DN5
Epilobium insulare	At Risk-Declining	WL18, WL20, WL22
Euphorbia glauca	At Risk-Declining	DN3, DN5, CL5
Ficinia spiralis	At Risk-Declining	DN3
Gentinella saxosa	At Risk-Naturally Uncommon	DN3, DN5, CL5
Geranium sessiliflorum var. *arenarium*	At Risk-Declining	DN3, DN5

Species	Threat Classification	Otago Ecosystem
Kunza robusta	Threatened-Nationally Vulnerable	CLF4.2, CLF4.3
Kunzea serotina	Threatened-Nationally Vulnerable	CLF1, CLF13
Lachnagrostis ammobia	At Risk-Declining	DN3
Lepidium oleraceum	Threatened-Nationally Endangered	CL5
Lepidium tenuicaule	At Risk-Declining	CL5
Leptospermum scoparium	At Risk-Declining	CL5
Lobelia arenaria	At Risk-Naturally Uncommon	DN3, DN5
Lophomyrtus obcordata	Threatened-Nationally Critical	CLF4.2
Metrosideros umbellata	Threatened-Nationally Vulnerable	CLF6.1, CLF6.5
Myosotis rakiura	At Risk-Naturally Uncommon	CL5
Neomyrtus pedunculata	Threatened-Nationally Critical	CLF9, CLF10, CLF12
Olearia fragrantissima	At Risk-Declining	CLF4.2
Olearia lineata	At Risk-Declining	WL18, WL20, WL22
Pimelea lyallii	At Risk-Declining	DN3, DN5
Pittosporum patulum	Threatened-Nationally Vulnerable	CLF10
Poa billardieri	At Risk-Declining	DN3
Pseudopanax ferox	At Risk-Naturally Uncommon	CLF1, CLF4.2, CLF13
Ranunculus recens	Threatened-Nationally Vulnerable	DN3, DN5
Sonchus kirkii	At Risk-Declining	CL5
Teucrium parvifolium	At Risk-Declining	CLF4.2
Urtica perconfusa	At Risk-Declining	WL18, WL20, WL22

8. CONCLUSIONS

One hundred and thirty-eight vascular plant species, including thirty Threatened and At Risk plant species, have been selected as ecologically appropriate plants that could be planted in 23 forest, wetland, and coastal ecosystems in Otago. Approximately half of these species are trees and shrubs, the remainder being herbs, sedges, rushes, ferns, and grasses. Between nine and 48 plants are suggested for each ecosystem type, with the low of nine relating to WL10 Oioi restiad reedland which has relatively low natural diversity, and the 48 species relating to CLF4.2 Kahikatea, tōtara, matai forest which is a productive and diverse tall forest that would have been widely present across plains and downlands of lowland and coastal Otago.

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APPENDIX 1

VASCULAR PLANT SPECIES LISTED FOR THE 23 ECOSYSTEMS

Species	Common Name	Plant form
Acaena anserinifolia	Piripiri, bidibid	Herb (Dicot)
Acaena juvenca	Piripiri, bidibid	Herb (Dicot)
Acaena pallida	Sand piripiri, sand bidibid	Herb (Dicot)
Anisotome lyallii	Lyall's carrot	Herb (Dicot)
Apodasmia similis	Oioi	Rush
Archeria traversii		Shrub
Aristotelia serrata	Makomako, wineberry	Tree
Asplenium bulbiferum	Pikopiko, hen and chicken fern	Fern
Asplenium lyallii	Lyall's spleenwort	Fern
Asplenium obtusatum	Shore spleenwort	Fern
Astelia fragrans	Kahaha, bush lily	Herb (Monocot)
Austroderia richardii	Toetoe	Grass
Blechnum discolor	Crown fern, petipeti, piupiu	Fern
Blechnum fluviatile	Kiwikiwi, kiwakiwa, creek fern	Fern
Blechnum novae-zelandiae	Kiokio	Fern
Bolboschoenus caldwellii	Purua grass, Caldwell's clubrush	Sedge
Calystegia soldanella	Shore bindweed, shore convolvulus, rauparaha	Vine
Carex coriacea	Cutty grass, rautahi	Sedge
Carex diandra	Sedge	Sedge
Carex echinata	Star sedge	Sedge
Carex gaudichaudiana	Gaudichaud's sedge	Sedge
Carex pumila	Sand sedge	Sedge
Carex secta	Pūkio	Sedge
Carex sinclairii	Sinclair's sedge	Sedge
Carex tenuiculmis	Slender wine sedge	Sedge
Carex trifida	Tataki, mutton-bird sedge	Sedge
Carex virgata	Pūkio, swamp sedge	Sedge
Carpha alpina	Carpha	Sedge
Carpodetus serratus	Piripiriwhata	Tree
Celmisia lindsayi	Lindsay's daisy	Herb (Dicot)
Chionochloa rigida	Narrow-leaved snow tussock	Grass
Chionochloa rubra	Red tussock, copper tussock	Grass
Coprosma acerosa	Tātaraheke, sand coprosma	Shrub
Coprosma areolata	Thin-leaved coprosma	Shrub
Coprosma crassifolia		Shrub
Coprosma cuneata		Shrub

Coprosma dumosa	Leafy coprosma	Shrub
Coprosma elatirioides		Shrub
Coprosma foetidissima	Hūpiro, stinkwood	Shrub
Coprosma linariifolia	Mikimiki, yellow wood	Tree
Coprosma lucida	Karamū, shining karamū	Shrub
Coprosma propinqua	Mingimingi	Shrub
Coprosma pseudocuneata		Shrub
Coprosma rhamnoides		Shrub
Coprosma rotundifolia		Shrub
Coprosma rubra		Shrub
Cordyline australis	Tī kōuka, cabbage tree	Tree
Cyathea smithii	Kātote, Smith's tree fern, soft tree fern	Fern
Cyperus ustulatus	Coastal cutty grass, giant umbrella sedge	Sedge
Dacrycarpus dacrydioides	Kahikatea	Tree
Dacrydium cupressinum	Rimu	Tree
Dicksonia fibrosa	Whekī-ponga, golden tree fern	Fern
Dicksonia squarrosa	Whekī, rough tree fern	Fern
Disphyma australe	Horokaka, New Zealand ice plant	Herb (Dicot)
Dracophyllum longifolium	Inaka	Tree
Elaeocarpus hookerianus	Pōkākā	Tree
Eleocharis acuta	Sharp spike sedge	Sedge
Epilobium insulare		Herb (Dicot)
Euphorbia glauca	Waiu-atua, shore spurge	Herb (Dicot)
Ficinia nodosa	Wiwi, knobby clubrush	Sedge
Ficinia spiralis	Pīngao	Sedge
Fuscia excorticata	Kōtukutuku, tree fuchsia	Tree
Fuscospora cliffortioides	Mountain beech	Tree
Fuscospora fusca	Red beech	Tree
Gentianella saxosa	Shore gentian	Herb (Dicot)
Geranium sessiliflorum var. arenanium	Short-flowered cranesbill	Herb (Dicot)
Griselinia littoralis	Kāpuka/broadleaf	Tree
Halocarpus bidwillii	Bog pine	Tree
Hierochloe redolens	Kāretu/holy grass	Sedge
Hoheria angustifolia	Houhere	Tree
Kunzea robusta	Kānuka	Tree
Kunzea serotina	Kānuka	Tree
Lachnagrostis ammobia		Grass
Lepidium desvauxii	Bushy peppercress, narrow-leaved cress	Herb (Dicot)
Lepidium oleraceum	Nau, Cook's scurvy grass	Herb (Dicot)
Lepidium tenuicaule	shore cress	Herb (Dicot)

Lepidosperma australe	square sedge, square-stemmed sedge	Sedge
Leptinella dioica	shore cotula	Herb (Dicot)
Leptospermum scoparium	mānuka	Shrub
Lobelia arenaria	sand lobelia	Herb (Dicot)
Lophomyrtus obcordata	rōhutu	Shrub
Lophozonia menziesii	silver beech	Tree
Melicope simplex	poataniwha	Shrub
Melicytus ramiflorus	māhoe	Tree
Metrosideros umbellata	southern rātā	Tree
Myoporum laetum	ngaio	Tree
Myosotis rakiura	Stewart Island forget-me-not	Herb (Dicot)
Myrsine australis	red matipo	Tree
Myrsine divaricata	weeping matipo	Shrub
Neomyrtus pedunculata	rōhutu	Shrub
Olearia avicenniifolia	mountain akeake	Tree
Olearia bullata		Shrub
Olearia fragrantissima	fragrant tree daisy	Tree
Olearia lineata		Shrub
Pennantia corymbosa	kaikōmako	Tree
Phormium tenax	harakeke	Herb (Monocot)
Phyllocladus alpinus	mountain celery pine	Tree
Pimelea lyallii	southern sand daphne	Herb (Dicot)
Pittosporum eugenioides	tarata, lemonwood	Tree
Pittosporum patulum	pitpat	Tree
Pittosporum tenuifolium	kōhūhū	Tree
Plagianthus divaricatus	salt marsh ribbonwood, marsh ribbonwood	Shrub
Plagianthus regius	mānatu, ribbonwood	Tree
Poa astonii	blue shore tussock	Grass
Poa billardierei	hinarepe, sand tussock	Grass
Poa cita	silver tussock	Grass
Podocarpus laetus	Hall's tōtara	Tree
Podocarpus totara var. totara	lowland totara	Tree
Polystichum neozelandicum subsp. xerophyllum	shield fern	Fern
Polystichum vestitum	shield fern	Fern
Prumnopitys ferruginea	miro	Tree
Prumnopitys taxifolia	mataī	Tree
Pseudopanax arboreus	five finger, whauwhaupaku	Tree
Pseudopanax colensoi	mountain fivefinger, three finger	Tree
Pseudopanax crassifolius	horoeka, lancewood	Tree
Pseudopanax ferox	Fierce lancewood	Tree
Pseudowintera colorata	horopito	Shrub

Pterophylla racemosa	kāmahi	Tree
Ranunculus acaulis	sand buttercup, shore buttercup	Herb (Dicot)
Ranunculus glabrifolius	waoriki	Herb (Dicot)
Ranunculus recens		Herb (Dicot)
Raoulia aff. *hookeri*	scabweed, scabweed mat daisy	Herb (Dicot)
Raukaua simplex	haumakoroa	Tree
Schefflera digitata	patatē, patē, seven-finger	Tree
Schoenoplectus pungens	three-square	Sedge
Schoenus pauciflorus	bog rush, sedge tussock	Sedge
Selliera radicans	selliera, remuremu, half-star, bonking grass	Herb (Dicot)
Sonchus kirkii	puha, shore puha, New Zealand sow thistle	Herb (Dicot)
Sophora microphylla	kōwhai	Tree
Streblus heterophyllus	tūrepo, small-leaved milk tree	Tree
Tetragonia implexicoma	native spinach	Herb (Dicot)
Teucrium parvifolium	teucridium	Shrub
Typha orientalis	raupō	Rush
Urtica perconfusa	swamp nettle	Herb (Dicot)
Veronica elliptica	kōkōmuka, shore hebe, shore koromiko	Shrub
Veronica odora	hebe	Shrub
Veronica salicifolia	koromiko	Shrub
Viola cunninghamii	mountain violet, white violet	Herb (Dicot)

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Ecosystem Name: Kahikatea, totara, mataī,forest
Ecosystem Code: CLF4.2
Potential distribution in Otago: Lowland valleys, coastal hills, and downlands
Source: Wildland Consultants Ltd. 2022. Planting lists for selected forest, wetland, and coastal ecosystems in Otago. Contract Report No. 6408 prepared for Otago Regional Council.

Species	Common Name	Plant form	Conservation Status	Max Height	Resource	Fauna	Growth Rate	Environmental Tolerances	Planting Notes
Aristotelia serrata	makomako, wineberry	Tree	Not Threatened	10m			Fast	Moist, fertile sites	
Carpodetus serratus	piripiriwhata	Tree	Not Threatened	10m	Fleshy fruit and nectar source	Forest birds	Moderate	Exposure tolerant	
Coprosma linariifolia	mikimiki, yellow wood	Tree	Not Threatened	6m	Fleshy fruit	Forest birds	Moderate	Forest generalist	
Cordyline australis	tī kōuka, cabbage tree	Tree	Not Threatened	12m	Nectar source	Forest birds	Fast	Exposure tolerant generalist	
Dacrycarpus dacrydioides	kahikatea	Tree	Not Threatened	50m	Fleshy fruit	Forest birds	Moderate	Long-lived tree	
Dacrydium cupressinum	rimu	Tree	Not Threatened	35m	Fleshy fruit	Forest birds	Slow	Long-lived tree	
Fuchsia excorticata	kōtukutuku, tree fuchsia	Tree	Not Threatened	12m	Fleshy fruit and nectar source	Forest birds	Fast	Fast-growing, moist habitats	
Griselinia littoralis	kāpuka/broadleaf	Tree	Not Threatened	10m	Fleshy fruit	Forest birds	Moderate	Exposure tolerant	Highly palatable to ungulate browsing animals
Hoheria angustifolia	houhere	Tree	Not Threatened	18m	Nectar source	Forest birds	Moderate	Long-lived tree	
Kunzea robusta	kānuka	Tree	Threatened – Nationally Vulnerable	20m	Nectar source	Birds and insects	Fast	Drought tolerance	A good pioneer species

Melicytus ramiflorus	māhoe	Tree	Not Threatened	10m	Fleshy fruit and nectar course	Birds	Fast	Requires shelter	Highly palatable to ungulate browsing animals
Myoporum laetum	ngaio	Tree	Not Threatened	10m			Fast	Exposure tolerant	
Myrsine australis	red matipo	Tree	Not Threatened	10m	Fleshy fruit	Forest birds	Moderate	Dry forest	
Olearia fragrantissima	fragrant tree daisy	Tree	At Risk – Declining	8m	Nectar source, foliage	Forest birds and insects	Moderate	Exposure tolerant	
Pennantia corymbosa	kaikōmako	Tree	Not Threatened	10m			Moderate	Exposure tolerant	
Pittosporum eugenioides	tarata, lemonwood	Tree	Not Threatened	12m	Fleshy fruit and nectar source	Forest birds	Moderate	Long-lived tree	
Pittosporum tenuifolium	kōhūhū	Tree	Not Threatened	8m	Fleshy fruit and nectar source	Forest birds	Fast	Exposure tolerant, warm, sheltered sites	Pioneer species
Plagianthus regius	mānatu, ribbonwood	Tree	Not Threatened	20m	Nectar source	Forest birds	Fast	Productive sites, deep soils	
Podocarpus laetus	Hall's tōtara	Tree	Not Threatened	20m	Fleshy fruit	Forest birds	Slow	Exposure tolerant, long lived tree	
Podocarpus totara var. totara	lowland totara	Tree	Not Threatened	30m	Fleshy fruit	Forest birds	Moderate	Exposure tolerant, long lived tree	
Prumnopitys taxifolia	mataī	Tree	Not Threatened	25m	Fleshy fruit	Forest birds	Slow	Deep soils, long lived tree	
Pseudopanax arboreus	five finger, whauwhaupaku	Tree	Not Threatened	8m			Slow	Sunny aspects	
Pseudopanax colensoi	mountain fivefinger, three finger	Tree	Not Threatened	8m	Fleshy fruit	Forest birds	Fast	Moist forest	

Pseudopanax crassifolius	horoeka, lancewood	Tree	Not Threatened	15m			Fast	Exposure tolerant	
Pseudopanax ferox	Fierce lancewood	Tree	At Risk – Naturally Uncommon	5m	Fleshy fruit	Forest birds	Moderate	Dry sites	
Schefflera digitata	patatē, patē, seven-finger	Tree	Not Threatened	6m	Fleshy fruit and nectar source	Forest birds	Moderate	Sheltered, moist sites	
Sophora microphylla	kōwhai	Tree	Not Threatened	15m	Nectar source and foliage	Forest birds	Slow	Drought tolerant	
Streblus heterophyllus	tūrepo, small-leaved milk tree	Tree	Not Threatened	6m			Moderate	Alluvial forest	
Coprosma areolata	thin-leaved coprosma	Shrub	Not Threatened	3m	Fleshy fruit	Forest birds	Moderate	Dry forest	
Coprosma crassifolia		Shrub	Not Threatened	2m	Habitat and fleshy fruit	Lizards and forest birds	Slow	Exposure tolerant, dry sites	
Coprosma dumosa	leafy coprosma	Shrub	Not Threatened	3m	Fleshy fruit	Forest birds	Moderate	Exposure tolerant generalist	
Coprosma propinqua	mingimingi	Shrub	Not Threatened	3m	Habitat and fleshy fruit	Lizards and forest birds	Moderate	Exposure tolerant generalist	
Coprosma rhamnoides		Shrub	Not Threatened	1m	Fleshy fruit	Forest birds	Moderate	Lowland forest	
Coprosma rotundifolia		Shrub	Not Threatened	3m	Fleshy fruit	Forest birds	Moderate	Moist sites	Browse tolerant
Lophomyrtus obcordata	rōhutu	Shrub	Threatened – Nationally Critical	5m			Slow	Dry forest	
Melicope simplex	poataniwha	Shrub	Not Threatened	2m			Slow	Dry forest	

Myrsine divaricata	weeping matipo	Shrub	Not Threatened	3m			Slow	Exposure tolerant generalist	
Pseudowintera colorata	horopito	Shrub	Not Threatened	2m			Slow	Shade tolerant	Unpalatable to ungulate browsing animals
Teucrium parvifolium	teucridium	Shrub	At Risk – Declining	1.5m			Moderate	Exposure tolerant	
Astelia fragrans	kahaha, bush lily	Herb (Monocot)	Not Threatened	<1m	Fleshy fruit and nectar source and habitat	Forest birds and lizards	Fast	Moist, fertile sites	
Acaena anserinifolia	piripiri, bidibid	Herb (Dicot)	Not Threatened	<1m			Fast	Moist habitats	Mat herb for ground cover
Acaena juvenca	piripiri, bidibid	Herb (Dicot)	Not Threatened	<1m			Moderate	Dry forest and scrub	Mat herb for ground cover
Asplenium bulbiferum	pikopiko, hen and chicken fern	Fern	Not Threatened	<1m			Fast	Moist sites	
Blechnum fluviatile	kiwikiwi, kiwakiwa, creek fern	Fern	Not Threatened	<1m			Fast	Moist sites	
Cyathea smithii	kātote, Smith's tree fern, soft tree fern	Fern	Not Threatened	5m			Slow	Moist forest	
Dicksonia squarrosa	whekī, rough tree fern	Fern	Not Threatened	8m			Slow	Moist forest	
Polystichum neozelandicum subsp. zerophyllum	shield fern	Fern	Not Threatened	<1m			Fast	Dry sites	
Polystichum vestitum	shield fern	Fern	Not Threatened	<1m			Fast	Moist sites	

4 MEETING CLOSE