

CANTERBURY REGIONAL COUNCIL

Kaunihera Taiao ki Waitaha

Biosecurity Activities 2018-19

Report on the 2018-19 Operational Plan

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



PREPARED UNDER THE BIOSECURITY ACT 1993

This Report on the Operational Plan 2018-19 summarises annual budgets against actual expenditure and annual outputs (levels of service) for each pest programme which contribute to meeting the objectives in the Canterbury Regional Pest Management Strategy (CRPMP 2018-2038). Budgets are reviewed through the annual plan process, and then summarised in the following Operational Plan.

I hereby certify that this is a correct copy of the Report on the Operational Plan 2018-19 for the implementation of the Canterbury Regional Pest Management Strategy (2018-2038).

The Operational Plan was prepared in accordance with the requirements Section 85 (1)(c) of the Biosecurity Act 1993.



Bill Bayfield
Chief Executive
Canterbury Regional Council
March 2020

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Canterbury Regional Pest Management Plan 2018–2038

Regional councils have a mandate 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 should be controlled to benefit 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 become 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, taking into account the pest's occurrence in the region (ie, from very limited to widespread).

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 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 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, which provide technical information for the implementation of programmes, including monitoring and surveillance projects, which support the outcomes of CRPMP. 2018–19 is the first year of a 20-year plan. Results of this year's work programme indicate the programme being implemented will achieve CRPMP objectives.

The 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 are reported on in this report, 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 2018–19 identifies:

- annual budgets against actual expenditure for the year;
- the levels of service expected (targets and outputs);
- whether the outputs were achieved; and.
- 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 (eg, 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; Wallaby control outside the Wallaby Containment Area; Wilding conifer management; Regional engagement initiatives; Canada Geese Group participation; Chatham Islands RPMP delivery; Biological Control Collective participation; Regional Reporting; Biosecurity toolbox (eg, control tools and research); Lakes Weed Programme; Check Clean Dry; On-farm Biosecurity; alignment with the National Capability Network; Incursion response activities; RHDV K5 sponsor; and Biosecurity Advisory Groups.

Partnerships are an important component of Environment Canterbury's biosecurity programme. All five CRPMP programmes currently contain partnerships which range from agreements to control, contain or otherwise manage pests to funding agreements, memorandums of understanding, 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

Australian sedge
Broomsedge
Hornwort
Kangaroo grass
Koi carp
Noogoora bur
Nutgrass (purple nutsedge)
Oxylobium
Palm grass
Spiny broom
Woolly nightshade

Botanical Name

Carex longebrachiata
Andropogon virginicus
Ceratophyllum demersum
Themeda triandra
Cyprinus carpio
Xanthium strumarium
Cyperus rotundus
Oxylobium lanceolatum
Setaria palmifolia
Calicotome spinose
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 2018-19

- ✓ **Achieved:** General awareness: Public displays and presentations as part of an overview of the CRPMP 2018–2038.
- ✓ **Not applicable:** No incursions were recorded.
- ✓ **Achieved:** Science support has been engaged to determine the most likely sites of initial occurrence.

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.

Environment Canterbury has commissioned AgResearch to answer these questions for the top four (of 11) invasive pests in the exclusion programme. Using Environment Canterbury's limited resources for this programme combined with funding from the Ministry for Business Innovation and Employment under the AgResearch Strategic Science Investment Fund research programme 'Pasture Weeds', AgResearch will map the global distribution, construct a climate niche model (using the CLIMEX modelling software), and determine the dispersal pathway(s) for each of the four species below, considered to be the most invasive:

Common name

Broomsedge
Kangaroo grass
Nutgrass
Palm grass

Botanical Name

Andropogon virginicus
Themeda triandra
Cyperus rotundus
Setaria palmifolia

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

2. Eradication Programme

Eradication Programme Pests

Common name.

Egeria
Entire marshwort
Knotweed (Asiatic and Giant)

Moth plant
Phragmites
Rook
Yellow bristle grass
Yellow water lily

Scientific name

Egeria densa
Nymphoides geminata
Fallopia japonica x sachalinensis
Fallopia sachalinensis
Araujia hortorum
Phragmites australis
Corvus frugilegus
Setaria pumila
Nuphar lutea

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 is 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 to immediate spread are searched annually.
6. An annual report on programme progress is completed by 30 June.

CRPMP Objective 2

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

Eradication Programme

What was achieved in 2018-19

- ✓ **Achieved:** Awareness work undertaken.
- ✓ **Achieved:** All sites inspected.
- ✓ **Achieved:** All pest plants controlled before seeding or reproducing.
- ✓ **Achieved:** Responded to reports of occurrence.
- ✓ **Achieved:** High risk areas searched.
- ✓ **Achieved:** Population trend report completed.

Summary of work

Egeria: 1 active site (of 9) at Kerr's Reach, Avon River with plants present but at low levels. This was controlled by Christchurch City Council with financial assistance from Environment Canterbury. Egeria occupies approximately 5 hectares in the Avon river from the point at which sea water meets fresh water for approximately one kilometre upstream.

Entire marshwort: 1 known site in Canterbury isolated to a large pond. Recent controls by Environment Canterbury have reduced the infestation to 5% coverage area of the pond affected. Further reductions are unlikely to decrease without revised control methods. A new control method will be utilised in 2019-20.

Knotweed (Asiatic and Giant): Of 11 known sites inspected, 2 sites were active, plants at both sites controlled (sprayed with herbicide), 1 site several times. Plants and their rhizomes in previous years were excavated and deep buried. A new approach using stem injection will be trialled in 2019-20.

Moth plant: 11 known sites visited with no plants present, including additional sites found after investigating Landcare Research's plant occurrence inventory.

Phragmites: Of 9 known sites inspected, 4 sites had plants present with a combined 10 plants being controlled at 3 of these sites. The remaining site contains several infestations covering about 200 square metres. Plants at this site were controlled 3 times throughout the year.

Rook: The known population of rooks within Canterbury is currently 1 bird. This rook has had confirmed sightings with control efforts to date unsuccessful.

Yellow bristle grass: Of 3 known sites plant were found and controlled at 2 sites with 1 plant found at each site on inspection prior to seeding. High-risk land searched resulted in 53 finds of bristle grasses. 22 infestations have been confirmed as Knotroot bristle grass. 31 sites are yet to be confirmed due to location/access issues.

Yellow water lily: Known to be present in one South Canterbury stream at low densities over 4.5 kilometres. Controlled with herbicide in 2019 but plants still present. Attempted control using hessian weed matting, however unsuccessful due to the impact of flooding post application. Investigations continuing into control and surveillance.

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

3. Progressive Containment Programme

Progressive Containment Programme Pests

Common name.

African feather grass
African love grass
Baccharis
Puna grass
Wilding conifers:
Contorta
Corsican
Scots
Mountain (including dwarf)
Larch

Scientific name

Pennisetum macrourum
Eragrostis curvula
Baccharis halimifolia
Achnatherum caudatum

Pinus contorta
P. nigra
P.sylvestris
P. uncinata, P. mugo
Larix decidua

Programme Summary

Targets

1. Contain and reduce progressive containment pests.

Annual Outputs

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

*(except Wilding Conifer)

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.

Progressive Containment Programme

What was achieved in 2018-19

- ✓ **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: 115 known sites and 130 hectares across the region with the addition of 2 new sites found in early 2019. Of these 93 sites occur in North Canterbury. Many sites have been inactive for some years. The 35 (of 115) active sites were inspected with 164 plants controlled in total, 65 of these at 2 new sites in Christchurch. No active sites were found in South Canterbury. Contractors were engaged to control the 6 most heavily infested properties, all in Kaikoura. Peripheries of sites were checked.

African love grass: 5 known sites across the region with the addition of 2 new sites found in early 2019. 2 sites are known, 1 in each of North Canterbury (new Jan 2019) and Christchurch City. The South Canterbury site is the largest in size (107 ha) and density. Plants seed at about 6-week intervals through the spring/summer. Numerous control efforts are required. A small number of plants were controlled at the North Canterbury site. No plants in Christchurch City this year. Plants were controlled in South Canterbury including an additional site was found next to the existing known sites.

Baccharis: 48 properties have a record of Baccharis occurrence. 35 properties with a recent history of active plants were inspected and 11 Baccharis bushes were controlled. The active sites are located at Sumner and Lyttleton.

Puna grass: There are two known sites of Puna Grass in Canterbury (and NZ). One occurs on farmland near Amberley, while the other occurs on grazed land at Bromley in Christchurch. Inspection and control were undertaken this year at both sites to prevent aerial seeding. At the North Canterbury site plant numbers remain relatively stable over a 5-hectare area. At the Bromley site plants were found over a much wider area (increase in area from 8 hectares to 74 hectares) after a search of land surrounding the known site area.

Wilding conifers: A significant amount of time was spent investigating and preparing Operational Plans and Costings for the National Phase Two programme. Prioritised physical contractor work with Environment Canterbury funding focused on the existing "Active" Management units. \$230,000 of funding was provided by the Ministry for Primary Industries in the 2018-19 financial year.

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

4. Sustained Control Programme

Sustained Control Programme Pests

Common name.

Bell heather
Bennett's wallaby
Boneseed
Broom:
- Common
- Montpellier
- White
Bur daisy
Chilean needle grass
Coltsfoot
Darwin's barberry
Feral rabbit
Gorse
Nassella tussock
Old man's beard
Purple loosestrife
Saffron thistle

Scientific name

Erica cinerea
Macropus rufogriseus rufogriseus
Chrysanthemoides monilifera

Cytisus scoparius
Teline monspessulana,
C.multiflorus
Calotis lappulacea
Nassella neesiana
Tussilago farfara
Berberis darwinii
Oryctolagus cuniculus
Ulex europaeus
Nassella trichotoma
Clematis vitalba
Lythrum salicaria
Carthamus lanatus

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.

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 bell heather annually.
4. A report on bell heather population trends is completed by 30 June annually.

What was achieved in 2018-19

- ✓ **Achieved:** Awareness undertaken.
- ✓ **Achieved:** Search and eliminate all isolated bell heather plants on outer periphery of the known site.
- ✓ **Achieved:** Eliminate 20% of bell heather annually.
- ✓ **Achieved:** A report on bell heather population trends is completed by 30 June annually.
- ✓ **Achieved:** Progress report completed.

Summary of work

Control work was completed at >20% of the bell heather infestation area (375 ha).

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

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.

Bennett's Wallaby

Programme Summary – Within the Wallaby Containment Area

Wallabies occupy approximately 450,000 hectares of land in South Canterbury, centred in the Hunter Hills, but including the Two Thumb Range, the Kirkleston and the Grampian mountains. Populations also occur in Kakahu Forest near Geraldine and Pioneer Park south-east of Fairlie.

Targets

1. Where wallaby population densities exceed GS3 actions are taken to reduce densities to at or below level 3 GS.
2. A programme of work is undertaken to prevent further spread out of the containment area.

Outputs

1. All enquiries/complaints received about wallaby are reacted to within 10 working days.
2. 25 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 2018-19

- ✓ **Achieved:** All complaints/enquiries were contacted within 10 days.
- ✓ **Achieved:** Minimum 27 inspections including buffer properties.
- ✓ **Achieved:** Work undertaken on buffer areas over 3,526 hectares on XX properties.
- ✓ **Achieved:** A report on wallaby population trends has been completed by 30 June 2019.

Summary of work

Wallabies now occupy 500,000 hectares within the containment area. 23 compliance inspections completed in 2018-19 financial year in addition to control inspections on 4 buffer areas. Significantly more resources were spent arranging co-ordinated control operations on the containment area boundary to prevent spread to the North-west and South. Wallaby trend monitoring completed on 11 lines that were established in 2008 on the periphery of the containment area. Monitoring results show fluctuations in wallaby populations compared to previous years thought to be mainly because of changes in environmental conditions. More concerning is the continued spread of wallaby both within and from the containment area further south. 27 historic lines (in the core wallaby area) not monitored this year as they in between monitor on a two-year cycle.

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

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 Map 2 in Appendix 3 CRPMP)

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 work is to contain and remove these wallaby.

Targets

1. Prevent further establishment of Bennett's wallaby populations outside of the Bennett's wallaby containment area.
2. Reduce Bennett's wallaby populations outside of the Bennett's wallaby containment area.

Outputs

1. Record and respond to reports of Bennett's wallaby within 10 working days.
2. Bennett's wallaby reported outside the Bennett's wallaby containment area are destroyed where technically feasible.
3. Control programmes are completed to reduce the extent and population density of wallaby outside and south of the wallaby containment area. South Bank Waitaki, Ben Ohau Range, Gamack Conservation area.
4. A partnership with Otago Regional Council is maintained.
5. A report on progress outside the containment area is completed by 30 June annually.

What was achieved in 2018-19

- ✓ **Achieved:** All people making complaints/enquiries are contacted within 10 days.
- ✓ **Achieved:** Control operations for reported wallaby 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 population trends has been completed by 30 June 2019.

Summary of work

Total number of wallabies reported outside of the CRPMP wallaby containment area for 2018 year was 137. 63 of these were destroyed. Over 570 contractor hours spent on wallaby search and destroy operations. Wallaby detection trial work ongoing with Landcare Research, to gauge precision. Otago Regional Council biosecurity staff and ECan biosecurity staff meet regularly to exchange information and align work programmes which has resulted in a Memorandum of Understanding at a Governance level. 33 wallabies were reported, and 14 wallabies destroyed in Otago/Marlborough regions combined. The CRPMP objective is unlikely to be met with the current tools (detection and control) and resources.

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

× **CRPMP objective unlikely to be met**

Boneseed

Programme Summary

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

Targets

1. Seeding is prevented at known infested land outside the PortHills/Lyttleton Zone annually.
2. Within the Port Hills/Lyttleton 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 PH/L Zone to prevent spread.
3. Land at high risk of immediate spread is searched annually.
4. An annual report on population trends is completed by 30 June.

What was achieved in 2018-19

- ✓ **Achieved:** 20% infested land inspected and boneseed eliminated.
- ✓ **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 2019.

Summary of work

All known sites inspected, and control undertaken outside the Boneseed Containment Area with exception of residential and inaccessible sites at Kaikōura and Gore Bay. Amberley township and coastal residential areas from the Waimakariri River mouth to the South Brighton Spit were not inspected this year. Areas not inspected this year will be subject to control in 2019-20.

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

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

Broom: Common, Montpellier, Spanish, White

Programme Summary

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

Targets

1. Broom is controlled on property boundaries.
2. Land in the hill and high country is significantly clear of broom is 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 2018-19

- ✓ **Achieved:** All reports of broom on boundaries investigated.
- ✗ **Not Achieved:** 350 properties were inspected.
- ✓ **Achieved:** A report on inspection outcomes has been completed by 30 June 2019.

Summary of work

All reports of broom on boundaries were investigated. 297 inspections were carried out on 265 properties in conjunction with gorse. Inspections numbers can fluctuate from year to year due to their 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. This included 158 initial inspections, 94 2nd inspections and 45 instances where 3 or more inspections were required to bring about compliance with CRPMP rules. 179 (60% 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. The broom programme is currently being reviewed. 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**

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.

Bur Daisy

Programme Summary

Bur daisy occurs at 15 sites over 3,500 hectares in the Canterbury region. Bur daisy is declared a pest in the CRPMP Sustained Control Programme. Eliminating bur daisy plants prior to seeding will reduce the number of plants and the seed bank over time.

Targets

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

Outputs

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

What was achieved in 2018-19

- ✓ **Achieved:** Education and awareness undertaken.
- ✓ **Achieved:** All known sites were inspected several times throughout the year.
- ✗ **Not 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

34 sites over 235 hectares were inspected, and plants controlled. 300 plants were controlled by hand and in addition aerial application of herbicide over a 2.9-hectare area was undertaken. High risk land at Sumner and Godley Head was searched. Live plants observed at one known site at Sumner seeded as this site was unable to be accessed and controlled due to earthquake damage precautions still being in place. The earthquake affected area is being contained. Sheep are the primary mover of bur daisy seed and this area is not grazed. Discussions are ongoing with the landowner about future access to this site, which is not possible at present due to health and safety issues.

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

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.

Chilean Needle Grass

Programme Summary

Chilean needle grass occurs at 6 locations on 23 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.

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 2 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 2018-19

- ✓ **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

Awareness: media releases, shows, displays, public meetings, one on one, and a new pamphlet. 23 sites over 330 ha (including 3 new) inspected. Chilean needle grass controlled at all sites. Search of land adjacent to all sites undertaken. All reports of potential Chilean needle grass responded to either via email (photo), identification in person, and/or field inspection. All properties with a significant infestation have a containment programme in place.

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

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

Coltsfoot

Programme Summary

Coltsfoot occurs at 2 locations and 27 sites in Canterbury over approximately 1,100 hectares. Containing and reducing existing infestations is essential in preventing further spread to protect natural biodiversity values.

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 5 years is 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 2018-19

- ✓ **Achieved:** Coltsfoot was contained to existing areas of infestation.
- ✓ **Achieved:** Reports of occurrence followed up.
- ✓ **Achieved:** Annual report completed.

Summary of work

3 known locations in Canterbury, on Crown land in the Arthur's Pass and Rakaia catchments and in the Eyre River west of Oxford. No inspection or control occurred this year in Arthur's Pass/Rakaia. Environment Canterbury staff plan to meet with Department of Conservation to establish a collaborative partnership for future control for this area. Environment Canterbury has previously taken responsibility for all control at this expansive site (>1100 ha) with >\$500k spent over >20 years. In the Eyre Riverbed 18 plants were controlled at inspection of known areas. The 2019–20 work programme will concentrate on inspecting and controlling active sites in the Arthurs Pass/Rakaia catchments.

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

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.

Darwin's Barberry

Programme Summary

Darwin's barberry is widespread in the Canterbury Region, occurring at >250 known sites in Canterbury over 2500 hectares. Working in partnership with land occupiers, agencies and District Councils to contain the incidence of Darwin's barberry where it can impact on natural biodiversity.

Targets

1. Seeding is prevented or reduced.
2. High risk sites are searched.

Outputs

1. All known Darwin's barberry sites are subject to a control programme and plants found are eliminated.
2. Land that is highly susceptible to infestation from Darwin's barberry is searched.
3. A report on trends in incidence of Darwin's barberry is completed by 30 June annually.

What was achieved in 2018-19

- ✗ **Not Achieved:** Darwin's barberry controlled at all sites.
- ✗ **Not Achieved:** Susceptible land in the vicinity of targeted sites is searched.
- ✓ **Achieved:** Annual report completed.

Summary of work

Control of Darwin's barberry was undertaken at 1 site near Christchurch which has some significant biodiversity values (rare plant species). 3 historic sites that have been checked in the 2018-19. An assessment of all Darwin's barberry sites will occur in 2019-20 to ensure priority work at sites which protect biodiversity values is undertaken. Assessment is underway with priorities and partnerships with other agencies and landowners being sought and considered.

- ✗ **Programme changes being considered to progress towards CRPMP objective/s.**

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.

Feral Rabbit

Programme Summary

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

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 rabbit is completed by 30 June annually.

What was achieved in 2018-19

- ✓ **Achieved:** Rabbit reports were investigated.
- ✓ **Achieved:** High prone rabbit properties were inspected.
- ✓ **Achieved:** One report completed.

Summary of work

14 properties were inspected for compliance for CRPMP rules in 2018-19, mainly due to complaints from adjoining land occupiers. Environment Canterbury did not undertake an organised compliance inspection programme in 2018–19 while the impact of a new strain of the rabbit haemorrhagic disease virus was assessed. Spring 2018 monitoring indicated rabbit levels have increased in eight of the regions eleven areas from the previous year - Mackenzie, Omarama, Kurow, South Canterbury, Selwyn, Banks Peninsula, Ashley and Waikari. Leaving 3 areas where reductions in mean rabbit levels occurred, Ashburton, Amuri and Kaikōura. Mackenzie and Omarama areas experienced strong rabbit increases between the last two monitors, this occurred despite the strategic release of the new RHDv1 K5 virus at over 70 locations within these districts. The new virus failed to take hold in the rabbit populations and did not cause widespread disease epidemics (very few RHDv1 K5 rabbit carcasses were found).

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

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.

Gorse

Programme Summary

Gorse occurs throughout Canterbury. The CRPMP emphasis for broom 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, remains clear of gorse.

Targets

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

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 2018-19

Outcome:

- ✓ **Achieved:** All reports of gorse on boundaries investigated.
- ✗ **Not Achieved:** 350 properties were inspected.
- ✓ **Achieved:** A report on inspection outcomes has been completed by 30 June 2019.

Summary of work

All reports of gorse on boundaries were investigated. 297 inspections were carried out on 265 properties in conjunction with broom. Inspections numbers can fluctuate from year to year due to their 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. This included 158 initial inspections, 94 2nd inspections and 45 instances where 3 or more inspections were required to bring about compliance with CRPMP rules. 179 (60% 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. The gorse programme is currently being reviewed. Thought is being given to a more targeted approach and the possibility of a property grading system to support this

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.

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

Nassella Tussock

Programme Summary

Nassella tussock occurs throughout Canterbury with >1450 properties with 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 Nassella tussock on their land to prevent spread and ensure population levels do not increase. A significant area of Canterbury remains susceptible to Nassella tussock. Searching to detect new infestations will be carried out annually.

Targets

1. An inspection programme to ensure Nassella tussock is being managed occurs.
2. Highly prone land 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 to 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 2018-19

- ✓ **Achieved:** Education and awareness undertaken.
- ✗ **Not Achieved:** 40% (560) of known properties inspected.
- ✗ **Not Achieved:** 10% of highly susceptible land searched.
- ✓ **Achieved:** A population trend report is completed.

Summary of work

Nassella tussock has occurred on 1,400 properties in Canterbury. 1,350 have had a recent (within 10 years) occurrence. Of 560 (40%) target of properties to be inspected, 424 properties were inspected (31.4%). This was due to a move to more thorough inspections on targeted properties (which meant more time spent on quality inspections but fewer overall inspections) to either ensure Nassella tussock was controlled or to establish presence or absence. 46 properties required further work to bring about compliance CRPMP rules. Annual population trend monitoring estimates the density of plants remaining after annual control efforts on 746 land occupier control properties in the Hurunui District at 11.8 plants/hectare. This equates to 3.7 million plants. 92.6% of plants are estimated to have seeded (+/- 8.5 billion seeds). Of these, 152 medium to high density properties, densities are estimated at an average of 24.5 plants/hectare and 97.4% seeding (+/- 7.3 billion seeds) and up to 38 plants/hectare and up to 100% seeded on the highest density properties. The remainder of Canterbury's 492 properties had an estimated average of 4.3 plants/hectare remaining of which 94.5% are estimated to have seeded. A significant amount of the expenditure (>10%) was spent on consultancy to assist with improvements to Environment Canterbury's programme. Further resources were spent on investigating improvements in implementing the Nassella tussock programmes (Aronga Whanoke). This should result in a more effective programme in future and attainment of CRPMP objectives.

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

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.

Old Man's Beard

Programme Summary

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

Targets

1. Areas of high natural biodiversity is 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 2018-19

- ✓ **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

Work to control old man's beard at sites which threaten biodiversity values this year has made good progress to reduce this threat. Sites controlled often in partnership with Crown agencies, KiwiRail, community members, individuals and industry. Sites included the Oaro, Puhi Puhi, Conway, Ashley Gorge, Stackhouse Road, Oaro, Cascade Road, Purau, Western Valley and a community driven project in Governors Bay.

In addition, biosecurity staff have been acting on complaints from neighbours where old man's beard impacts on adjoining biodiversity values. As a result, 44 properties were inspected.

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

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.

Purple Loosestrife

Programme Summary

Purple loosestrife occurs sporadically throughout Canterbury. The CRPMP emphasis for purple loosestrife in the Sustained Control Programme is to eliminate all plants annually in partnership with land occupiers and other agencies 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.

Targets

1. Contain purple loosestrife by preventing seeding.
2. Purple loosestrife is eliminated wherever 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 2018-19

- ✓ **Achieved:** Education and awareness undertaken.
- ✓ **Achieved:** Sites of ECan responsibility inspected.
- ✓ **Achieved:** All plants found on inspection were eliminated.
- ✓ **Achieved:** An annual report was completed.

Summary of work

53 sites were searched and controlled, this was on a priority approach with wet sites (e.g. Ponds, streams, drains etc) searched before dry sites, due to the potential for plants to spread. Contractor completed some search and control along an ECan drain from Cossars Road to McCartneys Road, this drain feeds into the Halswell River and eventually Lake Te Waihora (Ellesmere). Further search along the Prices Valley drain where plants were controlled.

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

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.

Saffron Thistle

Programme Summary

Saffron thistle occurs at isolated sites 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.

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 is 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 2018-19

- ✓ **Achieved:** Education and awareness undertaken.
- ✓ **Achieved:** ECan responsibility inspected.
- ✓ **Achieved:** Active sites all plants eliminated annually.
- ✓ **Achieved:** An annual report.

Summary of work

13 sites where saffron thistle occurs over 378 hectares were inspected, and all plants were eliminated. Any seed was removed for disposal prior to release.

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

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.

Wild Russell Lupin

Programme Summary

Wild russell lupin is known to occur in several high-country catchments the Canterbury Region. Initially the priority for this programme will be 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.

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 2018-19

- ✓ **Achieved:** Education and awareness undertaken.
- ✓ **Achieved:** Distribution information was obtained.
- ✓ **Achieved:** Planning undertaken to control wild russell lupin at Ohau.
- ✓ **Not applicable:** Monitoring of controlled sites.

Summary of work

Prior to any inspection work to ensure boundary rules are adhered to on Wild russell lupin Environment Canterbury is working with other partners, both internal (biodiversity teams) and external (Department of Conservation, District Councils and Land Information New Zealand) to establish the plants full extent and occurrence in the Canterbury Region. Control at priority sites will occur once extent is established.

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.

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

5. Site-led Programme

Programme Summary

Sites to be managed under the site-led programmes may range in extent 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 will be necessary.

Common name

Banana passionfruit*

Broom
- common
- Montpellier
- Spanish
- white

Cathedral bells
Feral goats
Gorse
Lagarosiphon*
Old man's beard*
Possum
Spartina

White-edged nightshade*
Wild Thyme

Scientific name

Passiflora tripartita var *mollissima*
P. tripartita var *azuayansis*
P. tarminiana
P. pinnatistipula
Passiflora x *rosea*
P. caerulea

Cytisus scoparius
Teline monspessulana
Spartium junceum
Cytisus multiflorus

Cobaea scandens
Capra aegagrus hircus
Ulex europaeus
Lagarosiphon major
Clematis vitalba
Trichosurus vulpecula
Spartina alterniflora,
S. anglica,
S. gracilis,
S. maritime,
S. × townsendii
Solanum marginatum
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%

Targets

1. Sites identified within the site led programme of the CRPMP.
2. Identify other organisms which may threaten site led initiatives.

Outputs

1. Inspect sites identified in the CRPMP as site-led initiatives.
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 2018-19

- ✓ **Achieved:** Inspection of sites.
- ✓ **Achieved:** Work by land occupiers facilitated.
- ✓ **Achieved:** Contribute to control programmes.
- ✓ **Achieved:** An annual report.

Summary of work

Banana Passionfruit: 2 sites in the programme. Control undertaken at Kelseys Bush, however a delimiting survey at this site is needed before continuing with further control or facilitating a partnership with land occupiers, in order to achieve the goals, set out by the CRPMP as the banana passionfruit is thought to be much wider in distribution in the area. A delimiting survey carried out at Gore Bay/Port Robinson/Manuka Bay has found Banana Passionfruit far more widespread than originally thought. - draft report submitted.

Cathedral bells: There are 3 sites north of Kaikōura. No control work was undertaken in the 2018-19 year due to the late withdrawal of a contractor and the unavailability of another appropriate contractor at the desired time of control.

Broom/Gorse: Work was also undertaken at of the 4 sites by biodiversity staff, which were Rangitata, Rakaia, and Hakataramea catchments. An aerial inspection of the Ohau site led area for gorse/broom has been undertaken in preparation for control in 2019-20.

Feral Goats: Biosecurity staff have visited properties in the Purau area on Banks Peninsula, which is to be subject a feral goat control programme in 2019-20. 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. A media release, fencing guide and letter to people who farm or have feral goats has been prepared for release in 2019-20. Feral goat control and asking people to report sightings of feral goats was highlighted at a display at the Little River Agricultural and Pastoral Show.

CRPMP Objective 20

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.

Lagarosiphon: Inspection of the pond at Buscot Station (Omarama) shows Lagarosiphon not present this season after successful Endatholl applications. To continue to eradicate Lagarosiphon out of the outlet drain to Willowburn Stream.

Old Man's beard: Old man's beard is identified in the CRPMP at 12 sites which threaten biodiversity values. Work to control Old man's beard at sites has been undertaken by either ECan staff, contractors or in partnership at 10 sites in 2018-19 including Oaro, Puhu Puhu, Conway, Ashley Gorge, Stackhouse Road, Oaro, Cascade Road, Purau, Western Valley and Governors Bay.

Possum: Possums were controlled over approximately 33% (33000 hectares) of Banks Peninsula within 5 designated control areas on the southern side of Banks Peninsula. Control work within this programme is designed only to kill as many possums as possible with the resources available. In addition, a small performance area where possums are controlled to a specified level was completed. Christchurch City Council and Department of Conservation work in unison with the site-led possum programme by targeting areas on their own land within the site led possum area.

Spartina: Spartina was found at 78 locations within the 3 site areas with 152 plants controlled in 2017-18. All known sites (Brooklands Lagoon, Avon Heathcote Estuary and Lyttleton harbour) inspected, areas of high risk searched, and plants found controlled. Follow-up searching by K9 and subsequent follow-up control undertaken. In 2018-19, inspections of known sites found 88 plants initially. Follow-up inspections found up to 51 plants, some of which may have already been controlled but were not showing desiccation and Spartina plants were found at 7 new locations within the 3 known site areas. 1440.8ha were searched with Spartina found over 112m² which is a reduction of 47m² compared to 2017-18. This programme has a strong partnership with Christchurch City Council and Department of Conservation.

White edge nightshade: White edge nightshade is now known to occur across 350 hectares (previously 260 hectares 2017-18). Search and control occurred across the known site with all plants found controlled prior to seeding. With an emphasis on public engagement, large reusable signs were erected on entry and exit of Little Akaloa. In 1 area soil disturbance as a result of a new fence line caused the germination of hundreds of plants. Feral goats were previously consuming seed pods of plants which had missed control operations and potentially helping to distribute seeds. However, with the removal of goats and a tightened and more timely control programme within the site this will result in reduced spread and a reduction in outlier plants. Decanter Bay has had a significant reduction in plants.

Wild thyme: Wild thyme occurs at 9 sites over 70 hectares in Canterbury. All known sites were inspected, and plants controlled. 480 plants were controlled in total at 3 sites (Whiteroc quarry, Irishmans Creek, Forest Creek). Search work was undertaken along Karetu River flats, no wild thyme found. Search of high-risk land around known sites was also undertaken.

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.

✓ **Progressing towards achieving CRPMP objective**

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