



AREA DISEASE MANAGEMENT PLAN

SOUTHERN SOUTH ISLAND

2016-2055 NATIONAL BOVINE TUBERCULOSIS PEST MANAGEMENT PLAN

Version 1.0

VERSION CONTROL

Version	Date	Details	Author
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1 INTRODUCTION

Bovine tuberculosis (TB) is a disease of farmed cattle and deer in New Zealand which, if left to spread would lead to production losses and animal health issues. This disease can also affect humans. Managing TB supports New Zealand's pastoral industries to increase productivity and access foreign markets – key elements of Government and industry strategies. A healthy farming sector is a vital component of New Zealand's economic wellbeing.

This document is the Area Disease Management Plan (ADMP) for the Southern South Island. The document provides details on how the objectives that have been instructed as part of the National Operational Plan (NOP) will be met, and detailed measurements that will be reported on to confirm TB freedom from livestock in New Zealand by 2026.

Area Disease Management Plans (ADMPs) are key components of the NPMP and the National Operational Plan (NOP), and provide the operational planning framework for disease and pest management activities to be implemented at a regional level.

The 2015 NPMP review found that TB can be eradicated from both farmed cattle and deer herds, and from wildlife species (principally possums) that act as a reservoir and vector of the disease, and determined that eradication of TB from New Zealand should be the overall long term objective of the National Pest Management Plan (NPMP).

The diagram below details the Statutory and Operational Hierarchy of the National Pest Management Plan, and highlights that the ADMP is part of the Non Regulatory Framework of Operational Planning.

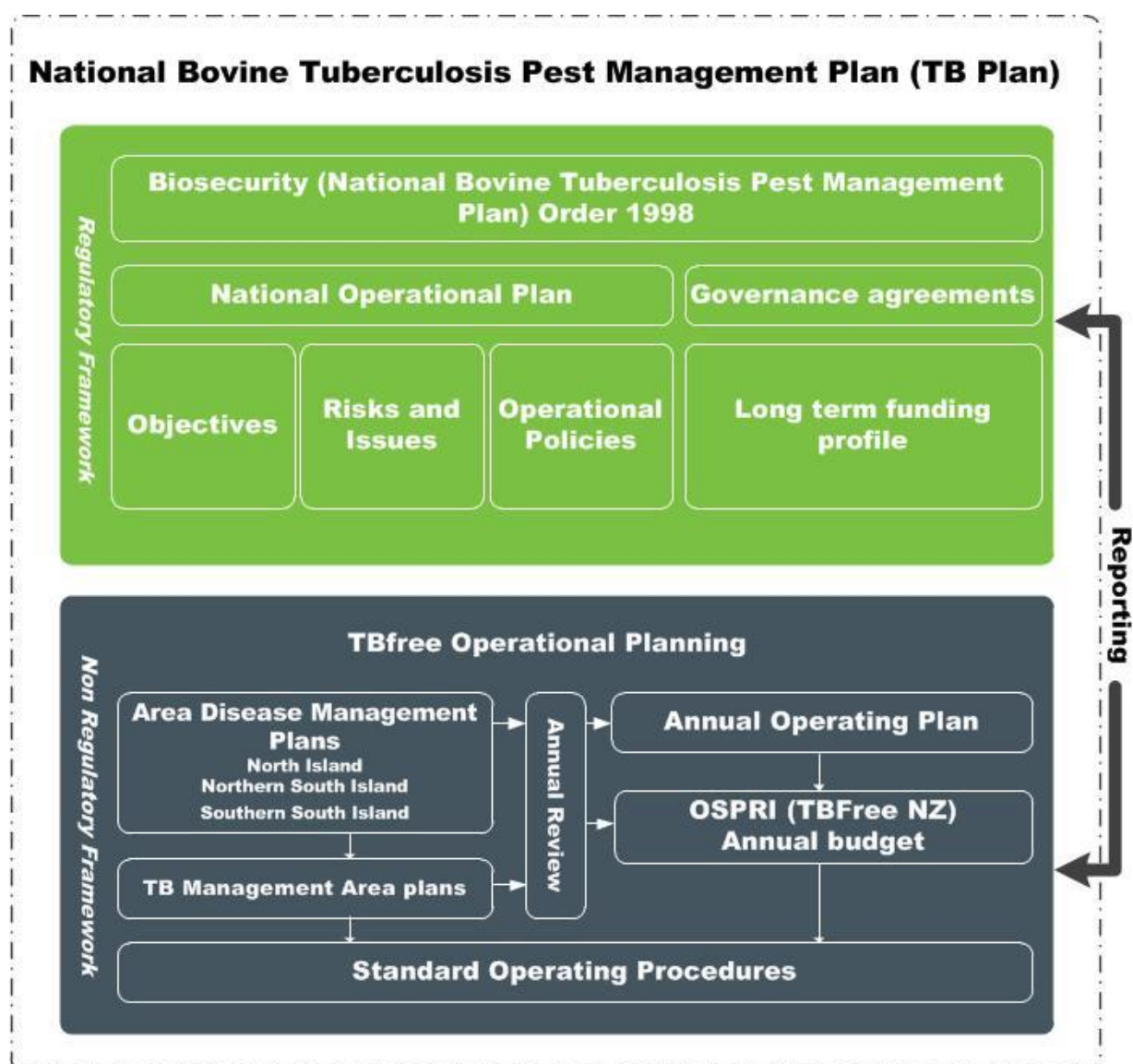


Figure 1: The Statutory and Operational hierarchy of the National Pest Management Plan.

2 DESCRIPTION OF VECTOR RISK AREAS

There are 9 Vector Risk Areas (VRAs) contained within the Southern South Island which make up the area that will be targeted for possum TB freedom as part of this Area Disease Management Plan's objective:

Blue Mountains VRA (43,082ha)	Centred around the Blue Mountains in South Otago and lies immediately to the west of the Clutha River near Beaumont. This is the home of a nationally recognised fallow deer herd and is gazetted as a Recreational Hunting Area (RHA). The hills are moderate to rolling and covered in extensive stands of native or exotic forestry. The surrounding improved land is intensively farmed.
Catlins VRA (230,194ha)	Situated near the south-eastern corner of the South Island, spanning both the Otago and Southland regions. The landscape is low to moderate rolling hill country with very significant stands of lowland native forest together with large areas of exotic forestry, scrub and improved farmland. This TMA can be considered as having a central core comprised of the Catlins and Chaslands forests and contiguous VCZ's, and then an outer ring of VCZ's that contain variable amounts of improved farmland, scrub and bush.
Hokonui Hills VRA (93,383ha)	Centred around the Hokonui Hills in Central Southland. It is comprised of large areas of native and exotic forestry surrounded by intensively farmed improved country. Possum habitat is plentiful and some is quite difficult to access.
Nevis VRA (77,319ha)	Centred around the Nevis River catchment and extends the entire length of the Nevis valley. The landscape varies from flat to mountainous and is comprised of a mixture of tussock and scrub together with vast areas of little habitat in the upper reaches.
Otago VRA (1,469,717ha)	The Otago VRA extends from Lakes Wanaka and Hawea in the north through to the east Otago coast, bounded to the south by the Clutha River system and to the north by the Kakanui Mountains. It is comprised of high country river valleys with a mixture of high country tussock, rock, scree and scrub in the Central Otago uplands and lakes districts, extensive farming through the Central Otago and Maniototo districts, and the more improved and intensively farmed areas in the Clutha Valley, East Otago and coastal Otago areas to the north.
Pisa VRA (126,703ha)	Encompasses the Pisa and Criffel mountains that extend from Queenstown in the south through to Wanaka and Mt Roy in the northeast. The landscape is a mixture of high country tussock and scrub together with lowland improved farmland and supports a mixture of intensive and extensive farming.
Roxburgh VRA (6,595ha)	Situated on the true right bank of the Clutha River and is centred adjacent to the Roxburgh hydro power station that spans the river. The landscape is comprised of a mixture of high country tussock and scrub together with areas of improved and intensively farmed land.
South Canterbury VRA (799,315ha)	Extends from the main divide in the north through to the south side of the Waitaki River system. It is comprised of high country river valleys with a mixture of high country tussock, rock, scree and scrub, extensive native forest ecosystems in some major valley systems, and a mixture of extensive farming and more improved and intensively farmed flats.
Western Southland VRA (144,492ha)	Centred around the southern Takitimu Mountains. There is a central core of rugged mountainous peaks with river valleys and extensive tracts of exotic and native bush. Outside of these areas there is a concentration of intensive farming on highly developed and improved land.

The Vector Risk Areas (VRAs) have been divided into TB Management Areas (TMAs).

Each TMA has an operational plan and objectives for TB freedom in livestock (if applicable) by 2026, possum TB freedom in VRA by 2040 and biological eradication of TB from all livestock and wildlife by 2055.

The TMA structure enables possum control and disease surveillance to be contracted in an efficient manner utilising scales of economy, while still maintaining areas at a manageable size in relation to the disease; i.e. similar methods of control and surveillance can be used in an area. TMA therefore are contiguous areas with similar epidemiological and geographical characteristics.

A TMA's operational needs are such that the areas have an approximate planned target date for its eradication. When the last TMA within the VRA reaches possum TB freedom, the VRA will have reached possum TB freedom.

3 PLAN OBJECTIVES AND TARGETS

TB FREEDOM IN LIVESTOCK BY 2026

The first National Pest Management Plan (NPMP) primary objective milestone is to achieve TB freedom in domestic livestock populations by 2026. While the term TB freedom is defined under clause 5(1A) of the Biosecurity (National Bovine Tuberculosis Pest Management) Plan Order 1998, a proxy measure of the number of infected status herds will be used to assess progress toward this milestone. The objectives for the infected herd reduction for the Southern South Island are shown in Table 1.

Number of infected herds	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026
Southern South Island	13	10	7	6	5	4	4	4	1	1	0

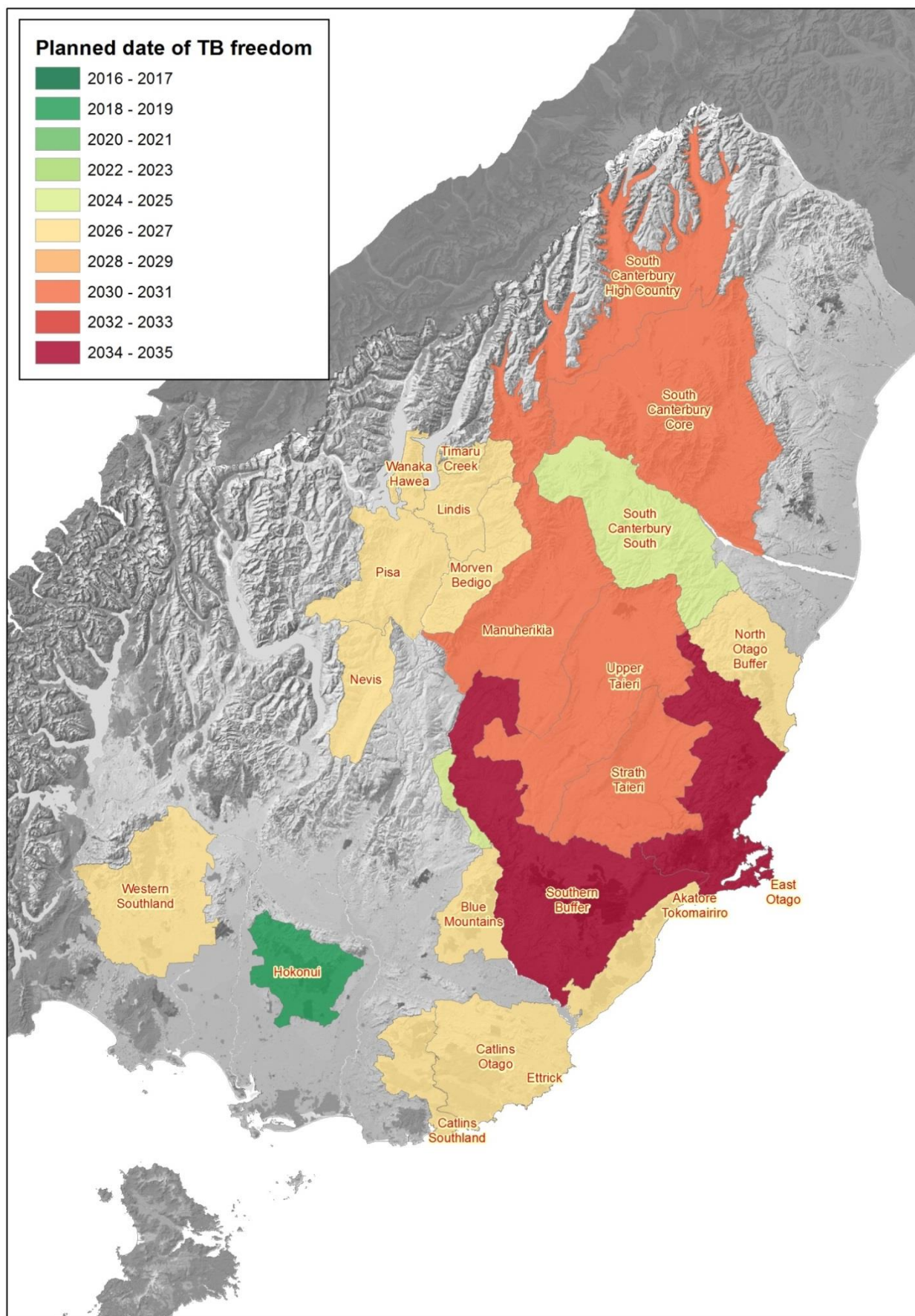
Table 1: Planned reduction of infected herds for the period 2016-2026, calculated at the commencement of the plan year.

TB FREEDOM IN POSSUMS BY 2040

The second primary objective milestone is to achieve TB freedom in possums by 2040. While the term TB freedom is defined under clause 5(1A) of the (National Bovine Tuberculosis Pest Management) Plan Order 1998, a proxy measure of the number of VRA hectares will be used for the second milestone. The objectives for VRA hectares reduction for the Southern South Island are shown in Table 2.

Total VRA (M hectares)	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Southern South Island	2.95	2.92	2.92	2.92	1.86	1.86	1.86	0.53	0.53	0.53	0.00

Table 2: Expected VRA reduction over the plan period 2016-2036, calculated at the commencement of the plan year.



Map 1: Southern South Island Vector Risk Area/TB Management Area and planned timeframes for possum TB freedom 2016-2035

The table below shows the planned possum TB freedom timeframes for Southern South Island VRAs and associated TB Management Areas (TMAs).

Each TMA will have a milestone date for the achievement of possum TB freedom.

When the last TMA within the VRA reaches possum TB freedom, the VRA will have reached possum TB freedom.

VRA Name	VRA Total Hectares	TMA Name	TMA Hectares VRA	TMA TB Freedom Date	VRA TB Freedom Date
Blue Mountains	43,084	Blue Mountains	43,084	2026	2026
Catlins	230,197	Catlins Southland	60,557	2026	2026
		Catlins Otago	169,640	2026	
Hokonui Hills	27,184	Hokonui Hills	27,184	2018	2018
Nevis	61,795	Nevis	61,795	2026	2026
Otago	1,522,833	Lindis	67,040	2026	2035
		Akatore-Tokomairiro	63,082	2026	
		Manuherikia	257,997	2030	
		Morven Bendigo	81,660	2026	
		North Otago Buffer	44,152	2026	
		Upper Taieri	268,279	2030	
		Timaru Creek	11,907	2026	
		Wanaka-Hawea	23,871	2026	
		Strath Taieri	175,176	2030	
		East Otago	180,894	2035	
		Southern Buffer	348,775	2035	
Pisa	126,704	Pisa	126,704	2026	2026
Roxburgh	6,594	Roxburgh	6,594	2024	2024
South Canterbury	797,317	South Canterbury South	165,895	2024	2030
		South Canterbury Core	399,380	2030	
		South Canterbury High Country	232,042	2030	
Western Southland	131,494	Western Southland	131,494	2026	2026

Table 3: Planned possum TB freedom timeframes for Southern South Island Vector Risk Areas and associated TB management Areas.

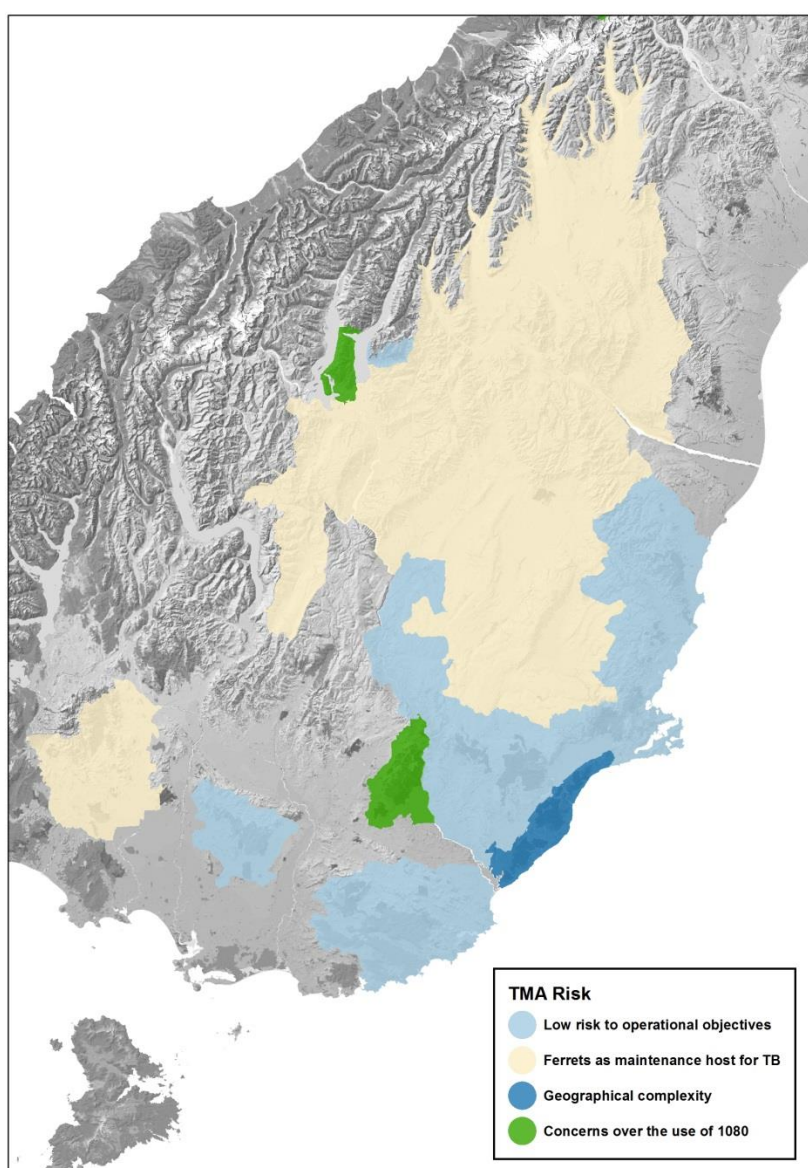
4 RISK MANAGEMENT

RISKS AT TB MANAGEMENT AREA LEVEL

Localised risks which could impact individual operations the Southern South Island include:

- Landowner access issues due to 1080 – areas where individual landowners are potentially denying use of aerial application of 1080 on their land and there are no other cost-effective means of controlling possums
- Concerns from hunting groups - areas where there is a risk of non-target by-kill impacting on recreational activity
- Geographical complexity– areas which due to their habitat/topography cause difficulties in the implementation of even possum population reduction
- Ferrets as a TB maintenance host- areas where ferrets can potentially self-sustain TB for extensive periods in the absence of concurrent possum infection.

Specific details of relevant risks are contained within the individual TMA Plans, and a national risk profile can be viewed in the National Operational Plan document.



Map 2: Southern South Island areas of localised risk.

5 TB MANAGEMENT AREA PLANS

The Vector Risk Areas (VRAs) are made up of one or more TB Management Areas (TMAs).

Each TMA has an operational plan and objectives for TB freedom in livestock (if applicable), Tb freedom in possums, and the total area of VRA reduction in hectares.

TMAs are areas with similar epidemiological and geographical characteristics which can enable wildlife control and disease surveillance activities to be contracted in an efficient and cost effective manner. This allows utilising scales of economy while still maintaining areas at a manageable size in relation to the disease, i.e. similar methods of control and surveillance can be used in an area.

When the last TMA within the VRA achieves possum TB freedom, the VRA will have achieved VRA TB freedom.

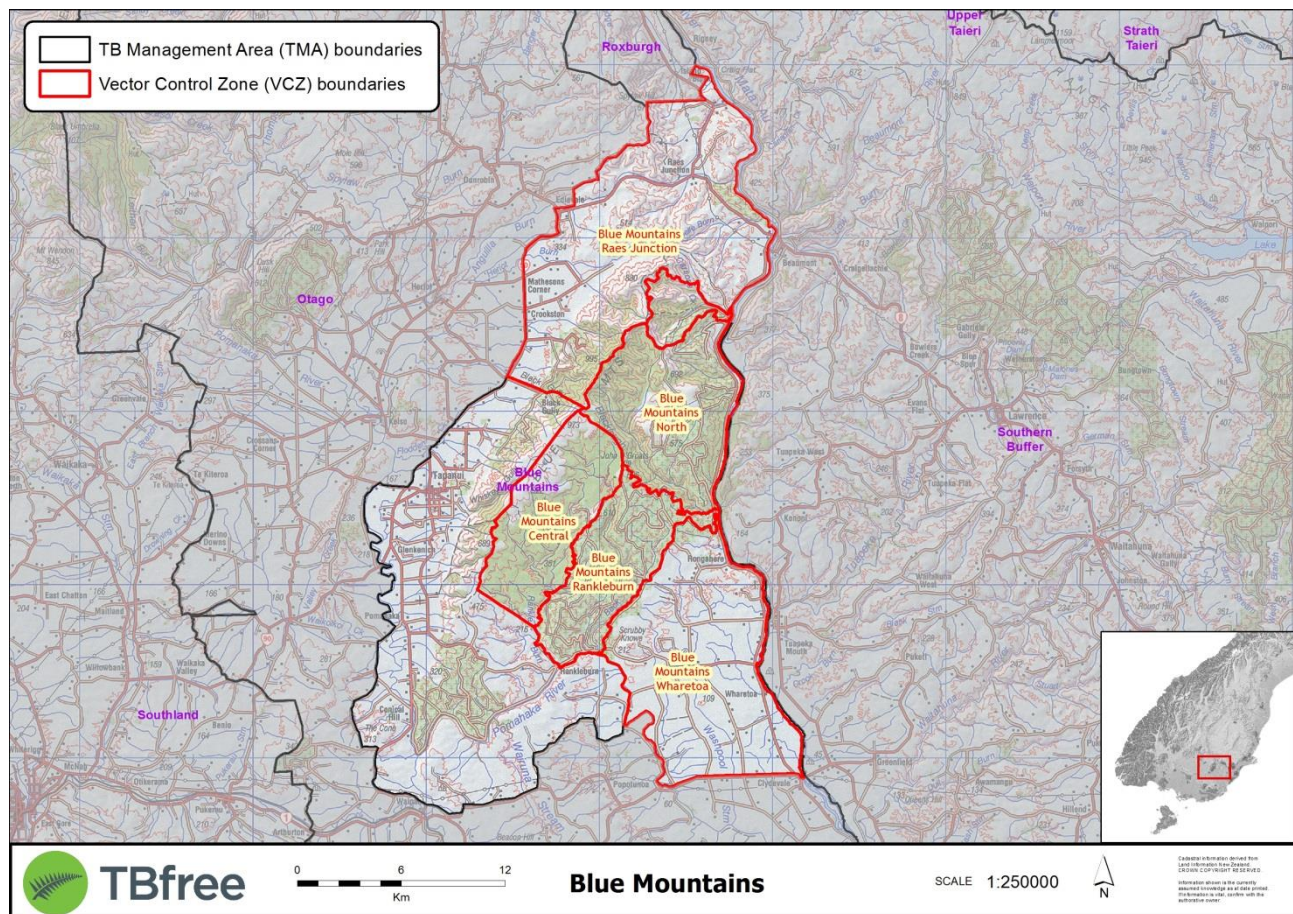
TMAs themselves are made up of one or more Vector Control Zones (VCZs). Each VCZ will have a milestone date when possum TB freedom is declared. This date will be determined when a predetermined probability-of-freedom (POF) from TB in possums is reached for that VCZ.

When the last VCZ within a TMA achieves possum TB freedom, the TMA will have achieved VRA TB freedom.

The order of the TB Management Areas in this document follows the order that is shown in Table 3 on page 9. This allows the reader to be able to see the TMAs grouped within their respective Vector Risk Areas.

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5.1 BLUE MOUNTAINS



TB MANAGEMENT AREA OBJECTIVES

- Possum TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 43,084

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Carsons	1,131	2026
Central	5,221	2026
North	6,617	2026
Raes Junction	14,583	2026
Rankleburn	4,715	2026
Wharetoa	10,817	2026
Total	43,084	

DESCRIPTION OF TB MANAGEMENT AREA

The Blue Mountains TMA is centred around the Blue Mountains in South Otago and lie immediately to the west of the Clutha River near Beaumont. This is the home of a nationally recognised fallow deer herd and is gazetted as a Recreational Hunting Area (RHA). The hills are moderate to rolling and covered in extensive stands of native or exotic forestry. The surrounding improved land is intensively farmed.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was firmly established in wildlife in this area. Intensive aerial and ground based possum control was initiated in the known infected areas from the late 1990's and continued intermittently through until 2016. There are large areas that have received relatively little possum control. Herds were infected near Beaumont, Raes Junction and at the southern end near Rankleburn. There is no evidence that TB ever established on the west side near Tapanui.

PLANNED VECTOR RISK AREA REDUCTION

Blue Mountains	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	43,084	43,084	43,084	43,084	43,084	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected herd activities

There have been no infected herds for more than 5 years.

Summary of Operations Planned

Wildlife surveillance utilising feral pigs and ferrets will commence from 2016/17. It is planned to continue this activity for up to 3 years (to achieve 95% POF) or until wildlife TB is detected. It is probable that TB still persists somewhere in this TMA and for this reason possum TB freedom over the whole TMA is not expected before 2026. Targeted possum control will be required to eradicate TB from any residual hotspots and follow-up wildlife surveillance required to confirm freedom. If TB proves to be widespread, aerial control operations will be required.

Innovations, Initiatives and Research and Development

The Blue Mountains hunter liaison group was established more than 10 years ago. This has proven to be a very useful vehicle for developing trust and cooperation between hunter groups and TBfree NZ over the years. It will remain an essential tool whilst we work toward TB eradication.

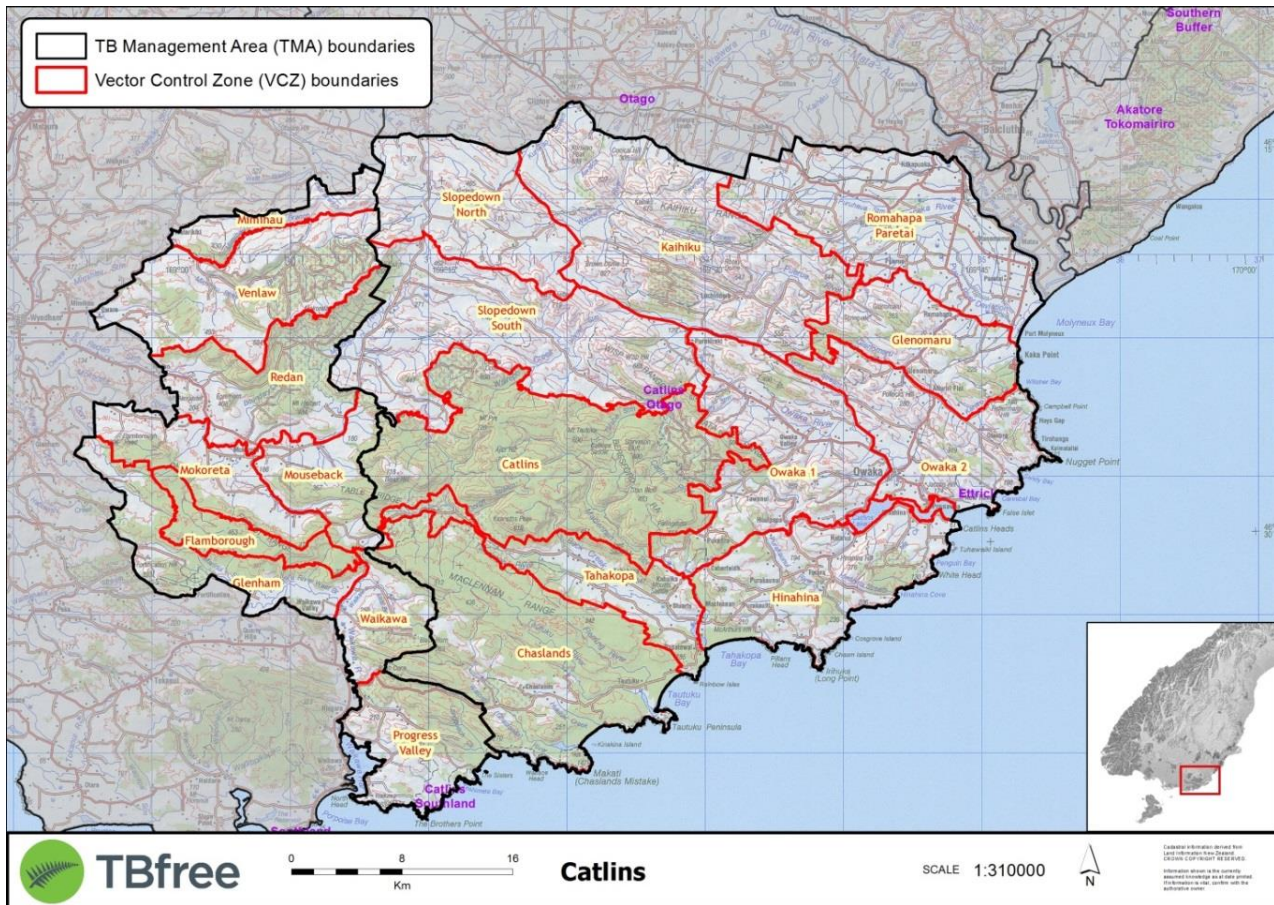
RISK MANAGEMENT

Initial surveys in the early 2000's indicated a very low prevalence of TB in fallow deer captured from the areas where the highest numbers of TB possums were recovered. No TB infected deer have been reported since, even though the annual hunter harvest is in the region of thousands of animals. It is not anticipated that deer will need to be targeted but this does remain as a lower quadrant risk. Wildlife surveillance is expected to detect some TB areas representing residual TB in possums and the use of deer repellent for any aerial operations will be essential to mitigate and placate the hunters.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Periodic pig and ferret surveys should be carried out post-TB freedom to confirm biological eradication.

5.2 CATLINS



TB MANAGEMENT AREA OBJECTIVES

- Possum TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 230,196

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Catlins	24,542	2026
Chaslands	20,721	2026
Flamborough	3,449	2022
Glenham	7,562	2022
Glenomaru	8,363	2022
Hina Hina	12,542	2026
Kaihiku	22,541	2022
Mimiha	2,991	2022
Mokoreta	6,525	2022
Mouseback	5,531	2026
Total	230,196	

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Owaka 1	14,898	2026
Owaka 2	10,777	2022
Progress Valley	7,559	2026
Redan	9,993	2022
Romahapa	16,966	2022
Slopedown North	10,724	2022
Slopedown South	19,884	2026
Tahakopa	7,682	2026
Venlaw	12,553	2022
Waikawa	4,393	2026

DESCRIPTION OF TB MANAGEMENT AREA

The Catlins TMA is situated near the south-eastern corner of the South Island, spanning both the Otago and Southland regions. The landscape is low to moderate rolling hill country with very significant stands of lowland native forest together with large areas of exotic forestry, scrub and improved farmland. This TMA can be considered as having a central core comprised of the Catlins and Chaslands forests and contiguous VCZ's, and then an outer ring of VCZ's that contain variable amounts of improved farmland, scrub and bush.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife through many parts of this TMA for many years. Intensive aerial and ground based possum control was initiated in the known infected areas from the late 1990's and continued intermittently through until 2016. At the peak there were up to 100 infected herds in this TMA at one time.

PLANNED VECTOR RISK AREA REDUCTION

Catlins	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	230,196	230,196	230,196	117,752	117,752	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected herd activities

There have been no infected herds for more than 5 years.

Summary of Operations Planned

In the central core region (Chaslands and Catlins forests), a "survey then control" (STC) aerial operation, along the lines of that completed in the Hokonui Hills, is planned for 2017/18. Following the STC operation, wildlife surveillance utilising feral pigs will commence in 2018/19 for two years. TBfree sentinel pigs may be used depending on the success of this technique in the Hokonui Hills. Proof of freedom pig and/or ferret surveys will be carried out concurrently in the outer VCZ's of the TMA from 2016/17 for two years. Output-based possum control will continue in the inner VCZs adjacent to the aerial blocks for up to three years from 2016/17, including surveying possums from the historical hotspot areas. It is planned to continue with wildlife surveillance for up to 5 years (to achieve 95% POF) or until wildlife TB is detected. It is probable that TB still persists somewhere in this TMA and for this reason possum TB freedom over the whole TMA is not expected before 2026.

Innovations, Initiatives and Research and Development

There will be one further aerial operation using the "survey then control" methodology. TBfree sentinel pigs may be used for post control surveillance if the technique proves successful in the Hokonui Hills.

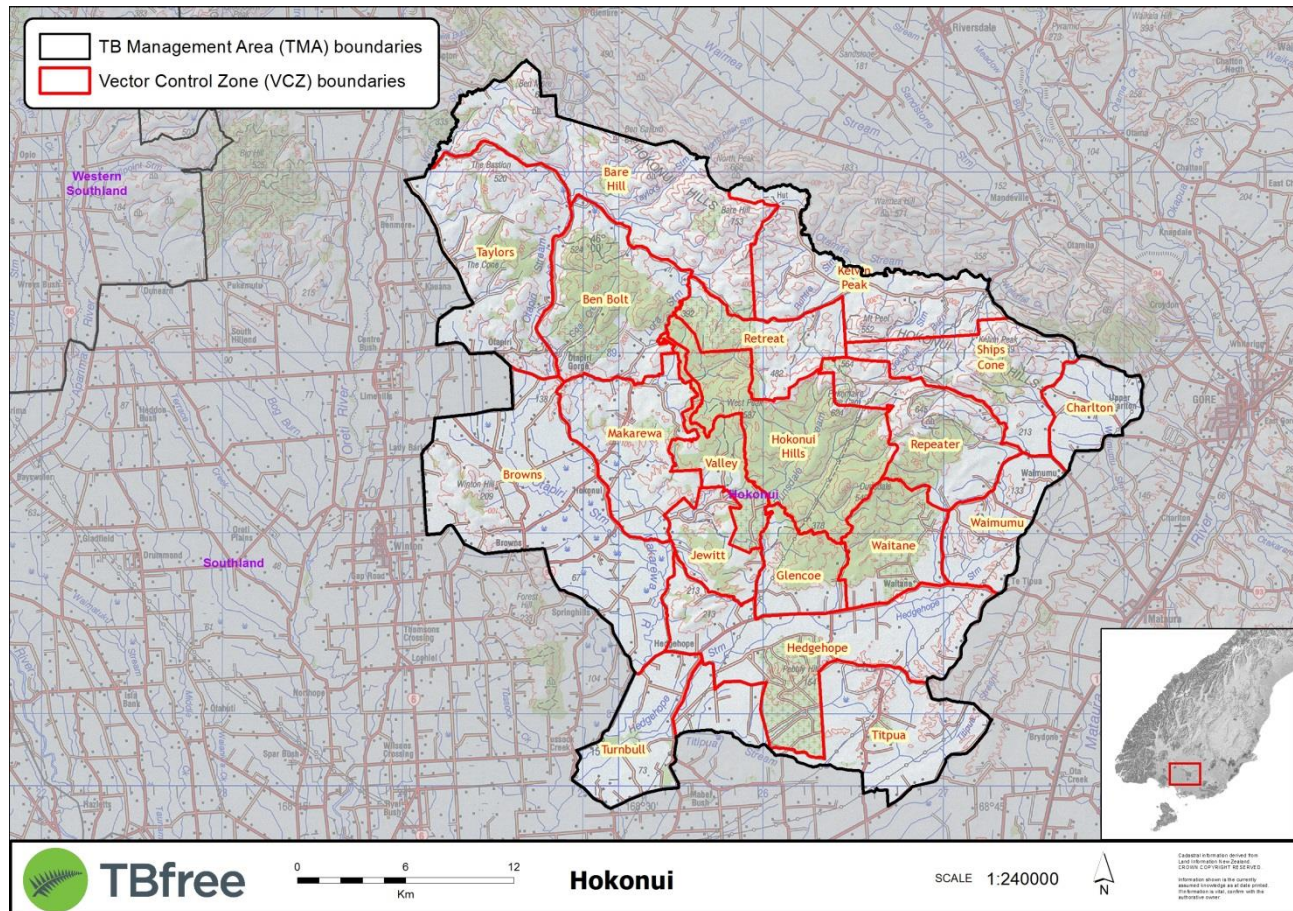
RISK MANAGEMENT

This TMA is very large and contains extensive areas of remote prime possum habitat. This was one of the most badly infected areas in New Zealand as recently as 15 years ago. There is a moderate risk of TB persistence even after the planned "STC" aerial operation and associated ground control. However the target of zero infected herds is not seriously at risk but rather the projected date for freedom in possums of 2026.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Periodic pig and ferret surveys should be carried out post-TB freedom to confirm biological eradication.

5.3 HOKONUI HILLS



TB MANAGEMENT AREA OBJECTIVES

- Possum TB freedom date: 2018
- Herd TB freedom date: 2016
- Total area of VRA reduction (hectares): 27,184

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Ben Bolt	5,663	2018
Glencoe	2,314	2018
Hokonui Hills	6,567	2018
Repeater	4,520	2018
Retreat	2,933	2018
Valley	2,088	2018
Waitane	3,099	2018
Total	27,184	

DESCRIPTION OF TB MANAGEMENT AREA

The Hokonui TMA is centred around the Hokonui Hills in Central Southland. It is comprised of large areas of native and exotic forestry surrounded by intensively farmed improved country. Possum habitat is plentiful and some is quite difficult to access.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years. Possum control was intermittent during the period 1980-2000. Beginning in 2002 intensive aerial and ground based possum control commenced and has continued through until 2016. The final wildlife surveillance phase will be completed by 2018 using TBfree sentinel pigs and resident pigs. It is expected that this TMA will be declared free by 2018.

PLANNED VECTOR RISK AREA REDUCTION

Hokonui	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	27,184	0	0	0	0	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herds in this TMA.

Summary of Operations Planned

Final POF wildlife surveillance commenced during 2015/16 using TB free sentinel pigs. This is expected to continue through until 2017/18 and local pigs will also be surveyed in the latter stages.

Innovations, Initiatives and Research and Development

TBfree sentinel pig programme.

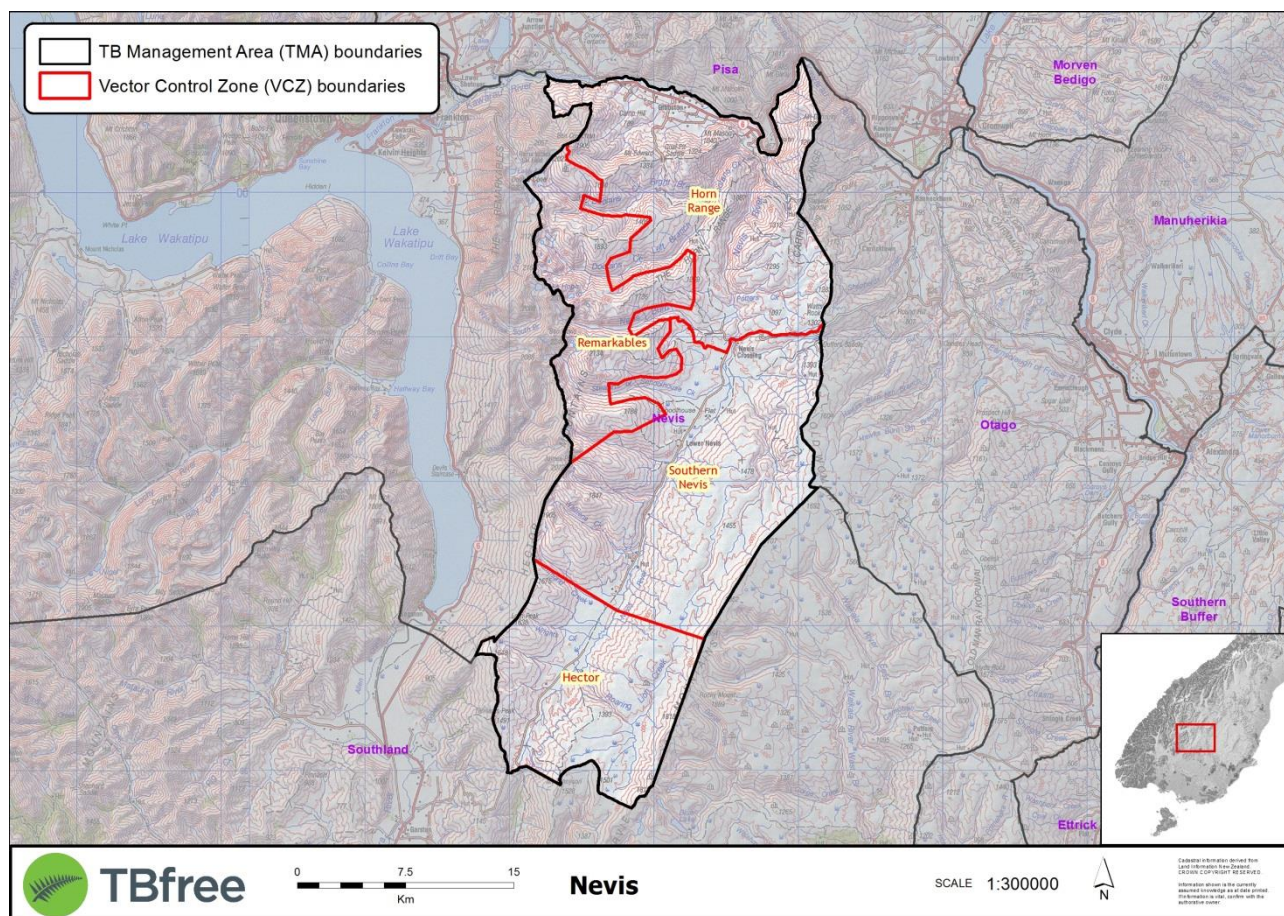
RISK MANAGEMENT

This TMA has a very long history of wildlife associated TB. Final POF is likely to be in the order of 95% probability so there is a low, but manageable, risk of residual infection still being present in wildlife.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken at 5 year intervals for at least 10 years after possum TB freedom is declared.

5.4 NEVIS



TB MANAGEMENT AREA OBJECTIVES

- Possum TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 61,795

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Horn Range	22,920	2026
Remarkables	12,021	2026
Southern Nevis	26,854	2026
Total	61,795	

DESCRIPTION OF TB MANAGEMENT AREA

The Nevis TMA is centred around the Nevis River catchment and extends the entire length of the Nevis valley. The landscape varies from flat to mountainous and is comprised of a mixture of tussock and scrub together with vast areas of little habitat in the upper reaches.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife in the lower reaches of the Nevis Valley and the Gibbston Flats for many years and still is. Ferrets inhabit this area and infection was previously common. There are few herds but infection did occur sporadically.

PLANNED VECTOR RISK AREA REDUCTION

Nevis	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	61,795	61,795	61,795	61,795	61,795	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herds in this TMA.

Summary of Operations Planned

Further output-based possum control is required in the Horn Range VCZ for at least the next three years (2016/17-2018/19). In the Southern Nevis and Remarkables VCZs, wildlife surveillance using ferrets and possums (commencing in 2017/18) will be used to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

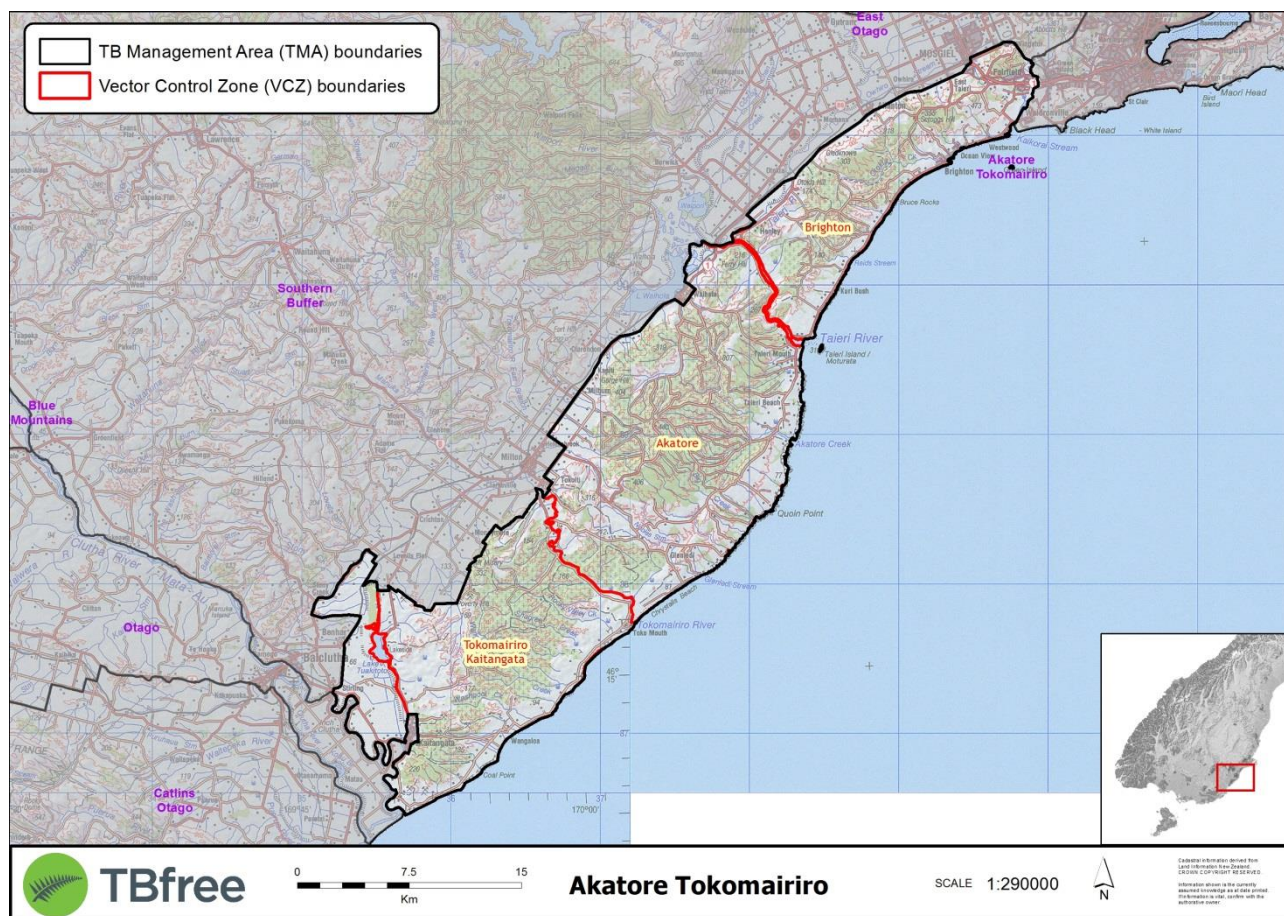
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB Freedom is declared but this should be focussed on the historical hotspots of Gibbston and the lower Nevis Valley.

5.5 AKATORE - TOKOMAIROIRO



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 63,082

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Akatore	27,457	2026
Brighton	13,793	2026
Lake Tuakitoto	3,766	2018
Toko – Kai	18,066	2026
Total	63,082	

DESCRIPTION OF TB MANAGEMENT AREA

The Akatore-Tokomairiro TMA is the eastern coastal section of the Otago VRA and extends from the Clutha River in the south to Dunedin City in the north. The landscape is predominantly rolling hill country with a mixture of significant exotic forestry stands, broken native bush remnants, cleared and improved farmland and lifestyle blocks.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was firmly established in wildlife in this area. Intensive aerial and ground based possum control was initiated from the late 1990's and continued intermittently through until 2011. Many herds were infected during the 1990-2000 period.

PLANNED VECTOR RISK AREA REDUCTION

Akatore-Tokomairiro	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	63,082	59,316	59,316	59,316	59,316	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There have been no infected herds for more than 5 years.

Summary of Operations Planned

Wildlife surveillance utilising feral pigs and/or ferrets commences early in 2016/17. It is planned to continue this activity for up to 3 years (to achieve 95% POF) or until wildlife TB is detected. It is probable that TB still persists somewhere in some parts of this TMA and for this reason possum TB freedom over the whole TMA is not expected before 2026. Targeted possum control will be required to eradicate TB from any residual hotspots and follow-up wildlife surveillance required to confirm freedom.

Innovations, Initiatives and Research and Development

Not required.

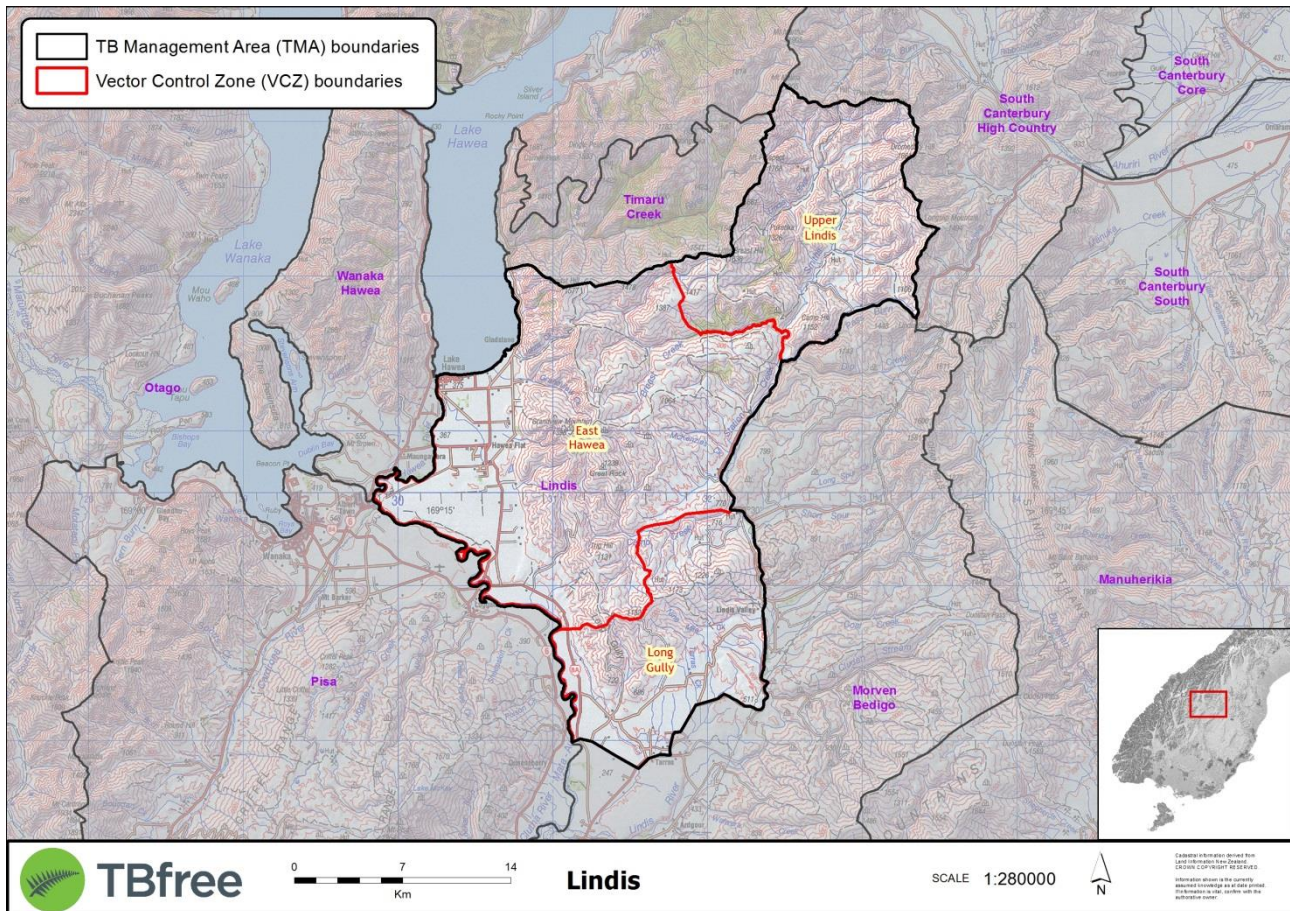
RISK MANAGEMENT

A feral horse herd is known to exist within the TMA which may create complications for any proposed control and/or surveillance activity.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Periodic pig and ferret surveys should be carried out post-TB freedom in possums to confirm biological eradication.

5.6 LINDIS



TB MANAGEMENT AREA OBJECTIVES

- Possum TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 67,040

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Easy Hawea	35,280	2026
Long Gully	14,226	2026
Upper Lindis	17,534	2026
Total	67,040	

DESCRIPTION OF TB MANAGEMENT AREA

The Lindis TMA extends from Lake Hawea and Tarras in the south to the top of the Lindis Pass in the north. The landscape varies from flat to mountainous and contains a mixture of tussock and scrub together with improved farmland that supports intensive and extensive farming.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years. Ferrets and feral pigs are widely distributed and infection was previously common. Herds were also frequently infected.

PLANNED VECTOR RISK AREA REDUCTION

Lindis	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	67,040	67,040	67,040	67,040	67,040	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herds Activity

There are currently no infected herds in this TMA.

Summary of Operations Planned

Wildlife surveillance using ferrets and/or feral pigs will be used over at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

INNOVATIONS, INITIATIVES AND RESEARCH AND DEVELOPMENT

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

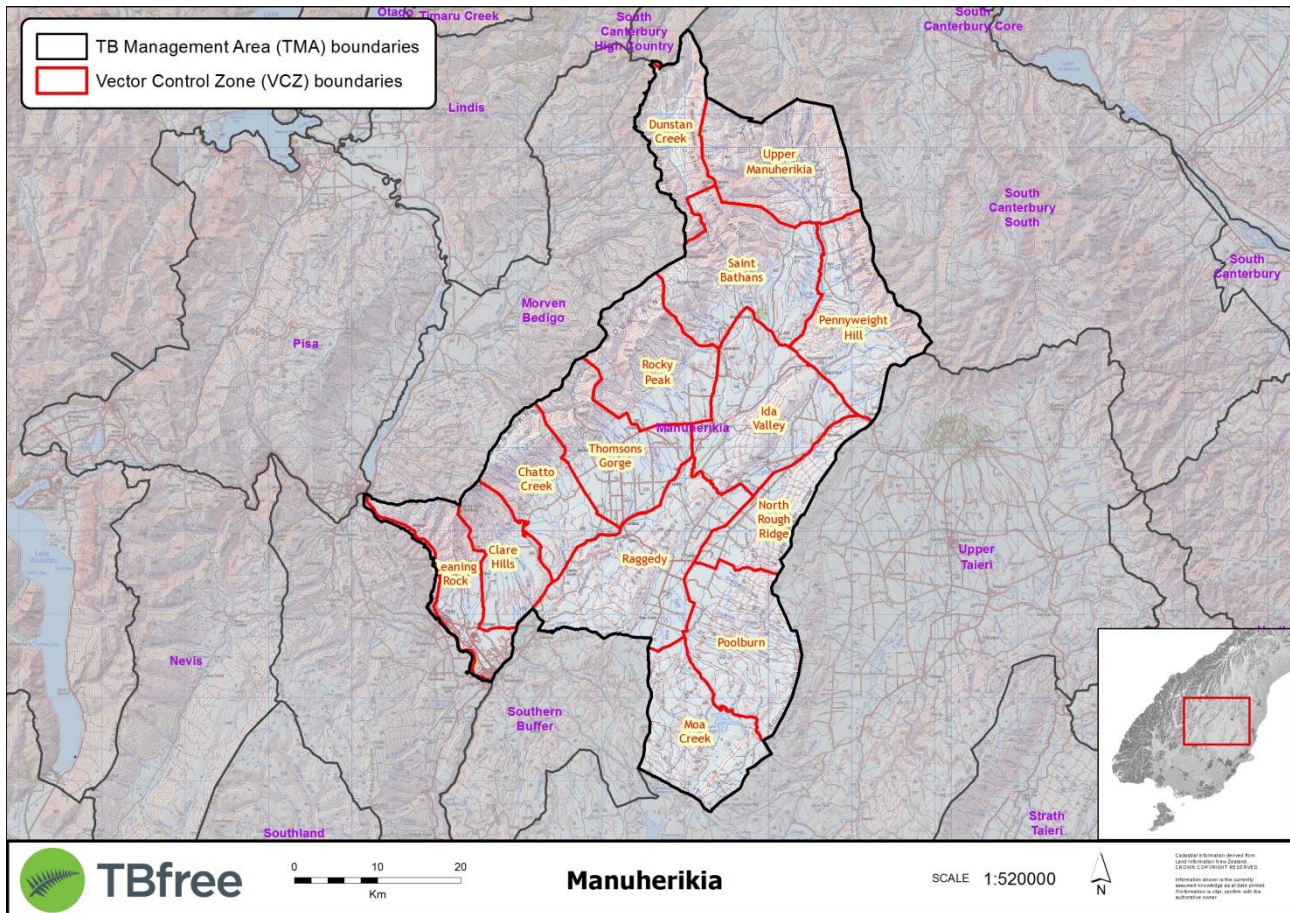
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post TB-freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.7 MANUHERIKIA



TB MANAGEMENT AREA OBJECTIVES

- Possum TB freedom date: 2030
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 257,997

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Chatto Creek	15,514	2030
Clare Hills	11,173	2030
Dunstan Creek	12,250	2030
Ida Valley	24,193	2030
Leaning Rock	12,542	2030
Moa Creek	17,783	2030
North Rough Ridge	12,474	2030
Total	257,997	

VCZ Name	Hectares (VRA)	Planned of TB freedom
Pennyweight Hills	20,891	2030
Poolburn	20,639	2030
Raggedy	27,090	2030
Rocky Peak	18,864	2030
St Bathans	25,034	2030
Thompsons Gorge	18,242	2030
Upper Manuhierikia	21,308	2030

DESCRIPTION OF TB MANAGEMENT AREA

The Manuherikia TMA includes the Manuherikia River catchment from its source in the St Bathans mountains to its junction with the Clutha River at Alexandra and the adjacent Ida Valley. It varies from flat to mountainous and is comprised of a mixture of tussock and scrub together with improved farmland that supports intensive and extensive farming.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years. Ferrets and feral pigs are widely distributed and infection was previously common. Herds were also frequently infected.

PLANNED VECTOR RISK AREA REDUCTION

Manuherikia	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	257,997	257,997	257,997	257,997	257,997	257,997	257,997	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activity

There are currently no infected herds in this TMA.

Summary of Operations Planned

Wildlife surveillance using ferrets and feral pigs will be used over at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

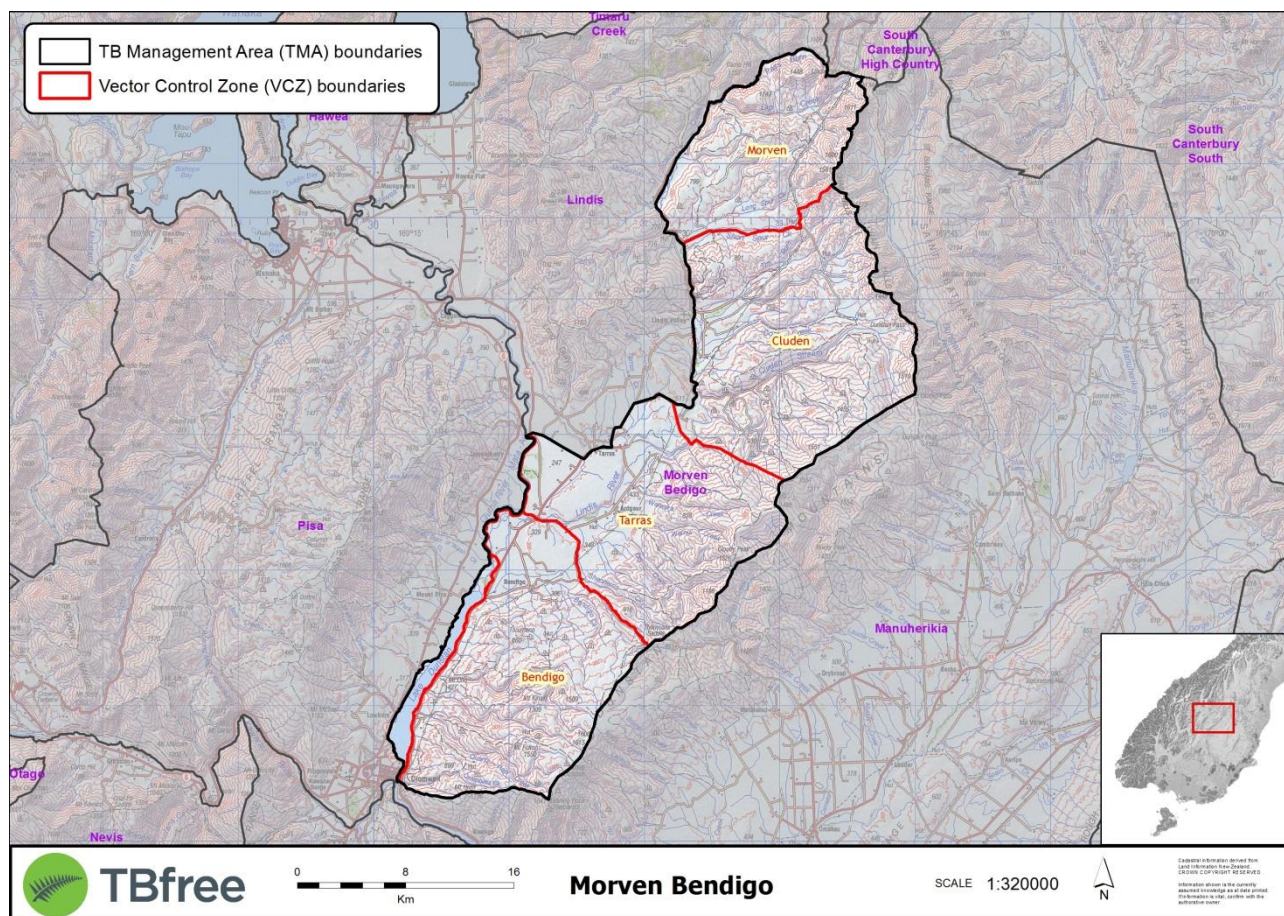
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.8 MORVEN-BENDIGO



TB MANAGEMENT AREA OBJECTIVES

- Possum TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 81,660

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Bendigo	22,281	2026
Cluden	25,643	2026
Morven	13,578	2026
Tarras	20,158	2026
Total	81,660	

DESCRIPTION OF TB MANAGEMENT AREA

The Morven-Bendigo TMA includes the western faces of the Dunstan Mountains near Cromwell and extends up the eastern side of the Lindis Pass highway to the Lindis Pass summit. It is comprised of a mixture of tussock and scrub together with improved farmland that supports both intensive and extensive farming.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years. Ferrets and feral pigs are widely distributed and infection was previously common. Herds were also frequently infected.

PLANNED VECTOR RISK AREA REDUCTION

Morven-Bendigo	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	81,660	81,660	81,660	81,660	81,660	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herds in this TMA.

Summary of Operations Planned

Wildlife surveillance using ferrets and feral pigs will be used over at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

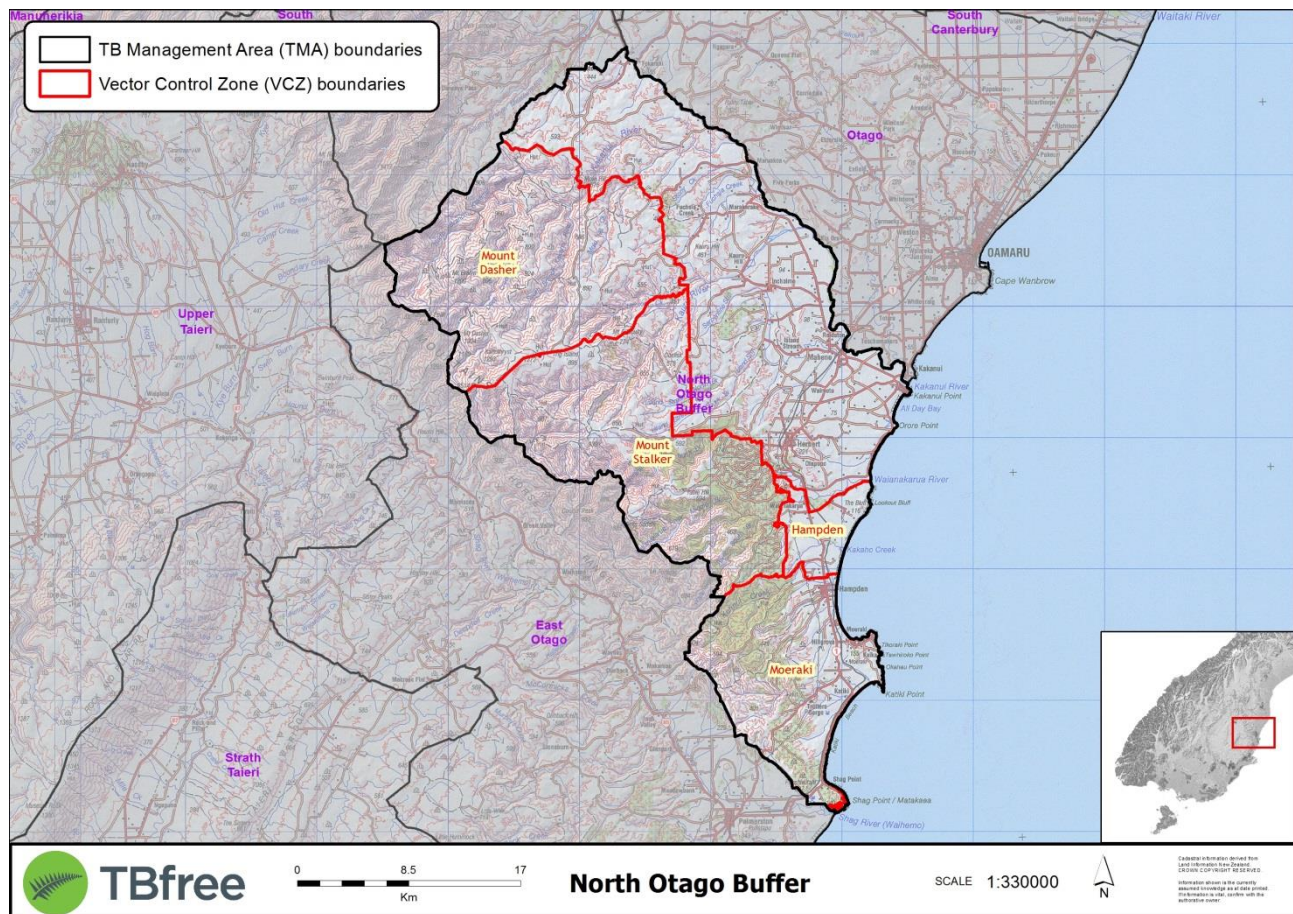
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.9 NORTH OTAGO BUFFER



TB MANAGEMENT AREA OBJECTIVES

- Possum TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 44,152

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Hampden	3,343	2026
Moeraki	15,008	2026
Mt Stalker	25,801	2026
Total	44,152	

DESCRIPTION OF TB MANAGEMENT AREA

The North Otago Buffer TMA is the last line of defence between the Otago VRA and the vector free areas to the north and northeast. It extends from the coast near Moeraki and along the eastern flank of the Kakanui Mountains towards Danseys Pass. The landscape varies from flat to mountainous and the habitat ranges from improved and intensively farmed through to extensive tussock and large areas of native and exotic forest.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in this TMA in the 1990's. Possum control started in the adjacent VFA early in the 2000's to prevent TB spreading further and the VRA VCZ's were controlled for possums in subsequent years as funding allowed. Control has been frequent including repeat aerial operations. There has been the occasional infected herd.

PLANNED VECTOR RISK AREA REDUCTION

North Otago Buffer	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	44,152	44,152	44,152	44,152	44,152	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herds in this TMA.

Summary of Operations Planned

This TMA is strategically important as a buffer between the TB VRA and the intensively farmed VFA towards the Waitaki River to the north. The ground strata associated with Mt Stalker, Hampden and Moeraki VCZ's are programmed for output-based possum control for 2017/18, 2018/19 and 2019/20. The Mt Stalker aerial strata has control programmed for winter 2017 and the aerial strata of Moeraki is programmed for control in the winter of 2019.

A recent pig survey from Danseys to Mt Stalker provided reassurance that TB was not established in the VFA to the north. Given the importance of this buffer being effective, ferret and/or pig surveys will be repeated in the adjacent VFA in 2016/17 and, depending on the results, may be repeated in 2018/19.

Innovations, Initiatives and Research and Development

Nothing specific to this VCZ.

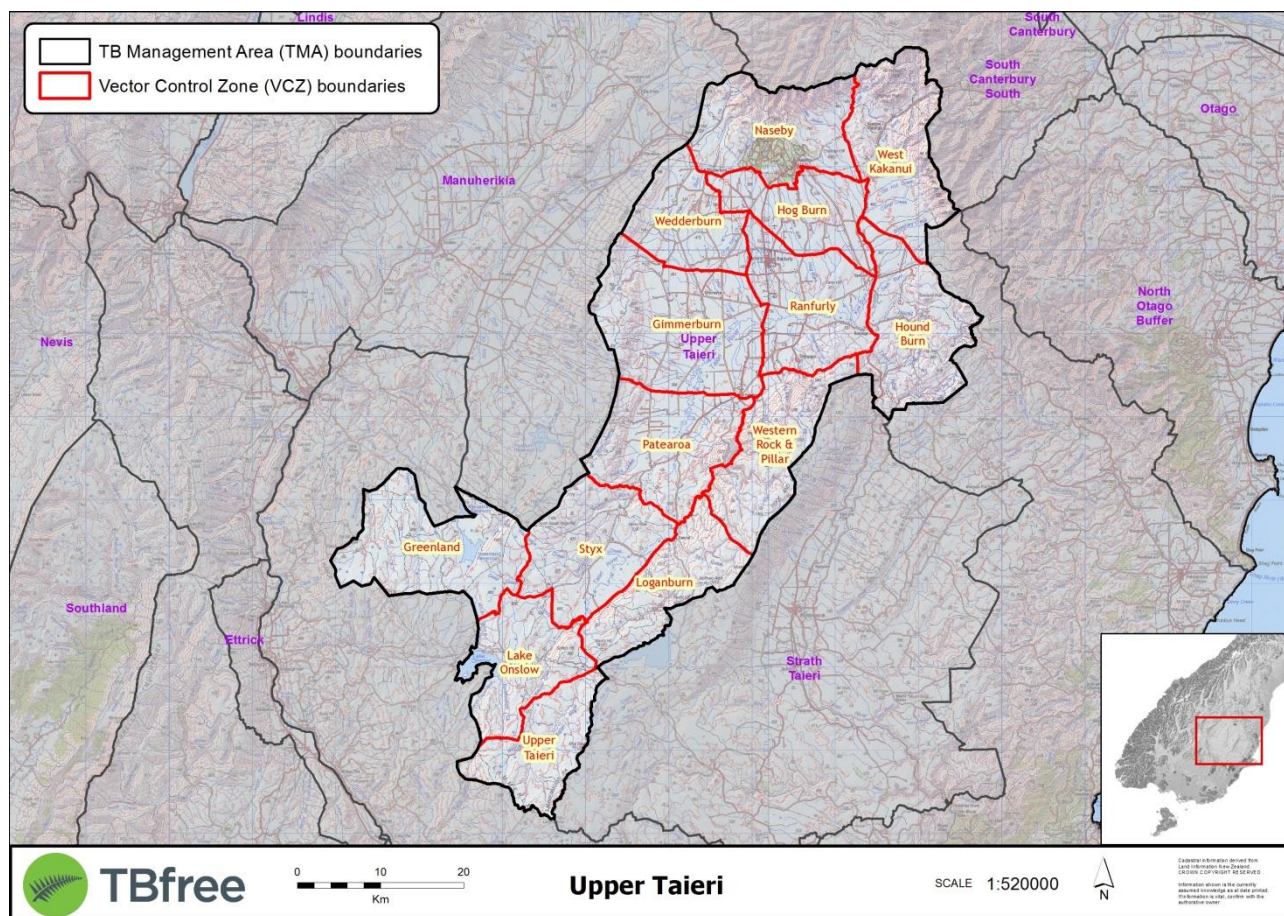
RISK MANAGEMENT

This TMA is strategically important as a buffer between the TB VRA and the intensively farmed VFA to the north. There is an ongoing risk that TB possums could spread north into the VFA section of this TMA until the internal VRA is sustainably controlled. This would trigger repetitive possum control over very large areas of difficult terrain. Emphasis is being placed on providing sustained control in the core to mitigate this risk as soon as possible. In addition, pig surveys have, and will, be conducted to check for any possible spread as the herd testing surveillance is low.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 and 10 years after possum TB freedom is declared.

5.10 UPPER TAIERI



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2030
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 268,279

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Gimmerburn	28,964	2030
Greenland	23,847	2022
Hogburn	13,905	2030
Houndburn	20,311	2030
Lake Onslow	16,384	2022
Loganburn	16,217	2030
Naseby	20,447	2030
Total	268,279	

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Patearoa	20,961	2030
Ranfurly	19,494	2030
Styx	20,359	2030
Upper Taieri	14,230	2022
Wedderburn	14,236	2030
West Kaknui	21,081	2030
W. Rock and Pillar	17,843	2030

DESCRIPTION OF TB MANAGEMENT AREA

The Upper Taieri TMA encompasses the Taieri River catchment from its source in the Lammerlaw Range through to the top of the Pigroot. It is comprised of a mixture of high country tussock and scrub together with improved farmland and supports a mixture of intensive and extensive farming.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years and still is. Ferrets and feral pigs are widely distributed and infection was previously common. Herds were also frequently infected.

PLANNED VECTOR RISK AREA REDUCTION

Upper Taieri	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	268,279	268,279	268,279	213,818	213,818	213,818	213,818	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There is currently 1 infected herd in this TMA and infection is due to local wildlife. Standard management techniques are expected to clear this herd in the short term.

Summary of Operations Planned

Wildlife surveillance using ferrets and feral pigs will be used over at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

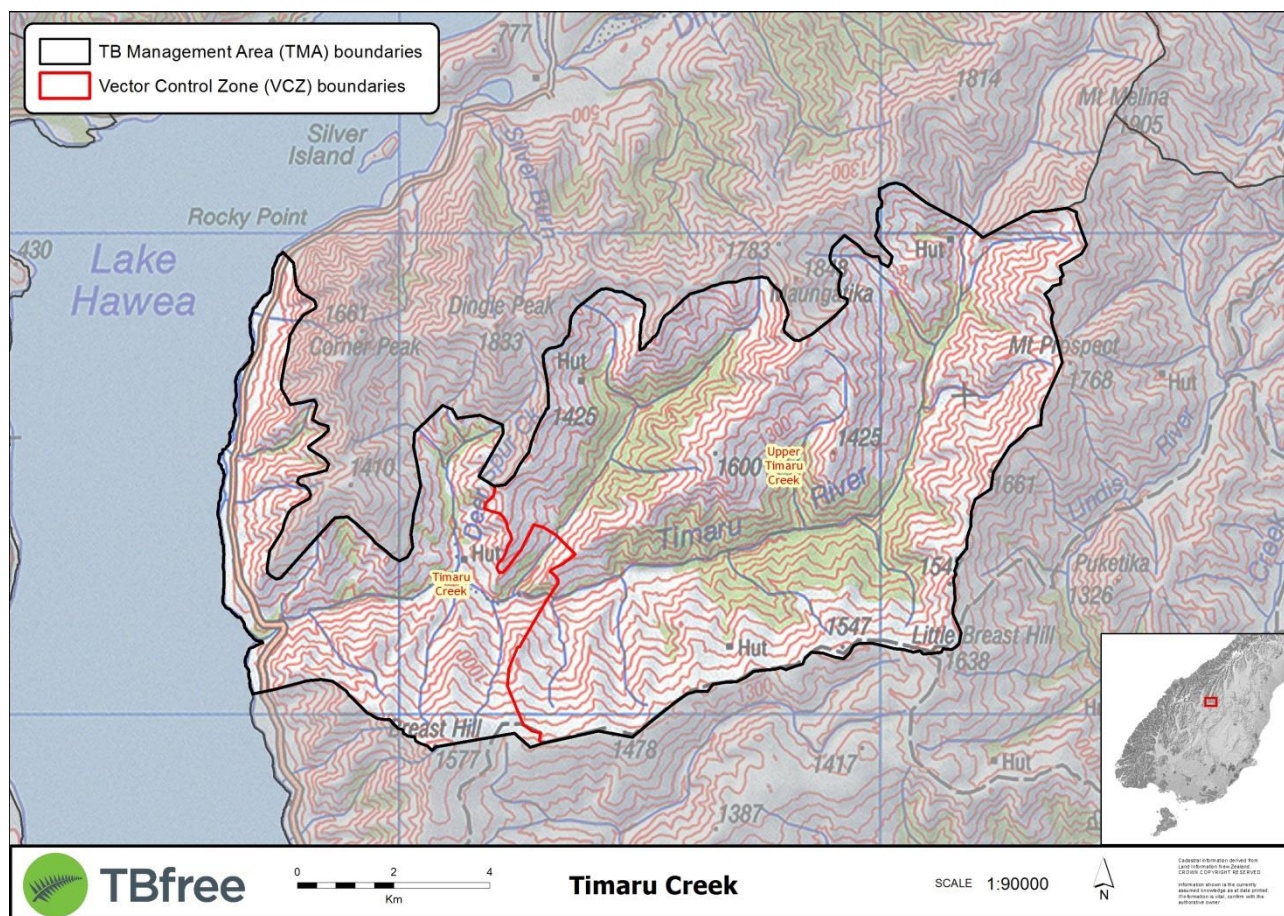
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.11 TIMARU CREEK



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 11,907

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Timaru Creek	3,377	2026
Upper Timaru Creek	8,530	2026
Total	11,907	

DESCRIPTION OF TB MANAGEMENT AREA

The Timaru Creek TMA is situated on the north eastern shore of Lake Hawea and is centred around the Timaru Creek catchment. It is the last line of defence between the Otago VRA and the VFA. It is a tight mountainous river valley with extensive habitat throughout much of its length.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was well established in this TMA and still is. While there is little stock grazing available, the cattle herds on either side of Timaru Creek have been infected. TB ferrets and pigs have recently been detected on the south eastern side.

PLANNED VECTOR RISK AREA REDUCTION

Timaru Creek	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	11,907	11,907	11,907	11,907	11,907	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herds in this TMA.

Summary of Operations Planned

Further output-based possum control is required in the Timaru Creek VCZ for at least the next three years (2016/17-2018/19). Targeted and trickle aerial control completed in the last two years covers only part of the area now identified as being at risk. An aerial operation will be needed in the Timaru Creek VCZ within the next three years. Ferret and pig surveys will be undertaken in the Upper Timaru Creek VCZ for at least the next three years (2016/17-2018/19). Ferret surveys in the adjacent VFA from Timaru Creek to the Dingleburn will be undertaken every two years.

Innovations, Initiatives and Research and Development

Nothing specific to this VCZ.

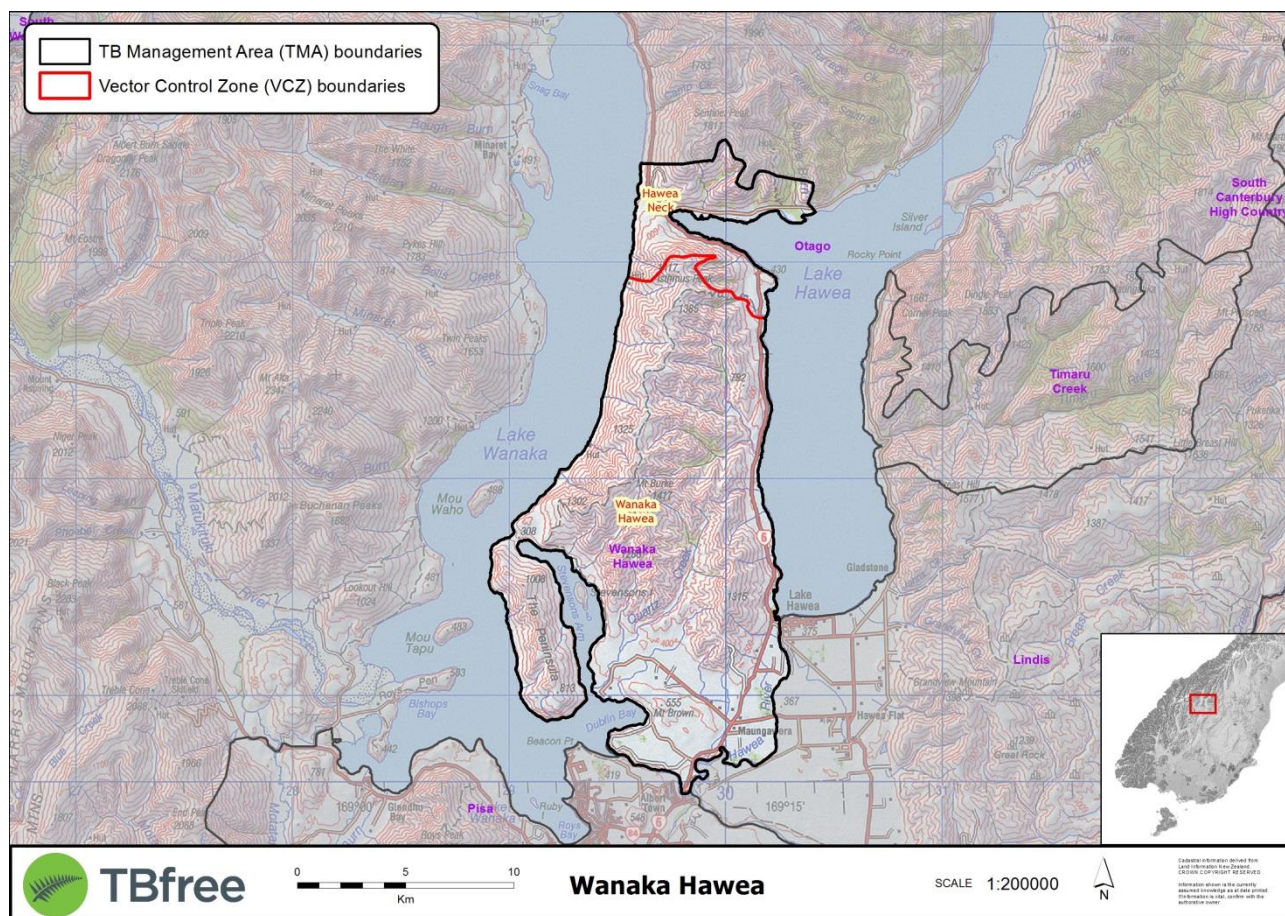
RISK MANAGEMENT

TB wild animals still persist in this TMA and it is the last line of defence between the VRA and the VFA at this point. Further intensive possum control, including a possible aerial operation, is planned and the VFA ferret survey from Timaru Creek to the Dingleburn will be regularly repeated.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 and 10 years after possum TB freedom is declared.

5.12 WANAKA-HAWEA



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 23,871

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Hawea Neck	3,218	2026
Wanaka Hawea	20,653	2026
Total	23,871	

DESCRIPTION OF TB MANAGEMENT AREA

The Wanaka-Hawea TMA is situated between Lake Wanaka and Lake Hawea. TB was established here and several cattle and deer herds were infected. The habitat is extensive, rough and high with vegetation of most types from scrub through to extensive native beech stands. There is also a significant amount of improved pasture that is intensively farmed.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB probably never established in possums in the Hawea Neck VCZ but it was certainly close by in the much larger and rougher Wanaka-Hawea VCZ. Vector control has been intensive and sustained in this TMA for many years due to its proximity to the VFA of Makarora and Mt Aspiring National Park to the northwest.

PLANNED VECTOR RISK AREA REDUCTION

Wanaka-Hawea	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	23,871	23,871	23,871	23,871	23,871	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herds in this TMA.

Summary of Operations Planned

Wildlife surveillance using ferrets and feral pigs will be undertaken in the Wanaka Hawea VCZ for at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control, possibly aerial, will be required. Further output-based possum control is required in the Hawea Neck VCZ for at least the next three years (2016/17-2018/19), as a buffering strategy, until there is confidence of TB freedom in possums in the Wanaka Hawea VCZ.

Innovations, Initiatives and Research and Development

Nothing specific to this VCZ.

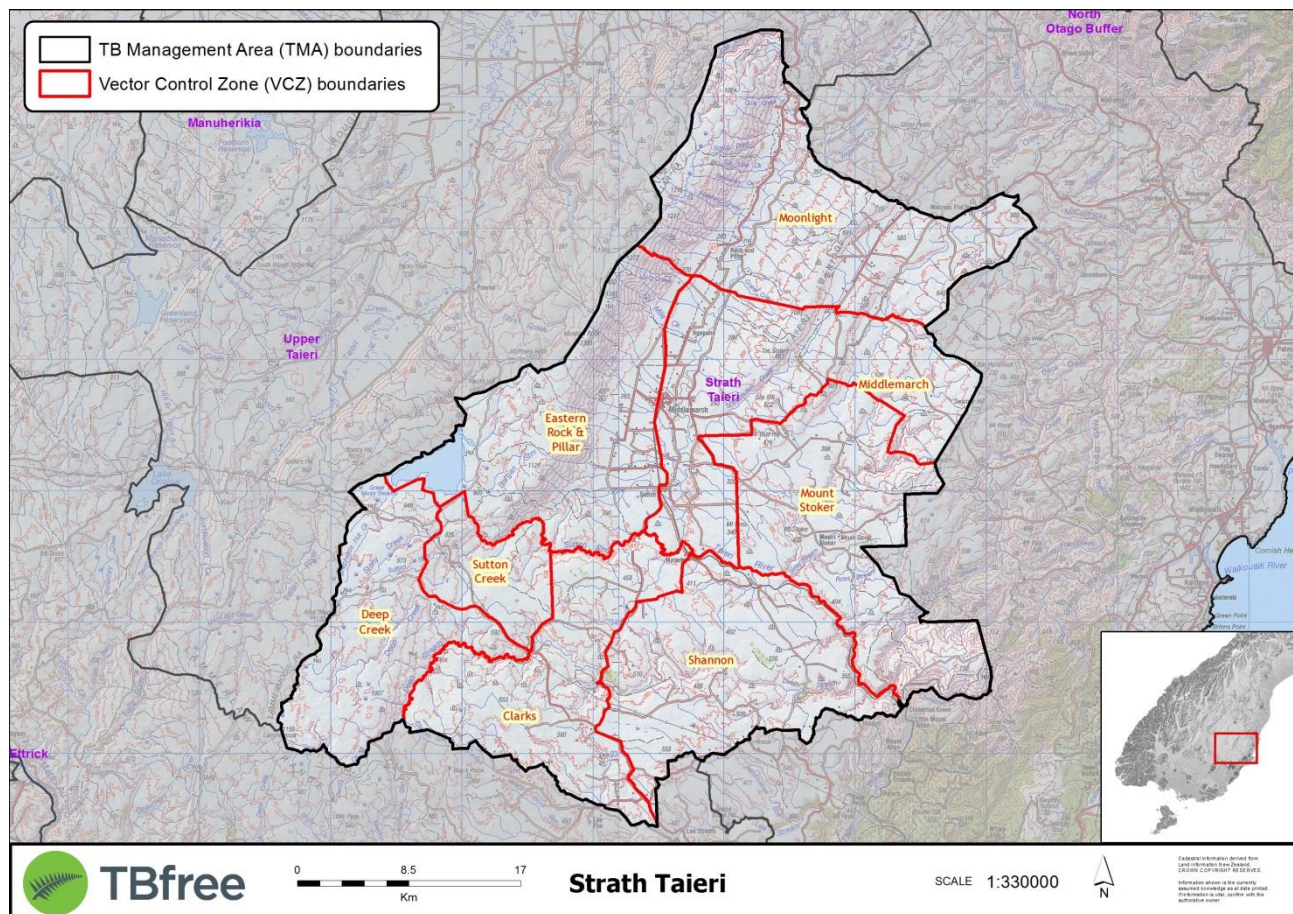
RISK MANAGEMENT

This is the last line of defence between the VRA and the VFA at this point. The buffer strategy will need to be maintained until there is confidence of TB freedom in possums within the TMA.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 and 10 years after possum TB freedom is declared and just limited to the Wanaka-Hawea VCZ.

5.13 STRATH TAIERI



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2030
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 175,176

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Clarks	19,942	2030
Deep Creek	17,780	2030
E. Rock and Pillar	25,723	2030
Middlemarch	24,945	2030
Moonlight	31,319	2030
Mt Stoker	24,973	2030
Shannon	23,564	2030
Sutton	6,930	2030
Total	175,176	

DESCRIPTION OF TB MANAGEMENT AREA

The Strath Taieri TMA covers the drylands inland from Dunedin, around Middelmarsh and the eastern faces of the Rock and Pillar Ranges through towards the Pigroot in the northeast. It is comprised of a mixture of tussock and scrub together with improved farmland and supports a mixture of intensive and extensive farming.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years and still is. Ferrets and feral pigs are widely distributed and infection was previously common. Herds were also frequently infected.

PLANNED VECTOR RISK AREA REDUCTION

Strath Taieri	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	175,176	175,176	175,176	175,176	175,176	175,176	175,176	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently three infected herds in this TMA all due to local wildlife infection. Standard management techniques are expected to clear these herds in the short term.

Summary of Operations Planned

Wildlife surveillance using ferrets and feral pigs will be used over at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

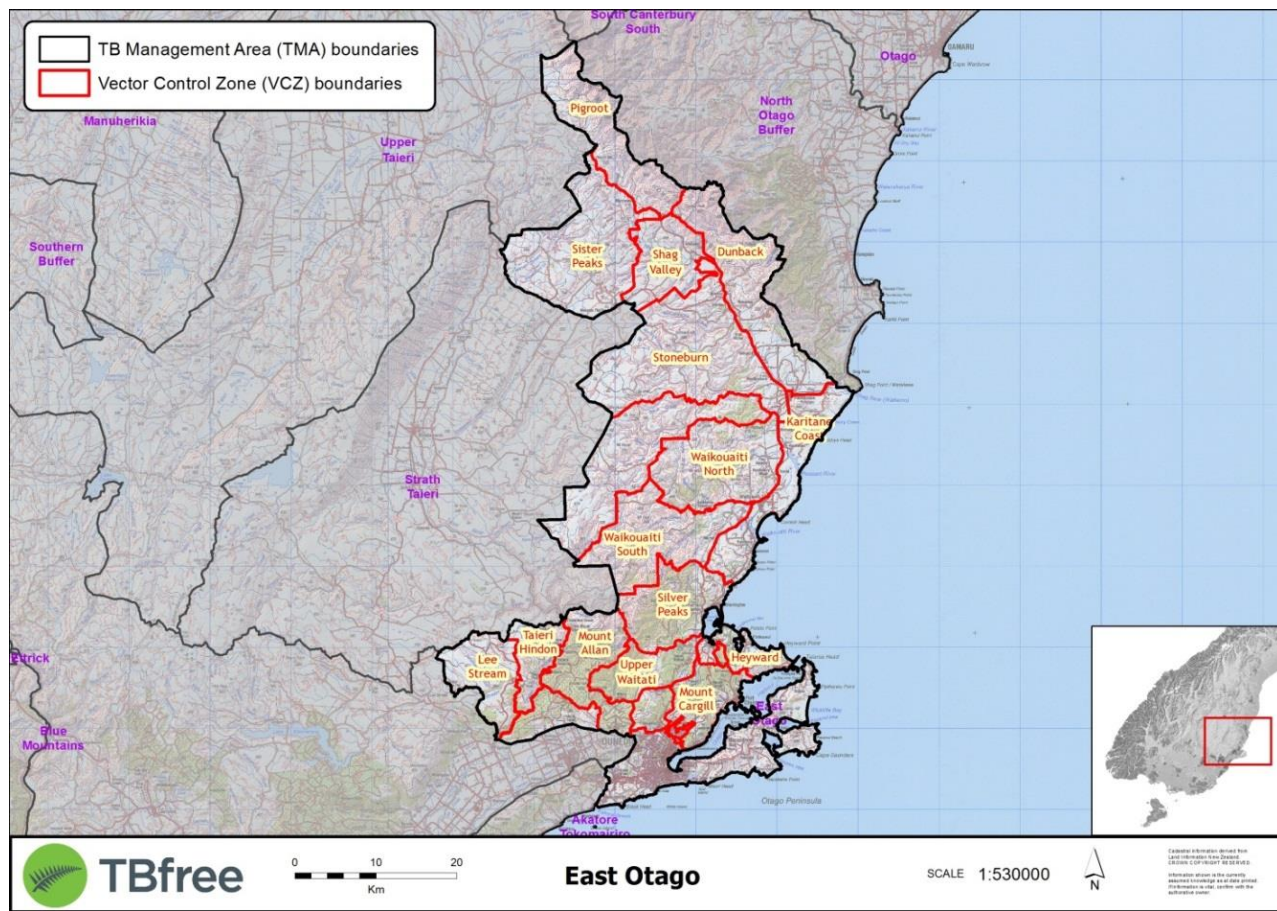
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There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.14 EAST OTAGO



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2035
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 180,894

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Dunback	15,829	2026
Flagstaff	2,291	2035
Heyward	3,885	2026
Lee Stream	7,771	2035
Mt Allan	9,356	2035
Mt Cargill	6,275	2026
North Taieri Hills	4,110	2035
Pigroot	12,304	2026
Shag Valley	8,117	2026
Totals	180,574	

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Silver Peaks	9,995	2035
Sister Peaks	19,673	2026
Stoneburn	24,353	2026
Taieri Hindon	4,663	2035
Upper Waitati	6,295	2035
Waikouaiti Ext.	17,254	2026
Waikouaiti North	14,260	2026
Waikouaiti South	14,143	2026

DESCRIPTION OF TB MANAGEMENT AREA

The East Otago TMA extends from south of Dunedin City to Palmerston and then inland toward Central Otago. It is mostly coastal type habitat being wetter and with more vegetative cover than the dry country further inland. There are substantial areas of native and exotic forestry, broken rough scrubland and improved farmland. Possum habitat is plentiful and some is quite difficult to access. The TMA now includes the expanded VRA at Mt Cargill on the western side of Otago Harbour.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years and still is. Intensive aerial and ground based possum control was progressively initiated in the known infected areas from the late 1990's and continued intermittently through until 2016. This strategy has successfully suppressed herd infections but there are currently a number of infected herds in the TMA and TB possums have recently been detected in the previously vector free area near Mt Cargill.

PLANNED VECTOR RISK AREA REDUCTION

East Otago	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	180,894	180,894	180,894	180,894	180,894	44,441	44,441	44,441	44,441	44,441	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

Until the ongoing vector risk is mitigated, infected herds are expected to be cleared using standard techniques.

Summary of Operations Planned

This coastal belt of prime and expansive possum habitat will require at least five years (2016/17 to 2020/21) of intensive possum control (output-based; 1% (2) performance targets) before wide scale POF activities can be commenced. Some VCZ's with particularly problematic TB issues will be targeted for further input controls. TB was well entrenched in this part of the TMA and many areas have not yet received consistent possum control due to funding limitations and an infected herd suppression strategy. Aerial operations are planned for the Upper Waitati and Sister Peaks VCZ's during 2016/17 and repeat aeriels will be required in Mt Allan, Silver Peaks, Sister Peaks and Upper Waitati VCZ's within 5 years. The newly established VRA extension around Mt. Cargill near Dunedin will be controlled intensively over the next 3 to 5 years to eliminate the risk to herds as soon as possible.

Innovations, Initiatives and Research and Development

Adaptive management to achieve possum TB freedom more efficiently and effectively..

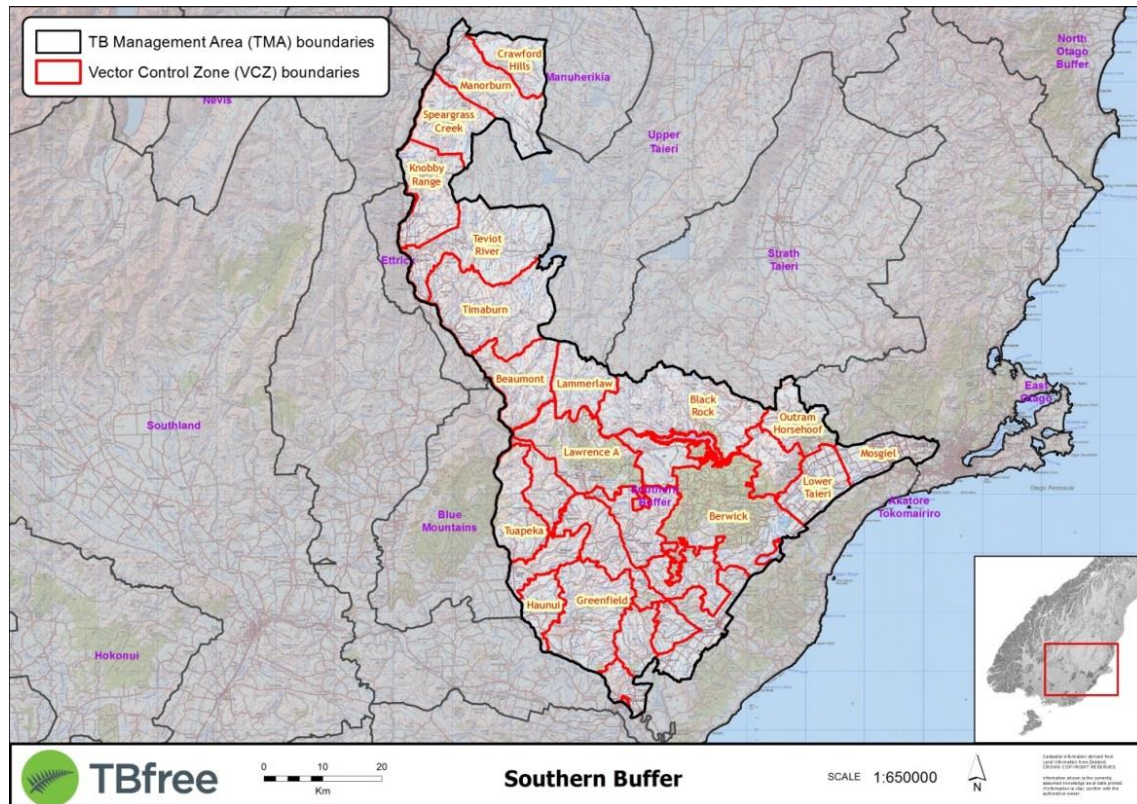
RISK MANAGEMENT

This TMA is very large and contains extensive areas of difficult, prime possum habitat. This was a very badly infected area as recently as 10 years ago. Adaptive management to improve cost-effectiveness of possum TB freedom will mitigate the risk of failure.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Periodic pig and ferret surveys should be carried out post-TB freedom in possums to confirm biological eradication.

5.15 SOUTHERN BUFFER



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2035
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 348,775

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Adams Flat	4,136	2020
Balclutha Buffer	3,765	2020
Beaumont	12,965	2030
Berwick	30,638	2035
Black Rock	26,358	2035
Crawford Hills	8,553	2030
Crookburn	6,484	2020
Greenfield	19,313	2020
Haunui	6,043	2020
Hillend	6,584	2020
Knobby Range	13,896	2030
Lammerlaw	9,459	2030
Lawrence A	19,551	2035
Lawrence B	7,082	2020
Total	348,775	

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Lawrence C	10,590	2035
Lawrence D	12,003	2020
Lower Taieri	9,571	2020
Mahinerangi	7,252	2035
Manorburn	16,549	2030
Maungatua	7,878	2035
Milton Flat	11,159	2020
Mosgiel	8,426	2020
Outram-Horsehoof	9,229	2035
Speargrass Creek	11,758	2030
Teviot River	23,183	2030
Timaburn	25,225	2030
Toko River	9,299	2035
Tuapeka	11,826	2020

DESCRIPTION OF TB MANAGEMENT AREA

The Southern Buffer TMA extends from the Crawford Hills near Alexandra and down the true left bank of the Clutha River to Balclutha and then north and northeast to Mosgiel and Mahinerangi. With the exception of the few Central Otago VCZ's, the majority of this TMA is wetter country containing all habitat types. There are substantial areas of native and exotic forestry, broken rough scrubland and improved farmland and the topography ranges from flat to rolling high country. Possum habitat is plentiful and some is quite difficult to access.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years and still is. Intensive aerial and ground based possum control was progressively initiated in the known infected areas from the late 1990's and continued intermittently through until 2016. This strategy has successfully suppressed herd infections but there are currently a number of infected herds in the TMA and TB possums have recently been detected in the previously vector free area near Mt Cargill in the adjacent East Otago TMA.

PLANNED VECTOR RISK AREA REDUCTION

Southern Buffer	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	348,775	348,775	242,383	242,383	242,383	242,383	120,795	120,795	120,795	120,795	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

Until the ongoing vector risk is mitigated infected herds are expected to be cleared using standard techniques.

Summary of Operations Planned

The belt of prime and expansive possum habitat north of the main highway between Milton and Beaumont will require at least five years (2016/17 to 2020/21) of output-based possum control before wide scale POF activities can be commenced. TB was well entrenched here and many areas have not yet received consistent possum control due to funding limitations and an infected herd suppression strategy. Repeat aerial operations will be required in Lawrence, Mahinerangi, Toko River and Berwick within 5 years. Some VCZ's with particularly problematic TB issues will be targeted for further input controls e.g. Teviot and Timaburn. The VCZs in that part of the TMA that lies to the south of the main highway between Milton and Beaumont are more advanced towards possum TB freedom and will be progressively surveyed for POF over the next three years. Ferrets and pigs are not widely distributed through this area so possum surveys may be required.

Innovations, Initiatives and Research and Development

Adaptive management to achieve possum TB freedom more efficiently and effectively.

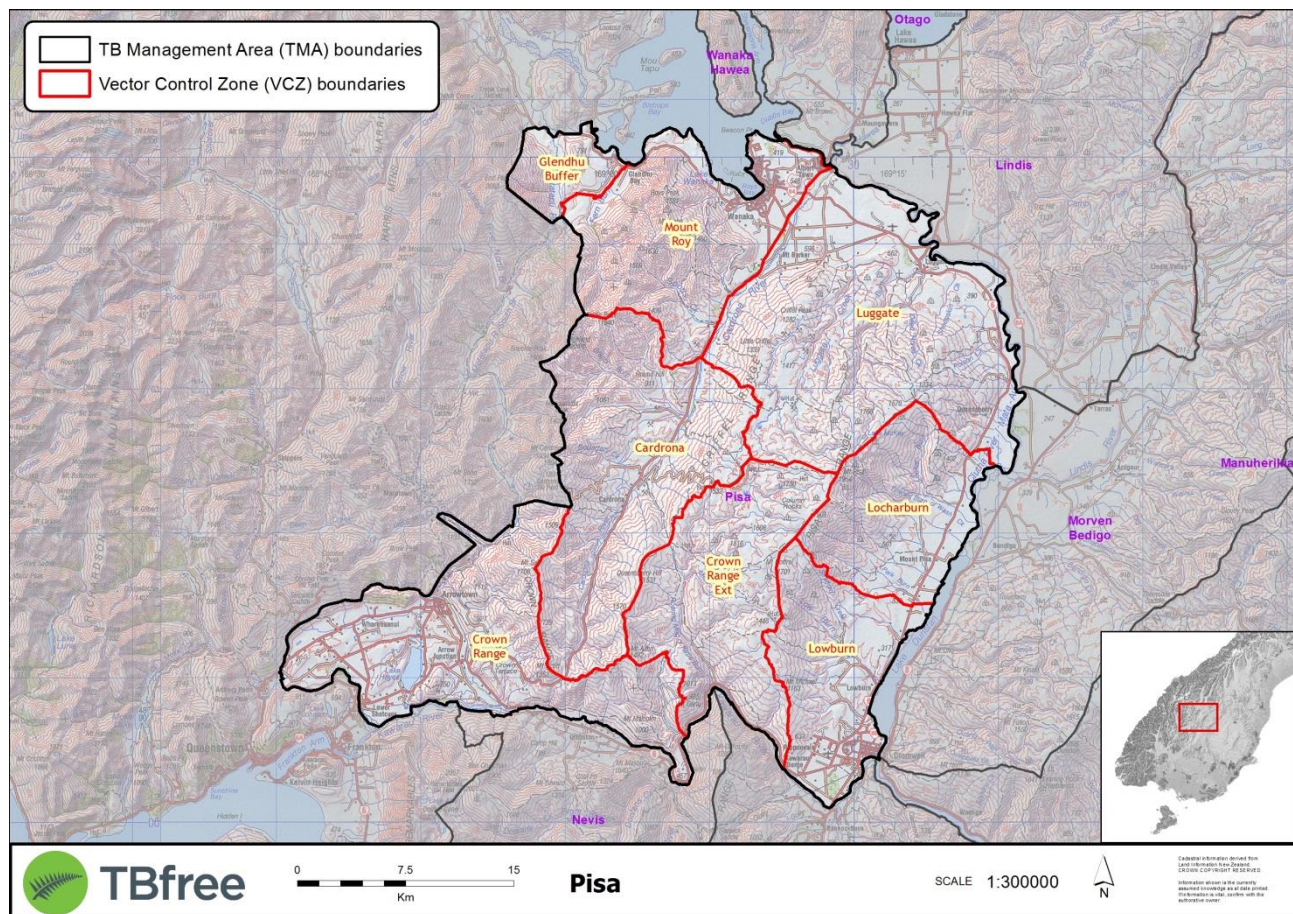
RISK MANAGEMENT

This TMA is very large and contains extensive areas of difficult, prime possum habitat. This was a very badly infected area as recently as 10 years ago. Adaptive management to improve cost-effectiveness of possum TB freedom will mitigate the risk of failure.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Periodic pig and ferret surveys could be carried out at five-year intervals post-TB freedom to confirm biological eradication.

5.16 PISA



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 126,704

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Cardrona	22,127	2024
Crown Range	21,098	2024
Crown Range Ext.	15,536	2024
Locharburn	11,354	2026
Lowburn	11,151	2024
Luggate	29,351	2026
Mt. Roy	16,087	2024
Total	126,704	

DESCRIPTION OF TB MANAGEMENT AREA

The Pisa TMA encompasses the Pisa and Criffel mountains that extend from Queenstown in the south through to Wanaka and Mt Roy in the northeast. The landscape is a mixture of high country tussock and scrub together with lowland improved farmland and supports a mixture of intensive and extensive farming.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years and still is. Ferrets and feral pigs are widely distributed and infection was previously common. Herds were also frequently infected.

PLANNED VECTOR RISK AREA REDUCTION

Pisa	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	126,704	126,704	126,704	126,704	40,705	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There is currently 1 infected herd in this TMA and infection is due to local wildlife. Intensive management continues to be applied to this chronically infected deer herd although there is still evidence of infected wildlife in the area.

Summary of Operations Planned

Wildlife surveillance using ferrets and feral pigs will be used over at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

There is still recent evidence of wildlife associated TB in the Luggate VCZ and this will continue to be the focus of intensive investigations and wildlife surveillance using pigs, ferrets and possums.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

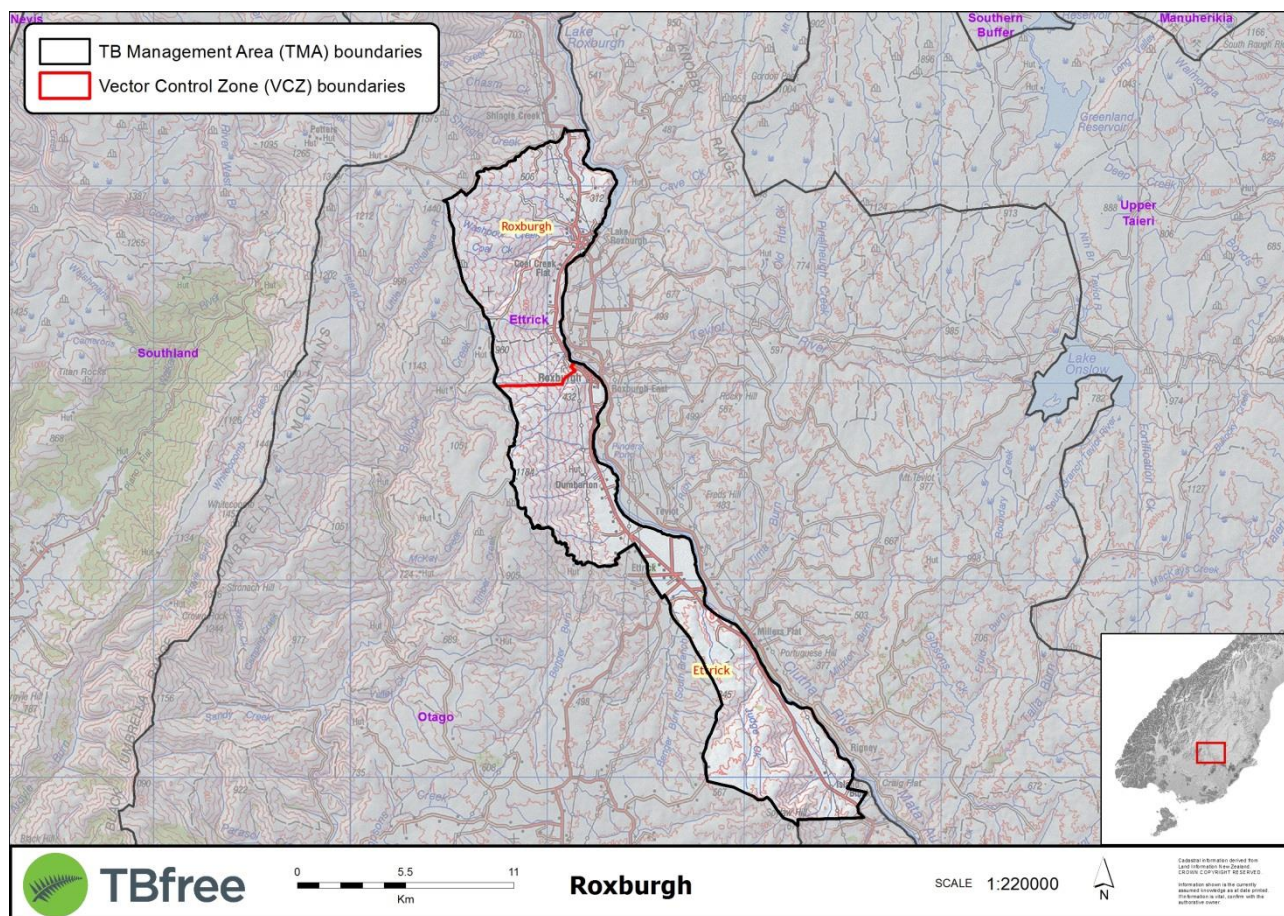
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.17 ROXBURGH



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2024
- Herd TB freedom date: 2016
- Total area of VRA reduction (hectares): 6,594

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Roxburgh	6,594	2024
Total	6,594	

DESCRIPTION OF TB MANAGEMENT AREA

The Roxburgh TMA is situated on the true right bank of the Clutha River and is centred adjacent to the Roxburgh hydro power station that spans the river. The landscape is comprised of a mixture of high country tussock and scrub together with areas of improved and intensively farmed land. There are 2 VCZ's in this TMA but only the Roxburgh VCZ is classified as VRA. TB possums were found here in the 1990's after having crossed the Clutha River via the power station. The other VCZ (Ettrick) is VFA and provides a buffer to prevent the re-establishment of possum TB on the west bank. The Clutha is bridged at Roxburgh township and Millers Flat and both of these crossings still pose a risk as TB is established on the true left.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife in the Roxburgh VCZ during the 1990's. It is probably long eradicated but due to the continued sporadic outbreaks of wildlife associated disease just over the river the VRA status should be maintained until the risk has been largely eliminated.

PLANNED VECTOR RISK AREA REDUCTION

Roxburgh	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	6,594	6,594	6,594	6,594	0	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herds in this TMA.

Summary of Operations Planned

Biennial output-based possum control will be carried out in this TMA until the risk of TB possums crossing the Clutha River is eliminated. This is expected to take until 2019/20. POF surveys using ferrets only will be conducted from 2020/21.

Innovations, Initiatives and Research and Development

Nothing specific to this TMA

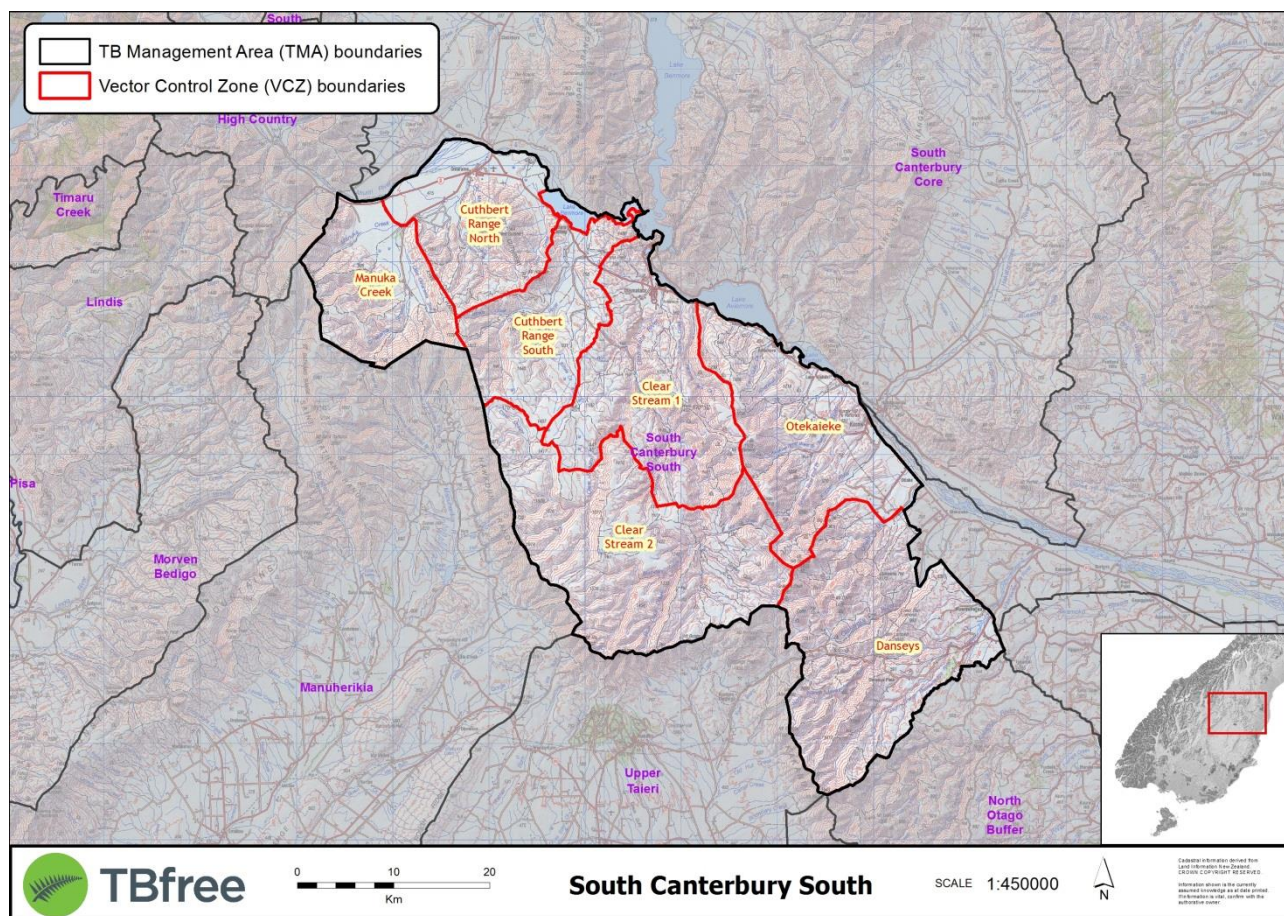
RISK MANAGEMENT

Nothing unique to this TMA.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance using ferrets should be undertaken 5 years after Possum TB freedom is declared and just limited to the Roxburgh VCZ.

5.18 SOUTH CANTERBURY SOUTH



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2024
- Herd TB freedom date: 2024
- Total area of VRA reduction (hectares): 165,895

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Clear Stream 1	32,008	2024
Clear Stream 2	44,935	2024
Cuthbert Range N	21,141	2024
Cuthbert Range S	20,281	2024
Manuka Creek	18,768	2024
Otekaieke	28,762	2018
Total	165,895	

DESCRIPTION OF TB MANAGEMENT AREA

The South Canterbury South TMA lies between the St. Mary and Hawkdun Ranges in the south and extends through to the south side of the Waitaki River system. It is comprised of a mixture of high country tussock and scrub together with improved farmland and supports a mixture of intensive and extensive farming.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years and still is. Ferrets and feral pigs are widely distributed and infection was previously common. Herds were also frequently infected.

PLANNED VECTOR RISK AREA REDUCTION

South Canterbury South	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	165,895	137,133	137,133	137,133	0	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herds in this TMA .

Summary of Operations Planned

One further round of output-based possum control is programmed across the area for 2016/17 and 2017/18. Wildlife surveillance using ferrets and feral pigs will be used over the following two years (2018/19-2019/20) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

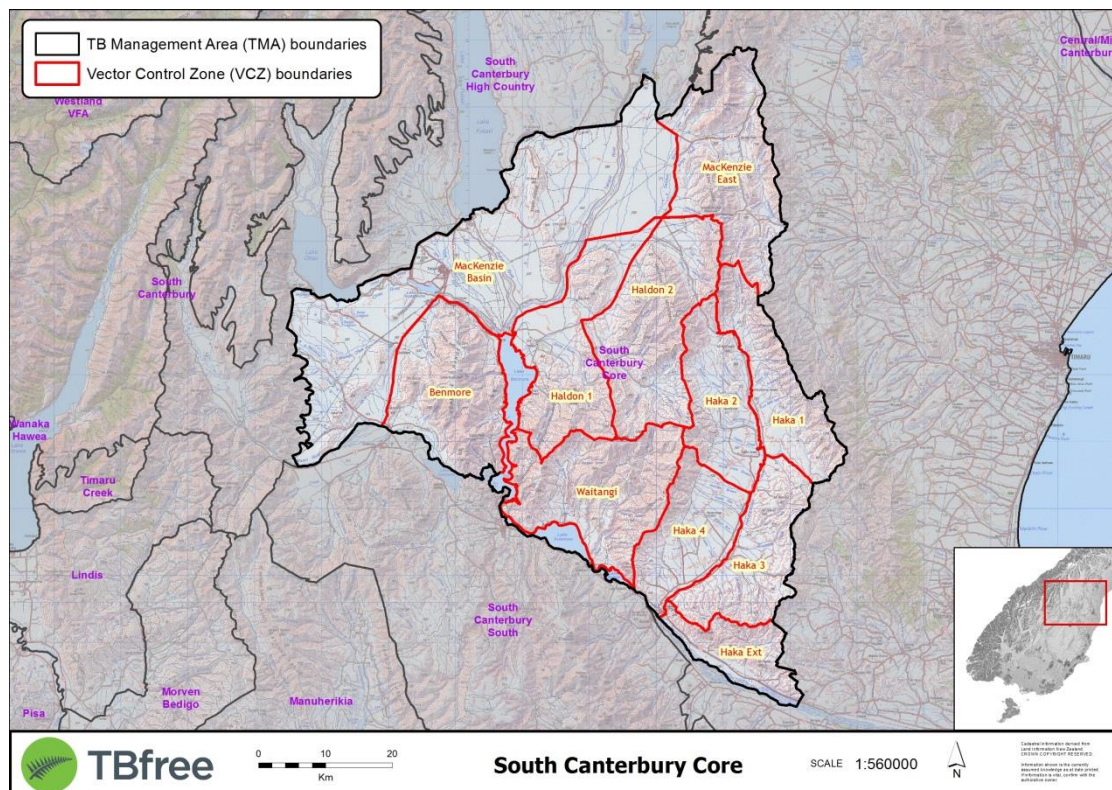
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.19 SOUTH CANTERBURY CORE



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2030
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 399,380

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Benmore	34,826	2022
Haka 1	24,939	2020
Haka 2	23,483	2020
Haka 3	25,587	2020
Haka 4	22,964	2020
Haka Extension	14,500	2020
Haldon 1	33,597	2024
Haldon 2	39,886	2024
Mackenzie Basin	103,024	2020
Mackenzie East	38,444	2020
Waitangi	38,130	2030
Total	399,380	

DESCRIPTION OF TB MANAGEMENT AREA

The South Canterbury Core TMA extends from the Waitaki River system north and eastwards to the Hunters Hills and Burkes Pass and includes that area between the Ben Ohau Range and Lake Benmore. It is comprised of a mixture of high country tussock, rock, scree and scrub together with improved farmland and supports a mixture of intensive and extensive farming.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years. Ferrets and feral pigs are widely distributed and infection was previously common. Herds were also frequently infected.

PLANNED VECTOR RISK AREA REDUCTION

South Canterbury Core	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	399,380	399,380	146,439	111,613	38,130	38,130	38,130	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herd in this TMA .

Summary of Operations Planned

Further output-based possum control is programmed for the Waitangi VCZ annually for four years (2016/17- 2019/20) after which POF surveillance (pigs and ferrets) will commence. Wildlife surveillance using ferrets and feral pigs will be used in balance of VCZs over at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

RISK MANAGEMENT

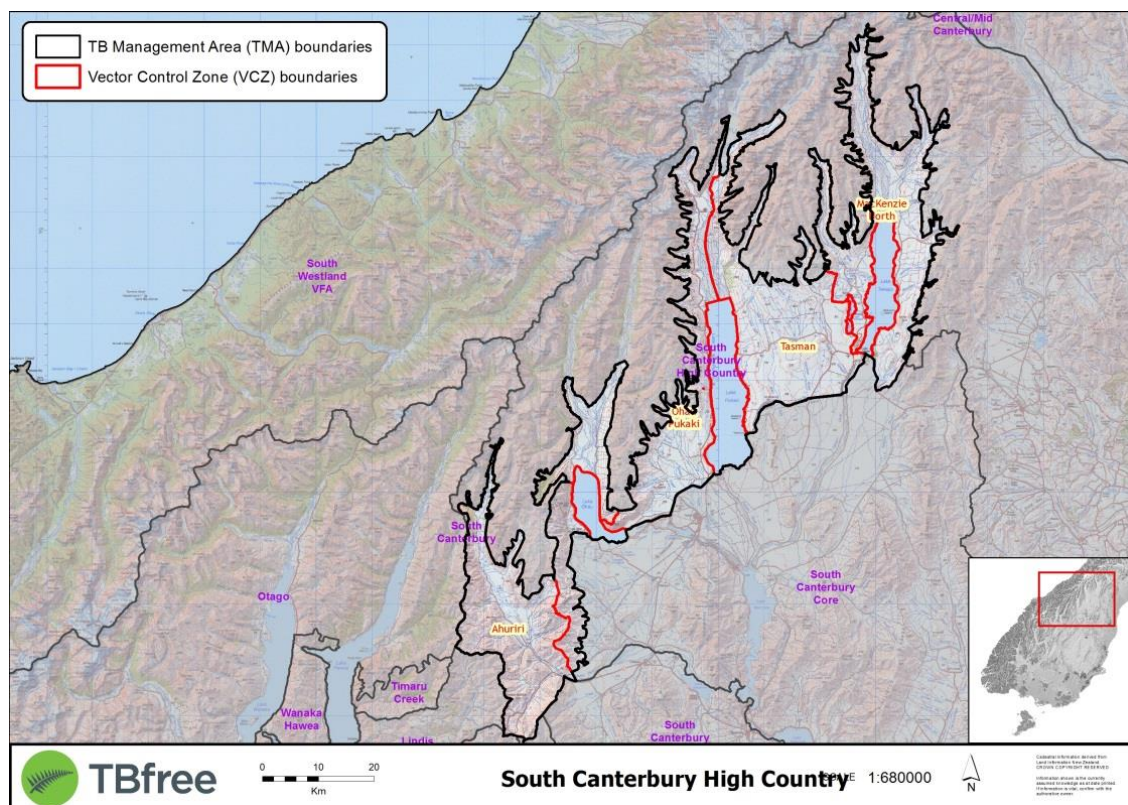
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.20 SOUTH CANTERBURY HIGH COUNTRY



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2030
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 232,042

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Ahuriri	45,328	2030
Dobson	14,931	2030
Mackenzie North	56,262	2026
Ohau-Pukaki	43,157	2030
Tasman	59,633	2030
Wairepo Creek	12,731	2020
Total	232,042	

DESCRIPTION OF TB MANAGEMENT AREA

The South Canterbury High Country TMA extends from the main divide between the Two Thumb Range in the north to the Ahuriri River catchment in the south. It is comprised of high country river valleys with a mixture of rocky and scrubby habitat, extensive native forest ecosystems in some major valley systems and more improved and intensively farmed flats.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years. Habitat is patchy in places but capable of supporting possums at high enough densities to maintain TB, especially in the lower valleys of the major river systems. Most areas have

received some possum control except for the large main valleys that contain significant tracts of native forest. (Ahuriri, Dobson, Hopkins, Huxley, Temple and Maitland). Herd infections have been sporadic throughout.

PLANNED VECTOR RISK AREA REDUCTION

South Canterbury High Country	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	232,042	219,311	163,049	163,049	163,049	163,049	163,049	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

There are currently no infected herd in this TMA .

Summary of Operations Planned

Further output-based possum control is planned for the VCZs of Mackenzie North, Ohau, Pukaki and Tasman for the next three years (2016/17-2018/19). For the balance of the VCZs within the TMA, wildlife surveillance using ferrets and feral pigs will be used over at least the next three years (2016/17-2018/19) to help identify areas where TB may be persisting in possums. Possum surveys will also be conducted in the major catchments that contain significant tracts of native forest. Data gathered will be progressively analysed using the POF modelling software until 95% confidence of possum TB freedom is reached or until TB is detected in wildlife. Should TB be detected and considered to represent ongoing TB infection in possums further intensive and targeted possum control will be required.

Innovations, Initiatives and Research and Development

Use of broad scale wildlife surveys to assist in residual TB possum hotspot detection.

Use of possum surveys targeted to prime possum habitat areas in extensive tracts of native forest contained within vast high country valleys.

RISK MANAGEMENT

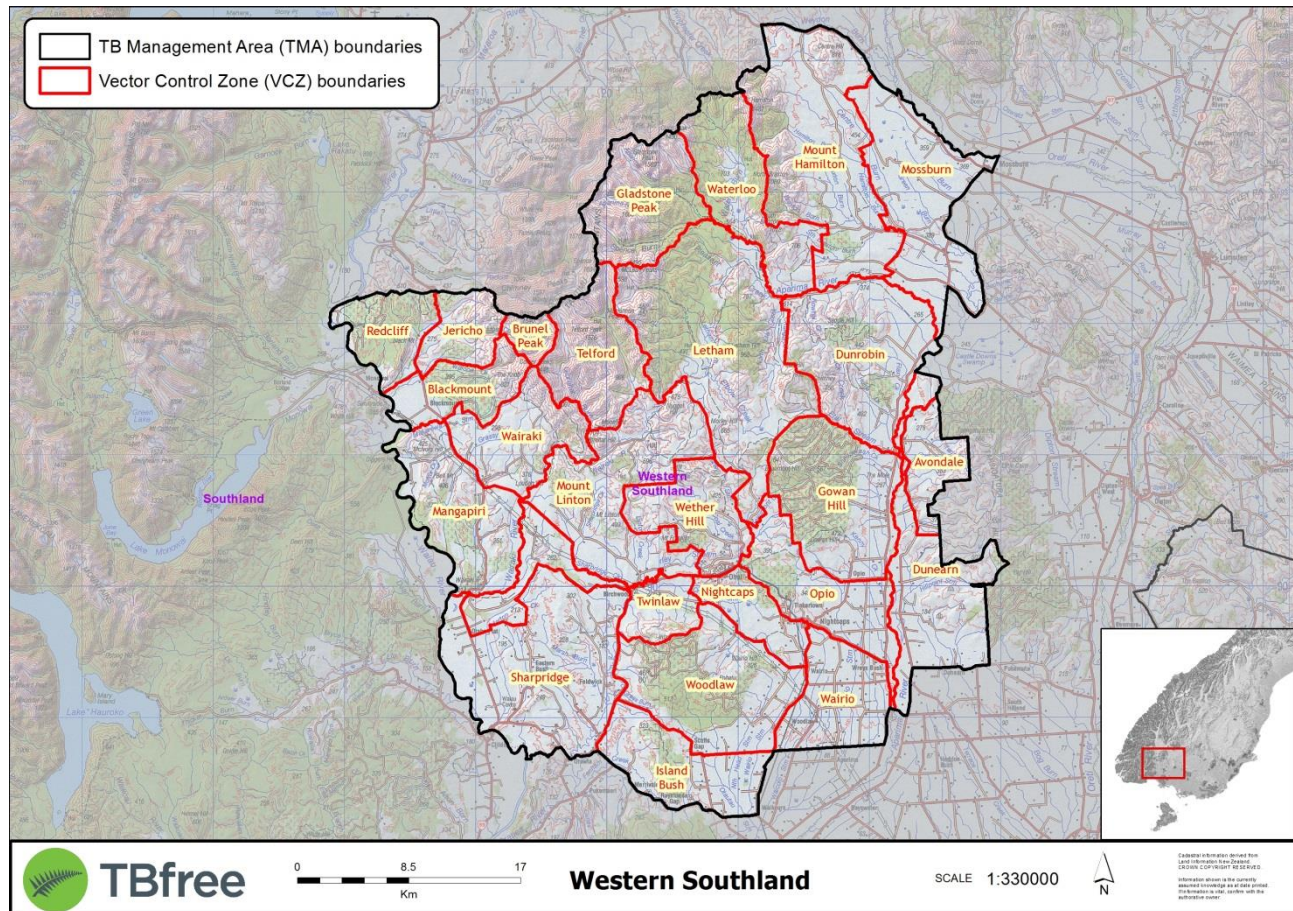
The SSI is embarking on large-scale ferret and pig surveillance programme throughout virtually all of the drylands from South Canterbury to Central Otago. These areas have received variable amounts of possum control over the years and TB will be well suppressed in many areas and may well be eradicated from others. It is now appropriate to seek out residual possum hotspots so that any future control can be targeted as broad scale control can no longer be justified. Given the size of the areas involved, their chronic history of wildlife infection and the sporadic nature of possum control, it is certain that TB will be detected in the wildlife surveys. If infection is widespread, the cost of future possum control through to eradication will be substantial. It is estimated that at least 50% of the area included in the drylands wildlife surveillance programme will require further targeted possum control of some sort. This is manageable within projected budgets.

There is also the risk that TB is discovered to be self-sustaining within high-density ferret populations within the TMA, necessitating ferret control to be undertaken at some stage within the first 10 years of the NPMP.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Post-TB freedom wildlife surveillance should be undertaken 5 years after possum TB freedom is declared.

5.21 WESTERN SOUTHLAND



TB MANAGEMENT AREA OBJECTIVES

- VRA TB freedom date: 2026
- Herd TB freedom date: 2026
- Total area of VRA reduction (hectares): 131,494

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Blackmount	4,051	2022
Brunel Peak	1,146	2022
Dunrobin	10,381	2026
Gladstone Peak	6,807	2026
Gowan Hill	9,491	2026
Letham	17,731	2026
Mangapiri	7,791	2024
Mt Linton	11,333	2026
Nightcaps	3,124	2026
Total	131,494	

VCZ Name	Hectares (VRA)	Planned year of TB freedom
Opio	6,389	2026
Sharpridge	14,059	2024
Telford	6,304	2026
Twinlaw	5,748	2024
Wairaki	5,766	2024
Wairio	5,625	2024
Wether Hill	5,425	2026
Woodlaw	10,323	2022

DESCRIPTION OF TB MANAGEMENT AREA

The Western Southland TMA is centred around the southern Takitimu Mountains. There is a central core of rugged mountainous peaks with river valleys and extensive tracts of exotic and native bush. Outside of these areas there is a concentration of intensive farming on highly developed and improved land.

SUMMARY OF DISEASE AND VECTOR CONTROL HISTORY

TB was established in wildlife throughout this TMA for many years and still is. Intensive aerial and ground based possum control was progressively initiated in the known infected areas from the late 1990's and continued through until 2016. This strategy has been successful in suppressing herd infections but there remains a focus of wildlife infection.

PLANNED VECTOR RISK AREA REDUCTION

Western Southland	2016	2018	2020	2022	2024	2026	2028	2030	2032	2034	2036
Hectares	131,494	131,494	115,974	76,985	76,985	0	0	0	0	0	0

SUMMARY OF ACTIVITIES

Infected Herd Activities

Until the ongoing vector risk is mitigated infected herds are expected to be cleared using standard techniques.

Summary of Operations Planned

Output-based possum control will be required annually throughout this TMA for the next four years (2016/17-2019/20), particularly within the core TMA. Concurrent ferret surveys will help target control further. POF surveillance (ferrets and/or pigs) will commence for the outer-core VCZs from 2018/19. The TB status of wild deer will be evaluated by active survey to determine if they are a source of the persistent ferret TB infection. Ferret control (Landcare Research project) will also be carried out within the core VCZ's from 2016-17 to actively reduce the ferret population and hasten the removal of TB from the wildlife in the area.

Innovations, Initiatives and Research and Development

Sustained ferret control in the core VRA.

RISK MANAGEMENT

TB may be cycling in ferrets or feral deer. A sustained ferret control programme will be instigated in the core area and a pig and deer survey carried out at Mt Linton.

SURVEILLANCE ACTIVITY 2040-2055 TO ACHIEVE BIOLOGICAL ERADICATION OF TB

Periodic pig and ferret surveys could be carried out to confirm biological eradication post-TB freedom in possums.

Appendix 1: Glossary of Terms

Biological eradication	The complete absence of TB in wildlife and livestock (but not humans) from a particular management unit, such as a Vector Control Zone, with a near zero chance of disease reinvasion. A declaration of biological eradication follows a declaration of TB freedom.
Breakdown/Infected Herd	Refers to TB being diagnosed in a Clear or Suspended status cattle or deer herd.
Infected herd annual period prevalence (also herd infection rate)	Is the number of cattle and deer herds classified as infected at the start of the financial year, together with the number of cattle and deer herds found infected during the financial year, divided by total cattle and deer herds, expressed as a percentage.
Livestock TB freedom	A TB Plan milestone where cattle and deer herds are largely free of TB infection, with the exception of a very small number of isolated breakdowns which would require mopping up.
Management agency	Is defined in the Biosecurity Act as “a management agency responsible for implementing a national pest management plan”. The management agency for the TB Plan is TBfree NZ, a subsidiary of OSPRI New Zealand.
Movement Control Areas (MCA)	Defined geographical areas used under the current Plan to control the risk of TB transmission through cattle or deer movements from areas with the highest wildlife infection risk, being those areas where infected herd annual period prevalence (as a proxy for wildlife infection risk) is greater than one per cent.
National Operational Plan (NOP)	The set of operational measures and policies developed by the management agency to give effect to the Minister’s decision and the TB Plan Order. The NOP is required under s100B of the Biosecurity Act 1993 to be produced by the management agency within 3 months of the TB Plan Order (or amended Order) coming into effect. It must be reviewed by the management agency annually, with a report on performance and any amendments provided to the Minister.
Passive surveillance	The use of data from different sources to provide inference about the likelihood of presence or absence of TB. These data may come from unplanned incidental observations (such as the detection of TB in pigs or deer by recreational and commercial hunters or possum fur trappers) or from information collected for other primary purposes (such as the use of slaughterhouse inspection of cattle and deer for TB, and the use of livestock testing data collected to determine TB presence in livestock, not wildlife <i>per se</i>).
Probability of freedom (POF)	The probability that TB has been eradicated from the possum population in a defined area.
Stopping rule	Means the level at which possum control stops in an area because the possum population is considered to be TB free. The level is currently set at a probability of TB freedom of 0.95. At that level, it is expected that one in 20 areas declared TB free will still contain TB possums and herds in such areas would be vulnerable to becoming infected. These areas would receive additional possum control to eradicate the identified infection.
Surveillance	The process of conducting formal field surveys to detect the continued presence of TB in possums. It includes direct necropsy surveys of possums (usually by trapping) and/or necropsy of sentinel species such as pigs, ferrets, and deer, which are known to largely be spillover hosts in which the presence of TB indicates the probable presence of TB in possums.
TB	Used as an abbreviation for bovine tuberculosis. <i>Mycobacterium bovis</i> , is the bacterium that causes the disease of bovine tuberculosis (and is the ‘pest’ managed by the proposed TB Plan).
TB Management Areas (TMA)	TMAs are a contiguous area with broadly similar: <ul style="list-style-type: none"> • habitat and geography • level of control and surveillance • disease history and risk
TB Pest Management Plan	The set of objectives, measures and operational policies established to manage bovine TB in New Zealand. It is given effect to through the TB Plan Order and operationalised through the National Operational Plan (a requirement under s100B of the Biosecurity Act). References to the ‘current Plan’ mean the TB Plan as currently enacted and implemented through the TB Plan Order and the National Operational Plan.

TB Plan Order	Is the Biosecurity (National Bovine Tuberculosis Pest Management Plan) Order 1998 that gives effect to the regulatory elements of the TB Plan.
TB freedom	Freedom from bovine tuberculosis means that the statistical likelihood of bovine tuberculosis being present in the population of the species concerned is assessed by TBfree New Zealand as being no greater than 0.0001% throughout the preceding 12-month period.
Vector Control Zone (VCZ)	A defined geographical area in which activities are undertaken to control or survey the population of wild animals for the purposes of managing bovine tuberculosis.
Vector Free Area (VFA)	A defined geographical area where bovine tuberculosis is not maintained in the wildlife populations.
Vector Risk Area (VRA)	A defined geographical area where bovine tuberculosis is being maintained in the wildlife population as indicated by either epidemiological information from infected cattle and deer herds, or the finding of tuberculosis in wildlife animals that are classed as bovine tuberculosis maintenance hosts.