

Biosecurity Activities 2020 - 2021

Report on the 2020 - 2021 Operational Plan

IMPLEMENTING THE CANTERBURY REGIONAL
PEST MANAGEMENT PLAN (2018 - 2038)





Contents

- Operational Plan for the CRPMP 2018-2038 4
- 1. Exclusion Programme 5
- 2. Eradication Programme 7
- 3. Progressive Containment Programme 10
- 4. Sustained Control Programme 12
- Bell heather 13
- Bennett’s wallaby 14
- Bennett’s wallaby 15
- Boneseed 16
- Broom: common, Montpellier, Spanish, white 17
- Bur daisy 18
- Chilean needle grass 19
- Coltsfoot 20
- Darwin’s barberry 21
- Feral rabbit 22
- Gorse 23
- Nassella tussock 24
- Old man’s beard 25
- Purple loosestrife 26
- Saffron thistle 27
- Wild Russell lupin 28
- 5. Site-led Programme 29

Prepared under the Biosecurity Act 1993

This Report on the Operational Plan 2020-21 compares annual targets (expected to be achieved) with annual outputs (levels of service achieved) for each pest programme which contribute to meeting the objectives in the Canterbury Regional Pest Management Plan 2018-2038 (CRPMP). Budgets are reviewed through the annual plan process, and then summarised in the Report on the Annual Plan.

The Report on the Operational Plan was prepared in accordance with the requirements Section 100B (2)(a) of the Biosecurity Act 1993.

Canterbury Regional Pest Management Plan 2018–2038

Environment Canterbury is mandated under Part 2 of the Biosecurity Act 1993 (the Act) to provide regional leadership in activities that prevent, reduce or eliminate adverse effects from harmful organisms that are present in their region. Environment Canterbury/Kaunihera Taiao ki Waitaha therefore has this leadership role in the Canterbury region.

The Canterbury Regional Pest Management Plan 2018-2038 (CRPMP) is the result of a public process that determines what plants and animals are managed within the region, those included significantly threaten our economy, Māori Tikanga, health, recreation or natural ecosystems (biodiversity). The CRPMP must be reviewed at least once every 10 years and this work was last completed during 2017-18.

The CRPMP 2018–2038 became operative on 1 July 2018 and includes plant and animal pests managed under the five key programmes in accordance with the National Policy Direction for Pest Management 2015. The programmes are Exclusion, Eradication, Progressive Containment, Sustained Control and Site-Led.

The CRPMP utilises different management programmes depending on the most likely outcome for managing a pest, considering the pest's occurrence in the region (i.e., from not present yet but likely to appear in the region, within the region albeit very limited in occurrence, to widespread across the region).

The five programmes and their intermediate outcomes for each programme are described below.

- **Exclusion Programme:** to prevent the establishment of a pest which is present in New Zealand, but not yet established in the region.
- **Eradication Programme:** to reduce the incidence or density of a pest to zero levels in an area in the short to medium term.
- **Progressive Containment Programme:** to contain or reduce the geographic distribution of a pest over time.
- **Sustained Control Programme:** to ensure pests are being controlled, and to reduce its impact on values and spread to other properties.
- **Site-led Programme:** to exclude, eradicate, reduce or contain pests to protect primarily natural biodiversity at specified sites.

For further information, contact Environment Canterbury customer services on 0800 324636 and ask for a copy of our free pamphlets or brochures, including Biosecurity Bites, Nassella News and the CRPMP Quick Guide. Alternatively, go to our website www.ecan.govt.nz for a full copy of the CRPMP and further information on pest management and farm biosecurity.

Operational Plan for the CRPMP 2018–2038

The Biosecurity Act requires the preparation of, and annual reporting on, an operational plan in accordance with Section 100B. These are internal Environment Canterbury documents that provide technical information for the implementation of programmes, including monitoring and surveillance projects, which support the outcomes of the CRPMP.

2020-21 is the second year of a twenty year plan, and overall the results of this year's work programme indicate CRPMP objectives being achieved.

This operational plan identifies and outlines the nature and scope of activities that Environment Canterbury intends to undertake in the implementation of the CRPMP.

Progress on the achievement of annual outputs is reported on in this report, which is designed to enable key stakeholders and the community to judge the performance of Environment Canterbury as the management agency for the CRPMP.

The Report on the Operational Plan 2020-21 identifies:

- the levels of service expected (targets and outputs)
- whether the outputs were achieved
- the activities or principal measures undertaken.

Landholders are principally responsible for the control of pests on their land. Environment Canterbury controls pests when they are new to the region, when they are of very limited occurrence, when control methods require specialised technical expertise (e.g., biological control), and when coordinated control gives benefits to a specific area or the region.

Environment Canterbury regulates when pest control is mandatory and monitors the operational efficiency and effectiveness of control programmes.

Other biosecurity and pest management activities are undertaken by Environment Canterbury outside the scope of the CRPMP. Some of these activities do however have some crossover with the CRPMP. Examples include: pathway management and surveillance programmes; the National Wallaby Management programme; the National Wilding Conifer Management programme; regional engagement initiatives; national special interest groups (Biosecurity Managers and Biosecurity Working Group); Chatham Islands Regional Pest Management Plan delivery; National Biological Control Collective participation; regional reporting; biosecurity toolbox (e.g. control tools and research); Lakes Weed Surveillance Programme; Check Clean Dry; On-farm Biosecurity Project; alignment with the National Capability Network; involvement with incursion response activities; ongoing rabbit haemorrhagic disease virus investigations; and Biosecurity Advisory Groups.

Partnerships are an important component of Environment Canterbury's biosecurity programme. All five CRPMP programmes contain partnerships which range from agreements to control, contain or otherwise manage pests; to funding agreements, memorandums of understanding between regions or nationally, or participation in industry or nationally led programmes. Environment Canterbury strives to expand future partnerships and use collective knowledge and resources to provide more effective and efficient biosecurity across the Canterbury region to achieve biosecurity outcomes.

1. Exclusion Programme

Prevent the establishment of a pest that is present in New Zealand but not yet established in the region.

Exclusion Programme pests

Common name	Botanical Name
Australian sedge	Carex longebrachiata
Broomsedge	Andropogon virginicus
Hornwort	Ceratophyllum demersum
Kangaroo grass	Themeda triandra
Koi carp	Cyprinus carpio
Noogoora bur	Xanthium strumarium
Nutgrass (purple nutsedge)	Cyperus rotundus
Oxylobium	Oxylobium lanceolatum
Palm grass	Setaria palmifolia
Spiny broom	Calicotome spinose
Woolly nightshade	Solanum mauritianum

Programme summary

Annual Targets

1. Undertake research work to determine highest risk pests.
2. Identify pathways.
3. Identify habitat at risk.

Annual Outputs

1. Raising awareness for pests identified.
2. Incursion response if necessary.
3. Report on all activities in relation to preventing the establishment of exclusion pests.

CRPMP Objective 1

Over the duration of the Plan, preclude the establishment of exclusion pests within the Canterbury region to prevent adverse effects on economic well-being and environmental values.

Exclusion Programme

What was achieved in 2020-21

✓ Achieved	Research work to determine highest risk pests.
✓ Achieved	Specific awareness: public displays, media, articles, and presentations.
✓ Achieved	Science support has been engaged to determine high risk pathways and the most likely sites of initial occurrence.
— Not applicable	No exclusion pest incursions were recorded.

Summary of work

Organisms declared as ‘exclusion’ pests are not known to presently occur in the Canterbury region. Eleven species have been declared as exclusion pests, all of which occur elsewhere in New Zealand. Exclusion pests are potentially able to spread on various vectors from other regions of New Zealand on risk pathways. Before embarking on surveillance inspections to determine if any exclusion pests have spread to our region, we must first identify these pathways, the potential risk area in Canterbury and where the most likely point of occurrence may be. This will ensure the most efficient, cost-effective and accurate surveillance programme.

In 2020-21, Environment Canterbury commissioned AgResearch to consider how science could help inform the risk thirty specific species pose to the Canterbury region. AgResearch conducted a two-step research approach: (1) rank the 30 plant species according to the weed risk they pose in Canterbury; (2) quantify the potential impact and analyse the risk the top ranked species pose.

Four of the species (Broomsedge *Andropogon virginicus*; Kangaroo grass *Themeda triandra*; Nutgrass *Cyperus rotundus*; Palm grass *Setaria palmifolia*), naturalised in other regions of New Zealand but are currently unknown in Canterbury, had previously been the subject of analysis to map their current and potential future distributions in the region and to identify invasion pathways (Bourdôt & Lamoureaux, 2020).

This analysis ranked their weed risk in Canterbury, and the report ‘Weed Risk in Canterbury – an assessment of 30 terrestrial species’ can be found at www.agresearch.co.nz/assets/Uploads/ECan-30-species-report-2021.pdf

AgResearch have been commissioned in 2021-22 to determine each of the species’ habitats, impacts and dispersal mechanisms and pathways.

✓ Progressing towards achieving CRPMP objective/s

2. Eradication Programme

Eradication Programme pests

Common name	Botanical Name
Egeria	Egeria densa
Entire marshwort	Nymphoides geminata
Knotweed (Asiatic and giant)	Fallopia japonica x sachalinensis Fallopia sachalinensis
Moth plant	Araujia hortorum
Phragmites	Phragmites australis
Rook	Corvus frugilegus
Yellow bristle grass	Setaria pumila
Yellow water lily	Nuphar lutea

CRPMP Objective 2

Within 20 years of the commencement of the Plan, reduce all infestations of eradication pests to zero levels within the Canterbury region.

Programme summary

Targets

1. Seeding or reproduction is prevented or reduced.

Outputs

1. Awareness.
2. All known sites which have an incidence of eradication pests are inspected.
3. Pest plants are controlled prior to seeding or reproducing.
4. All reports of eradication pest occurrence are followed up.
5. All areas at high risk of immediate spread are searched annually.
6. An annual report on each pest is completed by 30 June.

What was achieved in 2020-21

✓ Achieved	Awareness undertaken.
✓ Achieved	All sites inspected.
✗ Not achieved	All pest plants controlled before seeding or reproducing.
✓ Achieved	Responded to reports of occurrence.
✓ Achieved	High risk areas searched.
✓ Achieved	Annual report on each pest completed.

Eradication Programme

Summary of work

Entire marshwort: There is one known site in Canterbury, on private property at Claremont near Timaru, where it occurs in a large pond that is 1270 square metres in size. Control by the land occupier was undertaken in January 2021. An inspection by Environment Canterbury biosecurity officers in March 2021 found no visible plants.

Knotweed (Asiatic and Giant): Of eleven known sites in Christchurch, one site remains active. Control consists of digging out the stalk and rhizome if possible or cutting the stalks of the plant at soil level and treating with herbicide gel. The aim is to reduce the plants' ability to photosynthesize by removing its vegetation as soon as growth is observed, hopefully exhausting the knotweeds energy bank. The site is located on a driveway shared by three properties with services (power/sewage/water/telephone) running alongside, making other control techniques such as excavation difficult. The landowner has agreed to assist in controlling the plant and keep any trimmings for disposal by Environment Canterbury.

Moth plant: There are eleven known sites in Christchurch and Rangiora. Occurring in urban gardens, they were inspected and thoroughly searched with no plants found to be present.

Phragmites: There are ten known occurrences of phragmites in the Canterbury region, eight within or near Christchurch and two near Ashburton. Four sites had plants present in the past year, with four plants eliminated at three of these. Two historic sites were not inspected as they are on a 2-3year inspection cycle.

The remaining site contains several infestations covering about 200 square metres. This site is the largest infestation of phragmites in Canterbury and has been controlled with imazapyr herbicide since its discovery in 2015. Attempts to eradicate phragmites using this method have proven unsuccessful, although spraying has appeared to prevent further spread and plant growth.

The Ministry for Primary Industries has provided approximately \$25,000 to help eradicate phragmites at this site. Currently the plan is to excavate phragmites from the lake edge, transport it offsite to be treated, then dispose of it via deep burial. Plants were sprayed with glyphosate to weaken them before excavation, although this was not as effective as using imazapyr.

Rook: There were no confirmed rook sightings within the Canterbury region in 2020-21.

✓ Progressing towards achieving CRPMP objective/s

Summary of work

Egeria: There is one active site (of nine previously known sites in Canterbury) in the Avon River at Kerr's Reach in Christchurch. The control and surveillance programme for Egeria in the Avon River has been managed by Christchurch City Council (CCC) for many years. Control has predominantly consisted of cutting (all aquatic weeds), including Egeria, to keep them generally under control. Herbicide has been applied to control Egeria intermittently over previous years, with significant intervals between applications. Inspections of machinery by biosecurity officers has confirmed the presence of Egeria.

In 2020-21 biosecurity staff met with CCC drainage staff to discuss Egeria surveillance and control. CCC plan to continue with the current programme of weed cutting and occasional sampling to determine the extent of Egeria in the area, which is thought to cover between five and ten hectares. From 2021-22, Environment Canterbury will take a more pro-active approach, planning to undertake a wider and thorough delimiting survey and to organise subsequent control. This will ensure Operational Plan targets are met.

Progress towards an eradication objective is not on track due to inadequate control methods, and the Avon River has not been subject to a recent survey to determine occurrence and potential spread. A delimiting survey to determine Egeria's extent and density is planned for 2021-22, and control methods will also be investigated to determine efficacy.

Yellow bristle grass: Surveillance of roads and a railway line by biosecurity officers in 2020-21 has found a further thirteen incidences of yellow bristle grass. This brings the total number of known active sites to seventeen in Canterbury. Previously found at Ethelton, Sefton and Ashburton, incidences have now been found at Kekerengu, Parikawa, Conway, Hawkswood, Spotswood, Tormore, Parnassus, Greta, Omihi, Mouse Point and Hanmer. Nine incidences are on roadsides (district and highway) and the remainder on railway land. Machinery movement to undertake road and rail repairs is the most likely pathway for moving seed. Yellow bristle grass has not been found on private property to date.

Surveillance activities found new infestations late in the season where some seeding had occurred. The time lapse between movement of seed on contaminated goods and machinery from other regions, combined with the numerous sites of potential distribution across the region may result in a reconsideration of the CRPMP programme most applicable to this species. A key part of this programme is ensuring contractors (earthworks, agricultural contractors etc) are aware of yellow bristle grass, its impacts, how to identify it and how to mitigate the risk of spreading seed.

Yellow water lily: Known to be present in one South Canterbury stream at low densities over 4.5 kilometres, across six properties. Contractors were last engaged and controlled yellow water lily in the known area with herbicide in 2019-20. The presence of yellow water lily at the site was first confirmed in 2012 and since then there have not been any successful methods identified to eradicate the infestation. Spraying has been effective at killing the lily pads on the water's surface but does not appear to affect the rhizomes underwater. Because of these inadequate methods, very little control occurred in 2020-21. A method to remove these rhizomes needs to be identified and implemented, whilst also minimising any potential spread of the plants downstream.

✘ Little or no progress towards CRPMP objectives in 2020-21

3. Progressive Containment Programme

Progressive Containment Programme pests

Common name	Botanical Name
African feather grass	Pennisetum macrourum
African love grass	Eragrostis curvula
Baccharis	Baccharis halimifolia
Puna grass	Achnatherum caudatum
Wilding conifers – Contorta	Pinus contorta
Wilding conifers – Corsican	P. nigra
Wilding conifers – Scots	P.sylvestris
Wilding conifers – Mountain (including dwarf)	P. uncinata, P. mugo
Wilding conifers – Larch	Larix decidua

Programme summary

CRPMP Objective 3

Over the duration of the Plan, progressively contain and reduce the geographic distribution or extent of African feather grass, African love grass, baccharis and puna grass within the Canterbury region to prevent adverse effects on economic well-being and the environment.

Within the Canterbury region, the extent of African feather grass, African love grass, baccharis and puna grass will each be reduced by 10% within 10 years of the commencement of the Plan.

CRPMP Objective 4

Over the duration of the Plan, progressively contain by reducing the geographic distribution and extent of wilding conifers (contorta, Corsican, Scots, mountain and dwarf mountain pines, and larch) within the Canterbury region to reduce adverse effects on economic well-being and the environment.

Within the Wilding Conifer Containment Area, 900,000 hectares of land will be cleared of wilding conifers within 10 years of the commencement of the Plan. This may involve the destruction of contorta, Corsican, Scots, mountain and dwarf mountain pines and larch.

Targets

1. Contain and reduce progressive containment pests.

Annual Outputs

1. Raising awareness.
2. All sites known to have Progressive Containment pests are inspected.*
3. Progressive Containment pests are eliminated prior to seeding.*
4. All land at high risk of immediate spread are searched annually.
5. Respond to reports of occurrence.
6. An annual report on a management programme is completed by 30 June.

**(except wilding conifer)*

Progressive Containment Programme

What was achieved in 2020-2021

✓ Achieved	Awareness undertaken.
✓ Achieved	All sites inspected.*
✓ Achieved	All pest plants controlled before seeding.*
✓ Achieved	High risk land searched.*
✓ Achieved	Respond to reports of occurrence.*
— Not applicable	Require boundary control of Wilding conifer is not required at this stage in the programme.
✓ Achieved	Progress report completed.

*(except wilding conifer)

Summary of work

African feather grass: There are currently 147 properties with previously known occurrences of African feather grass in Canterbury, over an area of approximately 130 hectares. Most sites have been reduced to zero plants. In 2020-21, there were 25 properties that have had plant occurrences in recent years were inspected. Of these properties, ten were found to have live plants, and across these active sites 145 plants and six patches with plants too dense to count were controlled.

African love grass: There are five known sites of African love grass across the Canterbury region. There are two small sites in the Hurunui district and Christchurch, and three extensive sites in South Canterbury. Across the sites in South Canterbury 1216 plants were controlled, while zero plants were found at the Hurunui district site and the Christchurch site was not inspected (as it's not been active for some years).

African love grass plants seed in six-week intervals through the spring and summer, and numerous control efforts are required. Herbicide trials are currently being conducted to assess control options and a detection dog is being trained to carry out a delimiting survey of sites in 2021-22.

Baccharis: There are fifty-two properties with a record of baccharis occurrence over <0.01 hectares in total. There are thirty-one properties with a recent history of active plants that were inspected in 2020-21, with four Baccharis plants found and controlled at four sites (1 plant each). The sites were located mainly in the Sumner and Lyttleton localities of Christchurch.

Puna grass: There are two known locations where puna grass occurs in New Zealand, both of which are in Canterbury. One is on farmland near Amberley, the other on grazed land at Bromley in Christchurch. Inspections and control were undertaken this year at both locations to prevent aerial seeding. At the Amberley location, scattered plants were found over an affected area of 450 hectares, making up a combined area of two hectares, where fifty plants were eliminated. At the Bromley location, plants were found over a combined 34.6 hectares of a 480 hectare property, with 610 plants eliminated.

Wilding conifers: There are currently no processes for the implementation of Canterbury Regional Pest Management Plan rules for wilding conifers. Control is being undertaken at present within the National Wilding Conifer Programme. Discussions are being held with land occupiers within the Twizel and Castle Hill Villages about the removal of wilding conifers and pest agent conifers with reference to CRPMP rules, as these villages fall within areas planned for conifer removal.

✓ Progressing towards achieving CRPMP objective/s

4. Sustained Control Programme

Sustained Control Programme pests

Common name	Botanical Name
Bell heather	<i>Erica cinerea</i>
Bennett's wallaby	<i>Macropus rufogriseus rufogriseus</i>
Boneseed	<i>Chrysanthemoides monilifera</i>
Broom – Common	<i>Cytisus scoparius</i>
Broom – Montpellier	<i>Teline monspessulana</i>
Broom – White	<i>C.multiflorus</i>
Bur daisy	<i>Calotis lappulacea</i>
Chilean needle grass	<i>Nassella neesiana</i>
Coltsfoot	<i>Tussilago farfara</i>
Darwin's barberry	<i>Berberis darwinii</i>
Feral rabbit	<i>Oryctolagus cuniculus</i>
Gorse	<i>Ulex europaeus</i>
Nassella tussock	<i>Nassella trichotoma</i>
Old man's beard	<i>Clematis vitalba</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Saffron thistle	<i>Carthamus lanatus</i>

CRPMP Sustainable Control Programme Objective

To provide for ongoing control of the subject, or an organism being spread by the subject, to reduce its impacts on values and spread to other properties.

Bell Heather

Programme summary

Bell heather is confined to one site in the Hunter Hills in South Canterbury and is spread over 375 hectares.

This is the only recorded site in the South Island. The priority is to contain bell heather to its current extent by preventing spread.

CRPMP Objective 5

Over the duration of the Plan, sustainably control bell heather in the Canterbury region to ensure its extent does not increase and environmental values are not adversely affected.

Targets

1. Control bell heather to prevent spread and reduce its density (as at 1 July 2018).
2. High risk sites are searched.

Outputs

1. Awareness
2. Search and eliminate all isolated bell heather plants on outer periphery of the known site.
3. Control 20% of the bell heather area annually.
4. A report on bell heather population trends is completed by 30 June annually.

What was achieved in 2020 - 2021

✓ Achieved	Awareness undertaken.
✗ Not achieved	Search and eliminate all isolated bell heather plants on outer periphery of the known site.
✗ Not achieved	Eliminate 20% of bell heather annually.
✓ Achieved	A report on bell heather population trends is completed by 30 June annually.

Summary of work

The current approach and budget is not achieving the desired outcome for bell heather. It was discovered after carrying out surveillance that the affected site has increased by an estimated 15 hectares since July 2018. The current control method and slow nature of the work are the main contributing factors to not achieving set targets. Most of the infestation is within steep hill country that is covered by thick snow tussock, which makes control very slow and is a costly process to cover the ground required. Areas that are being controlled appear to have dead plants, but due to the heavy seed bank, these are rapidly replaced by new bell heather plants.

A change of control method or approach is required to make this project achievable. Future control efforts will concentrate only on the very outer peripheries of the known infested areas, and surveillance activities will ensure any spread further afield is captured and controlled. Land occupiers will also be asked to adhere to containment protocols to mitigate the spread of seed.

✓ **Progressing towards achieving CRPMP objective/s**

Bennett's wallaby

Programme Summary – Within the Wallaby Containment Area

Wallabies now occupy over 600,000 hectares of the 900,000 hectare wallaby containment area. Areas where they are yet to fully occupy are in the northwest corner of the containment area against the Rangitata river, and the coastal fringe area of South Canterbury where farming and land use is more intensive.

CRPMP Objective 6 (i)

Over the duration of the Plan:

Sustainably control Bennett's wallaby to ensure population densities remain at or below Level 3 on the Guilford Scale within the Wallaby Containment Area (refer to Map 2 in Appendix 3 of the CRPMP).

Targets

1. Where wallaby population densities exceed Guildford Scale 3, actions are taken to reduce densities to at or below this level.
2. A programme of work is undertaken to prevent further spread out of the containment area.

Outputs

1. All enquiries/complaints received about wallabies are reacted to within ten working days.
2. Twenty-five properties are inspected (based on agreed criteria) to ensure wallaby densities comply with CRPMP rules.
3. Working with land occupiers to create a buffer around and within the boundary of the containment area.
4. A report on Bennett's wallaby population trends is completed by 30 June annually.

What was achieved in 2020 - 2021

✓ Achieved	All complaints/enquiries were contacted within ten days.
✗ Not achieved	No compliance inspections undertaken including buffer properties.
✓ Achieved	Work undertaken on buffer areas over 4,300 hectares on four properties.
✓ Achieved	A report on wallaby population trends was completed by 30 June 2020.

Summary of work

Since the implementation of the National Wallaby Eradication Programme there have been no compliance inspections completed. Environment Canterbury staff have been focusing on the implementation of large-scale poison and control operations on the Wallaby Containment Zone buffer areas identified as being the northern bank of the Waitaki River, east of Tekapo River and into the Two Thumb Range. Staff have visited and surveyed properties to gauge wallaby infestation levels for best locations to complete poison operations, however no compliance inspections have been completed.

A total of 22,055 hectares (eleven properties) will have aerially applied with 1080 (sodium monofluoroacetate) during winter 2021, which is a large increase on previous years. A further 1560 hectares (five properties) have had ground-laid encapsulated cyanide (Feratox) applied during winter 2021. After these poison operations, there will be an extensive helicopter shoot to monitor operational success. Another operational success tool will be pre and post ground transects and thermal binocular counts. A "state of the nation" helicopter survey completed in late June 2021 to assess wallaby numbers throughout the Hunter Hills, Albury and Kirkliston Ranges where no compliance inspections have been completed in the last two years.

✓ Progressing towards achieving CRPMP objective/s

Bennett's wallaby

Programme Summary – Outside the Wallaby Containment Area

Wallabies occur as isolated populations west and south of the Two Thumb Range and the Waitaki River, and the purpose of the work programme is to contain and remove these populations.

CRPMP Objective 6 (ii)

Preclude the establishment of Bennett's wallaby populations in the Canterbury region outside of the Wallaby Containment Area to minimise or prevent adverse effects to environmental and production values

Targets

1. Prevent further establishment of Bennett's wallaby populations outside of the Wallaby Containment Area.
2. Reduce Bennett's wallaby populations outside of the Wallaby Containment Area.

Outputs

1. Record and respond to reports of Bennett's wallaby within ten working days.
2. Bennett's wallaby reported outside the Wallaby Containment Area are destroyed where technically feasible.
3. Control programmes are completed to reduce the extent and population density of wallabies outside and south of the Wallaby Containment Area, at the south bank of the Waitaki, Ben Ohau Range, and Gamack Conservation area.
4. A partnership with Otago Regional Council is maintained.
5. A report on progress outside the Wallaby Containment Area is completed by 30 June annually.

What was achieved in 2020 - 2021

✓ Achieved	All people making complaints/enquiries are contacted within ten days.
✓ Achieved	Control operations for reported wallabies are carried out.
✓ Achieved	Planned control operations carried out.
✓ Achieved	Meetings with Otago Regional Council to discuss a joint wallaby programme.
✓ Achieved	A report on wallaby sightings and search and destroy operations completed by 30 June 2021.

Summary of work

Search and elimination of wallabies has occurred over 320,000 hectares over the past year, and out of 333 wallaby reports, 249 were destroyed in 2020-21. Part of this programme's progress can be attributed to the collaborative partnership model, which includes Environment Canterbury as fund holder, the Ministry for Primary Industries, Land Information New Zealand, rūnaka (Arowhenua, Moeraki and Waihao), Department of Conservation, district councils, Federated Farmers, contractors, and all landowners involved. Landowner acceptance and engagement also continues to be very good overall, as they understand the impact of us collectively failing to "reign in" the spread of Bennett's wallaby.

The complexities and problems of effective detection and control of this largely secretive, nocturnal, highly mobile vertebrate pest with the currently available toolbox cannot be understated. Strategy combined with good operational effectiveness will be essential to progressively push the current wallaby range back to the Canterbury Regional Pest Management Plan (CRPMP) containment area, and to then shrink this range back over time will be a considerable challenge. The high-level aim of a wallaby free New Zealand will require new technology and innovation to be successful.

✗ CRPMP objective unlikely to be met with the current tools (detection and control)

Boneseed

Programme Summary

Boneseed occurs as dense infestations within parts of the Port Hills/Lyttleton Zone, as small, scattered infestations around the remainder of Banks Peninsula, and along the coastline on foreshores and beach communities to north of Kaikōura.

CRPMP Objective 7

Over the duration of the Plan: (i) ensure the current population levels of boneseed do not increase within the Port Hills/Lyttleton Harbour Zone as shown on Map 3 in Appendix 3 of the CRPMP;

(ii) progressively reduce the densities of boneseed by 10% outside of the Port Hills/Lyttleton Harbour Zone to reduce adverse effects on biodiversity values.

Targets

1. Seeding is prevented at known infested land outside the Port Hills/Lyttleton Zone annually.
2. Within the Port Hills/ Lyttelton Zone boneseed is contained to known areas.
3. High risk sites are searched.

Outputs

1. 20% of land known to have an incidence of boneseed is inspected annually and plants eliminated outside the Containment Zone.
2. Boneseed plants are eliminated in partnership with land occupiers prior to seeding or reproducing within the Port Hills/ Lyttelton Zone to prevent spread.
3. Land at high risk of immediate spread is searched annually.
4. An annual report is completed by 30 June.

What was achieved in 2020 - 2021

✓ Achieved	20% of infested land inspected, and boneseed eliminated outside the Boneseed Containment Zone.
✓ Achieved	Boneseed spread contained within the Port Hills/Lyttleton Zone.
✓ Achieved	High risk land searched in conjunction with control areas.
✓ Achieved	A report on annual boneseed control work was completed by 30 June 2021.

Summary of work

An ongoing emphasis on controlling boneseed continued with maintenance of outlying and isolated sites throughout Canterbury. Substantial investment has been made over the previous 16 years of the programme on these sites. Surveillance and control work also occurred in coastal areas of Canterbury outside the Boneseed Containment Area from Kaikoura to Glenavy. Some control at strategic sites also occurred within the Boneseed Containment Area to mitigate further spread. In addition, a letter was sent in September 2020 to residential addresses at selected locations not inspected in 2020-21 where plants have been destroyed in the past.

Overall, there were seventy-one sites where boneseed inspections occurred over an area of 1142 hectares, and more than 3123 plants were eliminated.

✓ Progressing towards achieving CRPMP objective/s

Broom: Common, Montpellier, Spanish, White

Programme Summary

Broom occurs throughout Canterbury. The CRPMP focus for broom in the Sustained Control Programme is to ensure land occupiers manage broom on productive land in highly vulnerable hill and high country, with an emphasis on land remaining clear of it.

CRPMP Objective 8

Over the duration of the Plan, sustainably control broom to preclude land that is free of, or being cleared of, broom becoming infested, to prevent adverse effects on production values and economic well-being.

Targets

1. Broom is controlled on property boundaries.
2. Land in the hill and high country is significantly clear of broom and kept clear.

Outputs

1. All reports about broom on adjoining property boundaries are investigated.
2. 350 properties are subject to initial inspections (based on agreed criteria) annually in conjunction with gorse.
3. An annual report on inspection outcomes is completed by 31 July annually.

What was achieved in 2020 - 2021

✓ Achieved	All reports of broom on boundaries investigated.
✗ Not achieved	152 initial property inspections occurred.
✓ Achieved	A report on inspection outcomes has been completed by 30 June 2020.

Summary of work

309 inspections were carried out in conjunction with gorse. Inspections numbers can fluctuate from year to year due to property size, location and resources needed to communicate with landowners. A change to inspecting only hill and high-country properties in 2018-19 reduced the numbers of inspections, as many of these properties are larger and take more time to inspect. 49 instances where inspections were required to ensure compliance. Covid-19 also impacted on the gorse and broom inspection programme. The gorse and broom inspection programme is currently being reviewed.

✓ Progressing towards achieving CRPMP objective/s

Bur Daisy

Programme Summary

Bur daisy occurs at twenty sites over 127.3 hectares in the Canterbury region, and eliminating plants prior to seeding will reduce the number of plants and the seed bank over time.

CRPMP Objective 9

Over the duration of the Plan, sustainably control bur daisy within the Canterbury region to ensure its extent does not increase and production values on adjacent land are not adversely affected.

Targets

1. Seeding is prevented at all known sites.
2. High risk land in the vicinity of known infestations is searched.

Outputs

1. Raising awareness.
2. All sites known to have an incidence of bur daisy are inspected.
3. Bur daisy plants are eliminated prior to seeding.
4. All land at high risk of immediate spread of bur daisy are searched annually.
5. An annual report on population trends is completed by 30 June.

What was achieved in 2020 - 2021

✓ Achieved	Education and awareness undertaken.
✓ Achieved	All known sites were inspected several times throughout the year.
✓ Achieved	Seeding prevented at all known sites.
✓ Achieved	High risk land was searched in the vicinity of known sites.
✓ Achieved	An annual report has been completed.

Summary of work

There are currently twenty properties where bur daisy occurs across Canterbury, which is down from 28 in 2019-20 due to amalgamations of red zoned land. (These properties cover a combined affected area of 127.3 hectares) All twenty sites were inspected in 2020-21, with 398 plants eliminated across the region. All the active sites have similar terrain, ranging from steep to medium gradient, rocky outcrops, scrub and grass cover. Bur daisy plants were eliminated from nine properties.

There was also surveillance carried out on 100 hectares to detect plants on land at high risk, but not known to have bur daisy, in South and Mid Canterbury. No Bur daisy plants were detected during this operation.

✓ Progressing towards achieving CRPMP objective/s

Chilean needle grass

Programme Summary

Chilean needle grass occurs at six locations on twenty-five properties in Canterbury, occupying an infestation area of 330 hectares. Containing existing infestations and investing in surveillance, research and partnerships is essential in detecting new sites, preventing further spread and improving control tools. Educational activities resulting in reports of Chilean needle grass will assist in detecting new infestations annually.

CRPMP Objective 10

Over the duration of the Plan, sustainably control Chilean needle grass within the Canterbury region to ensure:

- (i) that current infestation levels do not increase; and
- (ii) any spread to other properties is prevented to minimise its adverse impacts on pastoral production values.

Targets

1. Seeding (aerial) is prevented.
2. High risk (adjacent to known sites and known pathway end points) sites are searched.

Outputs

1. Awareness.
2. All known Chilean needle grass sites are subject to a control programme to eliminate Chilean needle grass.
3. Respond to reports of Chilean needle grass within two working days.
4. Highly susceptible land is searched.

5. Containment programmes are in place for high density properties.
6. A report on trends in incidence of Chilean needle grass is completed by 30 June annually.

What was achieved in 2020 - 2021

✓ Achieved	Education and awareness was undertaken.
✓ Achieved	All known sites were inspected and controlled.
✓ Achieved	Reports of potential incidence were followed up.
✓ Achieved	Containment programmes in place where applicable.
✓ Achieved	A report on progress with Chilean needle grass was completed.

Summary of work

There are twenty-three properties in Canterbury where Chilean needle grass is known to occur, covering a total area of approximately 325 hectares. Of these properties, twenty-two are in the Cheviot area of the Hurunui district, and one is 30km west of Christchurch in West Melton. At four of the properties Chilean needle grass is managed primarily by the land occupiers and the remaining nineteen properties are primarily managed by Environment Canterbury due to low plant numbers. In 2020-21, no plants were found on eight of the twenty-three properties where Chilean needle grass is known to occur. No new infestations of Chilean needle grass outside of these known properties have been found in Canterbury over the past three years.

✓ Progressing towards achieving CRPMP objective/s

Coltsfoot

Programme Summary

Coltsfoot occurs at three locations and twenty-seven sites in Canterbury over approximately 1,118 hectares. Containing and reducing existing infestations is essential in preventing further spread to protect natural biodiversity values.

CRPMP Objective 11

Over the duration of the Plan, sustainably control coltsfoot within the Canterbury region, to ensure its extent does not increase and biodiversity values on adjacent land are not adversely affected.

Targets

1. Coltsfoot is contained to known areas.
2. Seeding is prevented or reduced.

Outputs

1. All known sites with an incidence of coltsfoot within the last five years are inspected and plants found were eliminated.
2. Reports of coltsfoot incidence is followed up.
3. A report on progress is completed by 30 June annually.

What was achieved in 2020 - 2021

✓ Achieved	Coltsfoot was controlled at sites with an incidence during the last five years years.
✓ Achieved	Reports of occurrence followed up.
✓ Achieved	Annual report completed.

Summary of work

There are three known locations in Canterbury of coltsfoot, on Crown land in the Arthur's Pass and Rakaia catchments and at the Eyre River west of Oxford. Eight properties were inspected where recently active sites were found. At the Eyre River, sixty-nine Coltsfoot plants found and controlled. No plants were found at the remaining properties. Environment Canterbury has previously taken responsibility for all control at this expansive site (>1100 ha) with over \$500k spent over the last twenty years.

✓ Progressing towards achieving CRPMP objective/s

Darwin's barberry

Programme summary

Darwin's barberry is widespread in the Canterbury region, occurring at > 250 known sites over 2500 hectares. Environment Canterbury works in partnership with land occupiers, Crown agencies and district councils to contain the incidence of Darwin's barberry where it can impact on natural biodiversity.

CRPMP Objective 12

Over the duration of the Plan, sustainably control Darwin's barberry to ensure that the extent of its infestations does not increase at the known 254 sites in the Canterbury Region and that biodiversity and environmental values on adjacent land are not adversely affected.

Targets

1. Presence or absence of Darwins barberry at known sites (private land) is established.

Outputs

1. An assessment (presence/absence/immediate threat) to biodiversity values is undertaken.
2. Sites with a high risk of impacting on biodiversity values are prioritised.
3. A report on incidence of Darwin's barberry is completed by 30 June 2020

What was achieved in 2020 - 2021

✓ Achieved	Twenty-one properties were assessed to determine the presence or absence of Darwin's barberry.
✓ Achieved	Sites with a high risk to biodiversity values were prioritised for control.
✓ Achieved	Annual report completed.

Summary of work

Work to eliminate Darwin's barberry occurred at twenty-one properties, and approximately 1500 were eliminated over 94 hectares.

✓ Progressing towards achieving CRPMP objective/s

Feral rabbit

Programme summary

Feral rabbits occur throughout the Canterbury region. Population densities fluctuate due to the impact of Rabbit Haemorrhagic Disease, and to a lesser degree by traditional control methods undertaken by land occupiers. Environment Canterbury annually inspects land designated as highly prone to rabbits to ensure occupiers are keeping populations at required levels and reacts to complaints from land occupiers directly affected by population numbers on neighbouring properties. Inspections are indicative of the general need for the level of inspection activity required annually.

CRPMP Objective 13

Over the duration of the Plan, sustainably control feral rabbits to ensure population levels do not exceed Level 3 on the Modified McLean Scale in order to minimise adverse effects on production and environmental values within the Canterbury region.

Targets

1. A sample of land considered high rabbit prone is inspected.
2. Where rabbit population densities exceed Modified McLean Scale 3 actions are taken by land occupiers to reduce densities.

Outputs

1. All reports of rabbits are investigated.
2. A selection of high rabbit prone properties are inspected.
3. A report on population trends of feral rabbits is completed by 30 June annually.

What was achieved in 2020 - 2021

✓ Achieved	Rabbit reports were investigated.
✓ Achieved	High prone rabbit properties were inspected.
✓ Achieved	A report on population trends of feral rabbit was completed.

Summary of work

There were forty-four properties inspected (twenty-six in South Canterbury, sixteen in North Canterbury and two in Mid Canterbury) for CRPMP compliance rules in 2020-21. Of these, five properties were required to carry out work to comply with CRPMP rules, all in South Canterbury.

In 2020, spring monitoring indicated rabbit levels have increased in four of the region's eleven historic pest districts compared with the previous spring: Mackenzie, Waikari, Āmuri and the Kaikoura. As there have been relatively low rabbit numbers recorded in South Canterbury, Ashburton, Selwyn, Banks Peninsula and Ashley in recent years, there was no night count data recorded this year. Omarama and Kurow pest districts are the only districts indicating a decrease in rabbit numbers, while population densities remain low in general across Canterbury.

✓ Progressing towards achieving CRPMP objective/s

Gorse

Programme summary

Gorse occurs throughout Canterbury. The CRPMP emphasis for gorse in the Sustained Control Programme is to ensure land occupiers manage gorse on productive land in highly vulnerable hill and high country, which is substantially clear of gorse and remains so.

CRPMP Objective 14

Over the duration of the Plan, sustainably control broom to preclude land that is free of, or being cleared of gorse becoming infested, to prevent adverse effects on production values and economic well-being.

Targets

1. Gorse is controlled on property boundaries.
2. Land in the hill and high country is significantly clear of gorse and remains so.

Outputs

1. All reports about gorse on adjoining property boundaries are investigated.
2. 350 properties are subject to initial inspections (based on agreed criteria) annually in conjunction with broom.
3. An annual report on inspection outcomes is completed by 31 July annually.

What was achieved in 2020 - 2021

✓ Achieved	All reports of gorse on boundaries investigated.
✗ Not achieved	152 properties were inspected.
✓ Achieved	A report on inspection outcomes was completed by 30 June 2021.

Summary of work

309 inspections carried out in conjunction with broom. Inspections numbers can fluctuate yearly due to property size, location and the resources needed to communicate with landowners. A change to inspecting only hill and high-country properties in 2018-19 reduced the number of inspections, as many of these properties are larger and take more time to inspect. This included 152 initial inspections, 108 second inspections and forty-nine instances where re-inspections were required to ensure a Notice of Direction under the provisions of the Biosecurity Act 1993 were complied with. Of these, 169 (55% of total inspections for broom and gorse) inspections recorded more work was required to comply with CRPMP rules at the time of inspection.

Statistics for second and additional inspections often relate to first inspections from previous financial years and can be unrelated to the current financial year. While less inspections than planned were achieved, a future targeted programme will ensure CRPMP objectives are met. COVID-19 also impacted on the gorse and broom inspection programme this year. The gorse and broom inspection programme is currently being reviewed, and thought is being given to a more targeted approach and the possibility of a property grading system to support this.

✓ Progressing towards achieving CRPMP objective/s

Nassella tussock

Programme Summary

Nassella tussock occurs throughout Canterbury with approximately 1450 properties having a known history of occurrence, predominately in the northern half of the region. The CRPMP emphasis for Nassella tussock in the Sustained Control Programme is to ensure land occupiers manage the plant on their land to prevent spread and ensure population levels do not increase. A significant area of Canterbury remains susceptible to Nassella tussock, and searching to detect new infestations will be carried out annually.

CRPMP Objective 15

Over the duration of the Plan, sustainably control Nassella tussock within the Canterbury region to ensure current population levels do not increase in order to minimise adverse effects on production values.

Targets

1. An inspection programme to ensure Nassella tussock is being managed occurs.
2. Highly prone land that is a risk to Nassella tussock occurrence is inspected.

Outputs

1. Awareness.
2. 40% of all properties in the Canterbury region with known infestations of Nassella tussock are inspected.
3. 10% of land that is highly susceptible to infestation of Nassella tussock is identified and searched annually.
4. A report on the population trends of Nassella tussock is completed by 31 July annually.

What was achieved in 2020 - 2021

✓ Achieved	Education and awareness undertaken.
✗ Not achieved	40% (580) of known properties inspected.
✓ Achieved	10% of highly susceptible land searched.
✓ Achieved	A population trend report is completed.

Summary of work

Of the 580 (40%) properties to be inspected to ensure compliance with CRPMP rules, 377 properties were inspected (26%). This is mainly because compliance inspections were halted in early November when most inspections take place. While assessments took place, there were not as many as would normally take place due to a shift in priority towards search operations and looking at properties on the peripheries of main infestations. Significant time was spent on search, due to the lack of focus on compliance activities. The sites searched gave an indication that more emphasis is required on this workstream

Population trend monitoring data from 2019-20 estimated that the density of plants remaining after annual control efforts and inspections on 753 properties in the Hurunui district was twelve plants per hectare. This equates to 3.86 million plants, and nearly 99% of plants remaining were estimated to have seeded and released an estimated 21 billion seeds.

Of these properties, 163 were medium to high density, which equates to 1000 plants per property. The remainder of Canterbury's 211 land occupier control properties had an estimated 4.7 plants per hectare after control, of which nearly 85% were estimated to have seeded.

Old man's beard

Programme summary

The CRPMP emphasis for old man's beard in the Sustained Control Programme is to ensure land occupiers manage the plant on their land, preventing its spread to areas of natural biodiversity. Searching to detect new infestations will be carried out annually.

CRPMP Objective 16

Over the duration of the Plan, sustainably control old man's beard within the Canterbury region, to ensure current plant numbers or density levels do not increase in order to minimise adverse impacts on environmental values.

Targets

1. Areas of high natural biodiversity are protected.
2. An inspection programme to determine rules compliance is undertaken.

Outputs

1. Land where old man's beard threatens sites of high natural biodiversity value inspected.
2. Land occupiers are asked to undertake work where required by CRPMP rules.
3. An annual report on compliance inspections is completed by 30 June.

What was achieved in 2020 - 2021

✓ Achieved	High value biodiversity areas inspected.
✓ Achieved	Control at high value biodiversity sites.
✓ Achieved	Reports about old man's beard investigated.
✓ Achieved	An annual report completed

Summary of work

In 2020-21, there were fifty-four inspections for old man's beard at sites where the plant threatens biodiversity values. Of these, thirty were to ensure compliance with CRPMP rules, of these two were asked to carry out more work to comply for CRPMP rules. Twenty-four inspections were to assess the area for contractors to carry out control work at these sites.

✓ Progressing towards achieving CRPMP objective/s

Purple loosestrife

Programme summary

Purple loosestrife occurs sporadically throughout Canterbury. The CRPMP emphasis for the plant in the Sustained Control Programme is to eliminate all plants annually. This work is carried out in partnership with land occupiers to reduce population density and prevent spread to areas of natural biodiversity. Educational activities resulting in reports of purple loosestrife will assist in detecting new infestations annually. There are seventy-two sites in the region that are Environment Canterbury's responsibility to monitor, with Christchurch City Council and the Department of Conservation taking responsibility for remaining sites.

CRPMP Objective 17

Over the duration of the Plan, sustainably control purple loosestrife to ensure its extent does not increase and biodiversity values on adjacent land are not adversely affected.

Targets

1. Contain purple loosestrife by preventing seeding.
2. Purple loosestrife is eliminated when found upon inspection.

Outputs

1. Awareness.
2. Purple loosestrife sites Environment Canterbury are responsible for are inspected annually.
3. Purple loosestrife is eliminated where found.
4. A report on the annual control programme is completed by 30 June.

What was achieved in 2020 - 2021

✓ Achieved	Education and awareness undertaken.
✓ Achieved	Sites of Environment Canterbury responsibility inspected.
✓ Achieved	All plants found on inspection were eliminated.
✓ Achieved	An annual report was completed.

Summary of work

The control of purple loosestrife throughout Canterbury is led by Environment Canterbury, partnering with Christchurch City Council and the Department of Conservation.

A total of 185 sites that Environment Canterbury is responsible for have been recorded as having purple loosestrife. The majority of these are considered inactive, as no plants have been found of these sites since at least 2015 due to depletion of seeds in the ground.

Sixty-seven of the sites Environment Canterbury is responsible for have had purple loosestrife found within the last five years, spread over a total area of about 147 hectares. These sites are spread through both urban and rural areas, usually in shallow waterways, wetlands, lakesides, steams, drains, and swamps. During the 2020-21-year, Environment Canterbury staff inspected twenty-seven properties, of which twenty-four contained no plants. There were thirty-six plants controlled on the remaining three properties, and a contractor was engaged to control plants along the Cossar's and McCartney's Road drains, and the Halswell River.

✓ Progressing towards achieving CRPMP objective/s

Saffron thistle

Programme summary

Saffron thistle occurs or has occurred at twenty-three properties throughout Canterbury. The CRPMP emphasis for saffron thistle in the Sustained Control Programme is to eliminate all plants annually to reduce population density and prevent spread. Educational activities resulting in reports of saffron thistle will assist in detecting new infestations annually.

CRPMP Objective 18

Over the duration of the Plan, sustainably control saffron thistle within the Canterbury region to ensure current plant numbers or density levels do not increase in order to minimise adverse effects on production values.

Targets

1. Seeding is prevented.
2. Land immediately near known sites is searched.

Outputs

1. Awareness.
2. All sites known to have an incidence of saffron thistle are inspected.
3. Saffron thistle plants are eliminated prior to seeding in partnership with land occupiers.
4. Land in the immediate vicinity of known sites is searched.
5. A report on the annual control programme is completed by 30 June.

What was achieved in 2020 - 2021

✓ Achieved	Awareness programme undertaken.
✓ Achieved	All Saffron thistle sites were inspected.
✓ Achieved	All saffron thistles found were eliminated.
✓ Achieved	Land searched around active sites.
✓ Achieved	An annual report was completed on progress to contain and reduce saffron thistle.

Summary of work

There are currently fourteen properties where saffron thistle occurs in Canterbury, or has occurred, covering a total of 490 hectares. In 2020-21, all sites were inspected, and plants were found and eliminated from thirteen properties, totalling 21,000. One of these sites was found during a routine inspection for Nassella tussock.

✓ Progressing towards achieving CRPMP objective/s

Wild Russell lupin

Programme summary

Wild Russell lupin is known to occur in several high-country catchments in the Canterbury region. Initially the priority for this programme is to assist in protecting existing biodiversity work being undertaken in high country catchments and to gather information to determine the full extent of wild Russell lupin in or around waterways. This information will assist in determining priorities for future control work.

CRPMP Objective 19

Over the duration of the Plan, sustainably control the extent of wild Russell lupin to preclude land that is free of wild Russell lupin, and being cleared of Russell lupin becoming infested, and also preclude establishment of Russell lupin within specified distances from waterways to prevent adverse effects on environmental values.

Targets

1. Prevent establishment of wild Russell lupin in and around waterways.
2. Prevent spread of wild Russell lupin to adjoining properties.

Outputs

1. Awareness.
2. Determine the distribution of wild Russell lupin in Canterbury.
3. Control of wild Russell lupin to prevent spread at priority sites.
4. Monitor the effectiveness of control sites.

What was achieved in 2020 - 2021

✓ Achieved	Education and awareness undertaken.
✗ Not achieved	Distribution information wasn't obtained.
✓ Achieved	Control of wild Russell lupin in the upper Ohau catchment was undertaken.
— Not applicable	Monitoring of controlled sites.

Summary of work

No compliance inspections were undertaken for boundary or distance rules compliance in 2020-21. Control work was undertaken in conjunction with Environment Canterbury's biodiversity team in the upper Ohau catchment where the occurrence of wild Russell Lupin is very limited.

✓ Progressing towards achieving CRPMP objective/s

5. Site-led Programme

Programme summary

Sites to be managed under the site-led programme may range from small areas within a property to larger areas covering multiple properties. Their values can be threatened by individual or multiple organisms. Therefore, pest management regimes specifically tailored to each site is necessary.

Common name	Botanical Name
Banana passionfruit	Passiflora tripartita var mollissima P. tripartita var azuayansis P. tarminiana P. pinnatistipula Passiflora x rosea P. caerulea
Broom – Common	Cytisus scoparius
Broom – Montpellier	Teline monspessulana
Broom – Spanish	Spartium junceum
Broom – White	Cytisus multiflorus
Cathedral bells	Cobaea scandens
Feral goats	Capra aegagrus hircus
Gorse	Ulex europaeus
Lagarosiphon	Lagarosiphon major
Old man’s beard	Clematis vitalba
Possum	Trichosurus vulpecula
Spartina	Spartina alterniflora, S. anglica, S. gracilis, S. maritime, S. x townsendii

White-edged nightshade	Solanum marginatum
Wild Thyme	Thymus vulgaris

CRPMP Objective 20

For each site in the Canterbury region listed in Appendix 4, progressively control, where present:

- (i) Cathedral bells
- (ii) Banana passionfruit;
- (iii) Old man’s beard;
- (iv) White-edged nightshade; and
- (v) Wild Thyme;

to avoid, mitigate or prevent damage to the specific values particular to each site.

For each site, the first 10 years of the Plan’s operation will result in the:

- (i) Extent of Cathedral bells being reduced by 30%;
- (ii) Extent of banana passionfruit is reduced by 50%;
- (iii) Extent of old man’s beard being reduced by 75%;
- (iv) Extent of white-edged nightshade being reduced by 10%;
- (v) Extent of wild thyme being reduced by 50%

Programme summary – Site-led continued

CRPMP Objective 21

For each site in the Canterbury region listed in Appendix 4, sustainably control, where present:

(i) Spartina;

(ii) Broom;

(iii) Gorse;

(iv) Possum;

(v) Lagarosiphon (sites 1 and 2 of Appendix

4A) to avoid, mitigate or prevent damage to the specific values particular to each site. For each site, the first 10 years of the Plan's operation will result in the:

(i) The area of spartina being reduced by 75%;

(ii) The extent of broom being reduced by 10%;

(iii) The extent of gorse being reduced by 10%;

(iv) The number of possums being reduced to 5% Residual Trap Catch (RTC);

(v) Prevention of the spread of Lagarosiphon from locations 1 and 2 of Appendix 4A.

Targets

1. Pests at sites identified within the site-led programme of the CRPMP are controlled.
2. Identify other organisms which may threaten site-led initiatives.

Outputs

1. Inspect sites to determine management requirements.
2. Facilitate annual control work by land occupiers.
3. Contribute to annual control on a pro-rata basis.
4. An annual report on progress at site led projects is completed by 30 June.

What was achieved in 2020-21

✓ Achieved	Inspection of all sites except for the Rangitata and Rakaia gorse and broom sites.
✓ Achieved	Work by land occupiers facilitated.
✓ Achieved	Contributed to control programmes.
✓ Achieved	An annual report.

Summary of work

Banana passionfruit: There are two site-led projects for banana passionfruit. One of these, Kelsey's Bush near Waimate, has been abandoned as a project due to the land occupier's unwillingness to contribute to the project and multiple surrounding properties with Banana passionfruit infestations. Control at a Gore Bay site was completed, and surrounding sites were also controlled to protect the investment into control at the site-led location.

Cathedral bells: There are five fully naturalised cathedral bells sites in Canterbury, with three in the Kaikoura district and two at Akaroa. All sites are in a riverbed or adjacent to a river, and all are likely to be the result of green waste dumping. Contractors undertook search and control of cathedral bells at all sites in early 2021, and all areas checked had been well covered with just a small number of seedlings noted.

At one Akaroa site two seedlings and two mature vines were controlled, and no plants were found at the second site that originally contained just one vine. The sites were checked again in May 2021, and over 400 seedlings and one mature vine that was missed during initial work were controlled.

Broom/Gorse: Gorse and broom was controlled in the Hakataramea and Ohau site-led areas, which alternates annually with the Rangitata and Rakaia gorse and broom sites

Feral Goats: Biosecurity staff have met regularly with the Goat Working Group (Banks Peninsula Conservation Trust, Department of Conservation, Christchurch City Council) in a CRPMP rules support capacity. Many of the properties known to have goat herds were visited by biosecurity staff and land occupiers were spoken to about CRPMP rules and provided a fencing guide. A sign was also displayed at the Little River Agricultural and Pastoral Show asking people to report sightings of feral goats on Banks Peninsula.

Control operations as part of the Pest Free Banks Peninsula programme were undertaken in 2020-21 in the Purau area of Banks Peninsula, and educational and communication initiatives were undertaken to ensure land occupiers are aware of the need to contain goats within properties and the programme to control feral goats.

CRPMP Objective 22

Over the duration of the Plan, for sites 3 - 15 of Appendix 4B, preclude the establishment of lagarosiphon, to prevent damage and adverse effects to biodiversity and environmental values at these sites.

CRPMP Objective 23

Manage domestic and farmed goats and remove the population of feral goats within the Containment Area shown on Map 14 in Appendix 4 to prevent adverse effects on environmental values.

Within the Containment Area shown on Map 14 in Appendix 4, the population of feral goats will be reduced by at least 50% in the first 10 years of the Plan.

Lagarosiphon: In 2020-21, control was undertaken of dense infestation of lagarosiphon plants downstream of Buscot Pond through to Twizel-Omarama Road in South Canterbury. Surveillance of a stream south of Twizel-Omarama Rd through Willowburn Station occurred to ascertain presence or absence of lagarosiphon. Patches of regrowth were found where control had occurred. The Willowburn section of stream had isolated plants all along it. There was collaboration with the land occupier at Buscot Station, where plants were hand pulled and disposed of on farm which reduced costs. The total length of stream affected is 2.2km, an increase on the previous year.

Old man's beard: Old man's beard is identified in the CRPMP at eleven sites as threatening biodiversity values. Control was carried out in 2020-21 at all locations by a mixture of contractors, biosecurity staff and land occupiers. Contractor control included both aerial and groundwork, and at locations where this was undertaken, property occupiers contributed by either making financial contributions, making a commitment to future maintenance, or providing personal labour. Some control was undertaken in areas surrounding sites that are identified as having the potential to act as a seed source for reinfestation.

Possum: The rotational programme for possum control on Banks Peninsula has ceased, and is now managed through the Banks Peninsula Pest Free programme. This programme is concentrating on possum control within a 22,000-hectare area on the east side of the Peninsula encompassing The Wildside Conservation Area. Possum control outcomes for the 2020-21 year are unknown, and this work will not enable the objective of the CRPMP to be met for possum control across Banks Peninsula.

Spartina: This programme is led by Environment Canterbury in partnership with Christchurch City Council and the Department of Conservation.

Spartina is found at Brooklands Lagoon, the Avon Heathcote Estuary and Lyttelton Harbour, spanning a total area of about 1400 hectares. In 2020-21, all areas were searched by a detector dog and plants that were found were controlled by a combination of contractors and agency staff.

Twenty-two sites were detected with a total of 14.67 square metres of spartina being eliminated either by hand or controlled with herbicide. Two sites were found around Lyttelton Harbour, seventeen at the Avon Heathcote Estuary (including McCormacks Bay), while none were found at Brooklands lagoon.

White-edged nightshade: White-edged nightshade is only found on the northern side of Banks Peninsula, spread across Decanter Bay and Little Akaloa across 650 hectares over eleven properties. A total of twenty-eight plants were controlled across eleven properties. Twenty-seven plants were in Little Akaloa and one plant was found in Decanter Bay. There is also historic site in Motunau where no plants have been found since 1998.

Wild thyme: Wild thyme occurs at six properties over thirty hectares in North and South Canterbury. All properties were inspected, and plants controlled. 5870 plants were eliminated occurring on limestone bluff faces, dry terraces, stony riverbeds and in a limestone quarry.

✓ Progressing towards achieving CRPMP objective/s

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