

An application to introduce two moths, *Wheeleria spilodactylus* and *Chamaesphecia mysiniiformis*, as biological control agents for the weed horehound (*Marrubium vulgare*).

Responses to pre-application consultation with Regional Councils and other stakeholders

Regional Councils

Doug Foster, Land Management/biosecurity Manager, NRC

Horehound is not a weed issue in Northland that I have come across. It seems to be out competed by almost everything in our climate.

There could well be some growing of the occasional plants for herbal medicinal reasons but I am unaware of any commercial growing of it.

Horehound is not in the Northland Regional Pest and Marine Pathway Plan 2017 – 2027

Craig Davey Natural Resources and Partnerships Coordinator, Horizons Regional Council

1. What is the current status of horehound in your region?
No status.
2. Does horehound affect environmental values in your region?
None we have measured or heard of. I do not know it as a transforming pest plant within our high value habitats.
3. What control or containment measures are undertaken by the council or TAs, and what is the cost of that management?
We do not undertake any form of control operations against it and it is not known as a targeted pest plant by road sprayers or other TLA reserve managers.
4. Outside of councils, how does horehound adversely affect stakeholders in your region, either through production losses or management costs?
 - a. We have not logged any enquires through our front desk for horehound and the properties we know it to exist on are found by chance not enquiry.
 - b. What is the nature and value of that effect? Probably very minimal, though theres every possibility that given it is found in sizeable patches it may just be below a threshold of concern where someones going to ask for help. I imagine it's a long way from that threshold as theres many farms covered in stinking mayweed but we never get asked about that either.
5. Is horehound actively valued by any group in your region? No.

Darin Underhill, Hawkes Bay Regional Council

1. What is the current status of horehound in your region?
It is present in Hawke's Bay – mainly on dry knobs and hillsides
2. Does horehound affect environmental values in your region?
No
3. What control or containment measures are undertaken by the council or TAs, and what is the cost of that management?
None by any Councils in Hawke's Bay

4. Outside of councils, how does horehound adversely affect stakeholders in your region, either through production losses or management costs? What is the nature and value of that effect?

Horehound affects some farmers by taking up pasture space, thereby affecting economics. This is not huge, but some farmers do spray it. This is very hard to quantify but possibly \$10,000 is spent by farmers controlling it chemically. Lost pasture might be in the vicinity of \$20,000. These are both guesses.

5. Is horehound actively valued by any group in your region?
Not to my knowledge

Christie Carswell, Biosecurity Officer – Pest Plants, Greater Wellington Regional Council

1. What is the current status of horehound in your region?

It seems to be wide spread in the southern parts of the Wairarapa although only scattered. We have never had any complaints or enquires about the plant.

2. Does horehound affect environmental values in your region?

Not that I'm aware of. We do not treat the plant in any of our Key Native ecosystem areas, presumably because it's not present.

3. What control or containment measures are undertaken by the council or TAs, and what is the cost of that management?

None

4. Outside of councils, how does horehound adversely affect stakeholders in your region, either through production losses or management costs? What is the nature and value of that effect?

Unsure, I've never heard of anyone controlling it in our region.

5. Is horehound actively valued by any group in your region?

Not to our knowledge

Sorry we don't seem to have a lot of information for you on horehound. Feel free to ask any questions and I'll do my best to find the answer.

Shane Hona, Biosecurity Officer, Bay of Plenty Regional Council Toi Moana

RARE PLANT WE ONLY KNOW OF 2 SITES OF IT IN THE WHOLE BAY OF PLENTY REGION.

HOURHOUND IS NOT LISTED IN OUR REGIONAL PEST MANAGEMENT PLAN.

DOESN'T APPEAR TO (AFFECT ENVIRONMENTAL VALUES)

NOTHING DONE (BY COUNCIL) SO NO COSTS

NOT AWARE OF ANY NEGATIVE IMPACTS TO STAKEHOLDERS

NOT AWARE OF THIS. DUE TO LIMITED DISTRIBUTION IN OUR REGION I WOULD DOUBT THAT IT IS ACTIVELY VALUED BY ANYONE IN OUR REGION.

Other stakeholders

Other comments from stakeholders concerning this proposal can be found in Appendix 2, Groenteman et al., 2017) and Groenteman (2018).

Gavin Loxton, Sawdon Station

Could you add animal welfare to your list of possible effects please, as sheep covered in horehound seed experience poor growth rates. Also there is adverse effects from forced consumption of horehound with tainted meat and liver problems. More commonly sheep are remove from high density areas and the land is removed from grazing.

I do not intended to measure these effects but we could present some literature on alkaloids and there effects from excessive exposure on animals if you believe it is important.

Also horehound is found on the conservation estate in significant amounts. But it is unlikely to be spreading as fast as it is in farming situation.

.....HCM is limited to the very dry, high temp areas, probably the tops of hills in Otago. Unlikely sites to be collecting plant material by herbalists. It may be present in other areas, but less likely to cause high mortality rates.

.....In Australia we visited a horse paddock which was full of horehound and HPM was present. The horses eat the tips of the horehound therefore preventing the HPM from over-wintering. This would make a good biocontrol against the HPM for the herbalists. ... You could also use chickens as they do in Europe. HPM was being used to keep chickens free from worms (alkaloids in the larvae) they intentionally plant horehound around chicken coops. I have no evidence of this only remember it from one of the many articles I have read.