7.31 Saffron thistle (*Carthamus lanatus*)

Why is it a threat?

Saffron thistle is an erect annual herb, which originates from Europe and Asia. It has woody stems, prominent spines and small yellow flower heads. It can form impenetrable strands if left uncontrolled and has the potential to devalue fibre, injure stock and interfere with cereal harvesting.

Reasons for proposing a Plan (individually)

Saffron thistle has long been recognised as a highly invasive pastoral weed that thrives in Marlborough's warm dry climate. Localised infestations exist throughout New Zealand where it is, in most parts, under intensive management by authorities.

Historically, infestations in Marlborough have been found across the district and recorded on 21 separate properties. In 2016, there are only 10 properties under intensive management with the other 11 under a longer term surveillance programme. Unfortunately, saffron thistle had a very long-lived seedbank and flare-ups have occurred where for suspected climatic reasons, the seed can strike and plants attempt to re-establish.

Why the Plan is more appropriate than relying on voluntary actions

With a limited number of sites, the management of this species needs to be both strategic and intensive to ensure the long-lived seed is not allowed to be produced and enter the seedbank at a given site. Because of this, it is more appropriate to be managed through a structured programme of delivery enabled by a Plan rather than relying on voluntary actions.

7.31.1 Objective

Over the duration of the Plan, control saffron thistle (*Carthamus lanatus*) in the Marlborough district to less than or equal to 2016 levels to minimise adverse effects on economic wellbeing, the environment and enjoyment of the natural environment.

Intermediate Outcome:

Exclusion	Eradication	Progressive Containment	**Sustained Control**	Site-led

Principle measures to achieve the objective

1) Council Inspection and Service Delivery

Inspection by Council may include staff or contractors:

a) Delivering a service to manage saffron thistle in liaison with the occupier.

b) Visiting properties or doing surveys to determine whether pests are present.

c) Monitoring effectiveness of control.

d) Carry out control using administrative powers of the Biosecurity Act 1993, if necessary.

2) Requirement to Act

Land owners and/or occupiers or other persons may be required to act where rules or statutory obligations dictate:

a) The presence of pests is to be reported.

b) Pests are not to be spread (propagated, sold or distributed).

3) Advocacy and Education

Council may:

a) Provide general purpose education, advice, awareness and publicity activities to land owners and/or occupiers and the public about pests and pathways (and control of them).

b) Encourage land owners and/or occupiers to control pests.

c) Promote industry requirements and best practice to contractors and land owners and/or occupiers.

d) Encourage land owners and/or occupiers and other persons to report any pests they find.

e) Facilitate or commission research.

7.31.2 Rules

Rule 7.31.2.1

Occupiers are required to notify Council of any new infestation of saffron thistle (*Carthamus lanatus*) on land that they occupy within 5 working days of the initial observation.

A breach of this rule will create an offence under section 154N(19) of the Biosecurity Act.

Note: Current distribution data is able to be viewed online via Council's Smart Maps service.

Explanation of the rule:

The purpose of this rule is for occupiers to assist Council with surveillance. Requiring occupiers to notify Council of new sites and plants on their properties in addition to Council's own surveillance will assist Council in achieving the objective of the programme. New infestations will be able to be controlled and incorporated into the programme.

Notifying the Council of the presence of the specified pest will enable the Council to:

- Update its records.
- Map new sites of this pest.
- Carry out control work before they spread.
- Determine whether new control regimes should be considered.
- Provide advice and information to occupiers where appropriate.

Council as the management agency will administer the rule.

7.31.3 Analysis of the benefits and costs for saffron thistle

Background

Saffron thistle became a Total Control pest plant in the Regional Pest Management Strategy for Marlborough in 1996. Prior to 1996 it was managed under the Noxious Plants Act. There were several infestations at the time in the Wairau Valley, the Awatere Valley and one site in the Marlborough Sounds.

These infestations have been controlled annually. Some sites were visited up to three times between January and April. In the earlier years all plants were grubbed and the seed heads removed for destruction. Since 2011, instead of grubbing, plants have been sprayed with a residual herbicide in attempt to exhaust any seedbank in the soil.

Current situation in 2017

There are eight active sites in Marlborough and a further two under monitoring (where no plants have been found in recent years). One of the active sites is a result of a recent 'flare-up' of a where no plants had been found for a number of years prior.

With saffron thistle having such a long-lived seed, ongoing monitoring of sites and surveillance of historical sites will be crucial to ensure no 'flare-ups' occur. This is where good data collection and analysis ensures all sites are managed accordingly.

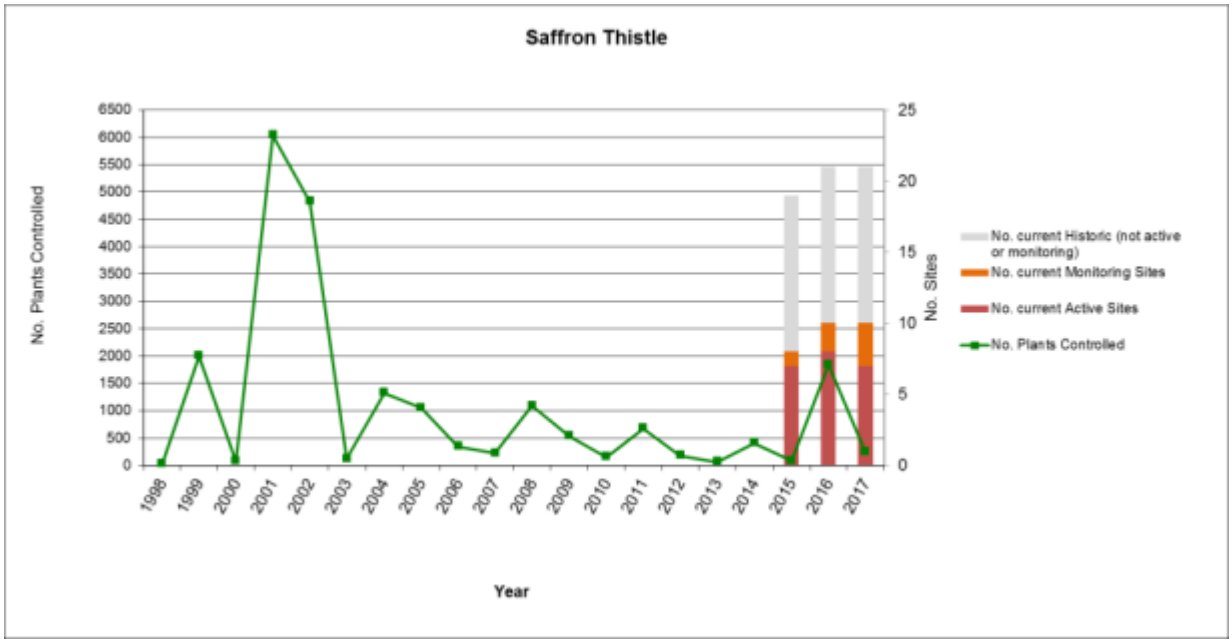

Figure 20: The trend in infestation levels of saffron thistle in Marlborough

Options to respond to saffron thistle

Baseline: No RPMP

In this scenario no control of saffron thistle is undertaken, and the plant spreads throughout the region.

Control option(s):

1. **Eradication Programme**: In which the intermediate outcome for the programme is to reduce the infestation level of the subject to zero levels in an area in the short to medium term.
2. **Sustained Control Programme**: In which the intermediate outcome for the programme is to provide for ongoing control of the subject, to reduce its impacts on values and spread to other properties.

Level of analysis for saffron thistle

Council has determined that a low level of analysis be undertaken for saffron thistle. The justification for this decision is documented in the supporting information document to this Proposal. That document also contains information about the risks that the objectives will not be reached.

Impacts

Saffron thistle is an erect annual herb, which originates from Europe and Asia. It has woody stems, prominent spines and small yellow flower heads. It can form impenetrable strands if left uncontrolled and has the potential to devalue fibre, injure stock and interfere with cereal harvesting.

Identify impact	Quantify impact
Diminished pasture and livestock production	It is estimated that saffron thistle will infest up to 10% of more intensive pastoral land uses (LUC[55] Classes I, II and III), and 5% of pastoral hill/high country land (Classes IV, V and VI). Modelling of this scenario assumed spread characteristics of between 50 and 200 metres for mature plants, and between 5 and 10 years to reach its maximum density at a site in an uncontrolled situation.
Degradation of areas where people recreate due to the very coarse and sharp/spiky nature of the plants	Marlborough has large recreational areas that would also be ideal habitat for saffron thistle to establish. Such areas include the Wither Hills Farm Park and the Taylor River Reserve.

The extent to which any persons are likely to benefit from the Plan and the extent to which any persons contribute to the creation, continuance or exacerbation of the problem

	Beneficiaries		Exacerbators	
Grouping	Major	Minor	Major	Minor
1	Regional community	Occupiers of susceptible land		
2	Occupiers of susceptible land		Occupiers with the pest present	
3	Occupiers of susceptible land	Regional community	Occupiers with the pest present	
4	Regional community			Occupiers with the pest present

Benefits of each option

Benefit	Option		
	No RPMP	Eradication	Sustained Control
The prevention of saffron thistle building in density or infesting new areas and the resulting impact of that on pastoral productivity.	No programme cost	The benefit under an Eradication Programme will increase to an end point when the objective is able to be achieved.	The benefit under a Sustained Control Programme will remain constant throughout the life of the Plan, with no end point.

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Costs of each option

Programme Costs	Option		
	No RPMP Annual cost (excl GST)	**Eradication** Annual cost (excl GST)	**Sustained Control** Annual cost (excl GST)
Council costs • Control • Surveillance • Administration • Education/awareness	-	$100,000+	$23,000
Land occupier costs	-	-	-
Total	**-**	**$100,000+**	**$23,000**
Costs of effects on values	**Low, but increases exponentially over time**	**Insignificant**	**Insignificant**

Proposed allocation of costs

The proposed programme costs are to be 100% Council costs, allocated across the various rating districts used in Marlborough under the Local Government (Rating) Act 2002. For further detail, see sections 11.3 and 11.4.

Rationale for the allocation of costs

For this detail, see sections 11.3 and 11.4.

Assumptions on which the impacts, benefits and costs are based

That under a No RPMP scenario, voluntary control will not cause any reduction in the future spread and/or impact over time.

Risk that each option will not achieve the objective

The supporting information document to this Proposal contains further information to support this analysis. A summary is outlined below.

	Option		
	No RPMP	Eradication	Sustained Control
Level of Risk	N/A	High	Low
Reason		The level of risk of not achieving an eradication objective, within 10 years or even at a longer time scale, is very high.	There is a lower level of risk that Council will be able to maintain a very low density of saffron thistle in Marlborough. With a robust system in place, and with saffron thistle continuing to be of limited distribution, the number of plants controlled continues to decline. However, based on the number of active sites and the volume of plants still being controlled each year, it is proposed to manage saffron thistle under a Sustained Control Programme.

Mitigation options

No mitigation options are assessed as being available to adjust the level of risk of options not achieving the objective.

Most preferred option

Sustained Control Programme