

RESPONSE TO REQUEST FOR GENERAL CONSULTATION ON APP202262 (2014)

A range of organisations were contacted and asked if they wished to comment on the proposal to introduce the privet lace bug, *Leptophya hospita*, as a biological control agent for privets. Responses were received from a range of sources:

- Department of Conservation
- Environmental organisations and the general public
- Non-governmental organisations
- Primary production organisations
- Regional and Unitary Councils and Territorial Authorities

DEPARTMENT OF CONSERVATION

David Havell, Technical Advisor (Threats), Department of Conservation

There are at least 9 species of privet in New Zealand, (<http://www.virtualherbarium.org.nz>). DOC records indicate that at least 5 species of privet occur on public conservation land: Chinese privet, *Ligustrum sinense*; Tree privet, *Ligustrum lucidum*; Common privet, *Ligustrum vulgare*; Japanese privet *Ligustrum japonicum*; and privet, *Ligustrum ovalifolium* (DOC national plant database 2014). Tree privet has the highest DOC weediness score of the privets, (32) which is higher than either pampas (28), pines (26 to 30), and moth plant(31). Chinese privet has a weediness score of 25, which is similar to black wattle. The other privets have relative low weediness scores, (23) or have not been assessed. Privets occur extensively over the landscape of lowland Waikato, bay of Plenty, Auckland and Northland, and are common along transport corridors, disturbed sites, along bush edges and in disturbed lowland forest. Privets can occur either as thickets, hedges, tall trees or as under-storey trees, (personal observation).

The National Biocontrol Collective and Landcare Research – Manaaki Whenua propose to introduce a privet biocontrol agent, Privet lace bug, *Leptophya hospita* which feeds on privet species in its native range and causes damage to leaves and young shoots. Japanese privet which is not common in New Zealand did not appear to be a suitable host, while the more common Chinese Privet is a suitable host. There is no data on whether tree privet is host for privet lace bug.

<http://www.bioone.org/doi/full/10.1603/AN11042>.

<http://www.sciencedirect.com/science/article/pii/S1049964412002666>

While lace bugs are regarded as host specific they sometimes feed on genera closely related to their primary host, for example *Leptophya mutica* (*Leptoypha mutica*) feeds on Fraxinus, Ligustrum, and Syringa hosts. Lacebugs are pests on plants such as roses, olives, avocado, and rhododendrons, and damage plants by killing leaves and spreading plant diseases, thus an introduced lace bug biocontrol agent may pose some risk to New Zealand plants which are related to privets. The closest relatives of privets in New Zealand are the New Zealand species of Nestegis: *Nestegis apetala* (coastal maire); *Nestegis cunninghamii* (black maire); *Nestegis lanceolata*, (white maire); and *Nestegis montana* (mountain maire). Coastal maire is classified as natural uncommon in the New Zealand threat ranking system, the other species are regarded as common. However Nestegis species have a patchy distribution limited to the North Island and coastal Marlborough and Nelson. Coastal maire is restricted to northern North Island islands and parts of Northland. Nestegis species rarely dominate forest patches and usually occur as scattered individuals within older forests, (personal observation). A survey of 1381 randomly selected NVS sites, found less than 3% of NVS sites contained any Nestegis species and that included just two Nestegis species.

<http://newzealandecology.org/nzje/2918.pdf>

Privet lace bug, (*Leptophyla hospita*) was found by Landcare Research staff to feed on the leaves of Nestegis species especially *Nestegis apetala*, (coastal maire), but *Leptophyla hospita* did not lay eggs or develop to maturity on Nestegis leaves in laboratory trials.

http://www.landcareresearch.co.nz/_data/assets/pdf_file/0006/77658/Host_range_testing_Leptophyla_hospita_v3.pdf

Thus the risk to Nestegis from privet lace bug is likely to be relatively minor and restricted to occasional leaf damage where Nestegis comes in contact with privet lace bug from privet species or other hosts of the privet lace bug such as Syringa or Fraxinus. Spread of Privet lace bug from privet to Nestegis is most likely to occur in high density privet areas such as the urban fringe and agricultural landscapes where privet patches and bush occur together such as in metropolitan bush fragments, bush margins and canopy gaps, such bush is likely to be relatively young secondary regeneration forest.

Contact between Privet lace bug and Coastal maire is unlikely to occur except on Great Barrier Island where privets are relatively uncommon and mostly found in village areas, and in parts of coastal Northland. Privet affected areas generally have little or no Nestegis species.

Distribution of Privets on the Public Conservation estate.

Privet species are known to occur in at least 30 national priority ecological management units and in 70 other areas within the public conservation estate such as reserves, national parks and

conservation stewardship areas. Privet locations are under reported and more areas of public conservation estate, especially margins and wetlands are likely to contain more privet species than are recorded

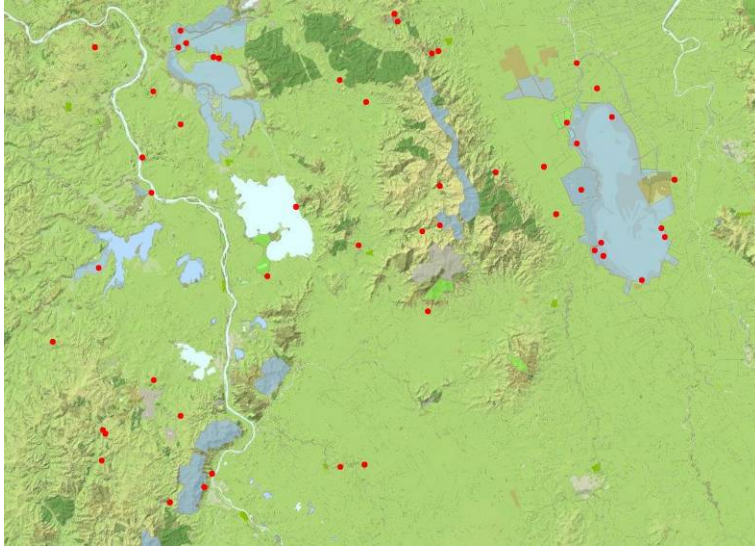


Figure 1. Privet locations within Public Conservation estate in the Waikato lakes region, privets occur in wetlands and margins of Conservation areas.

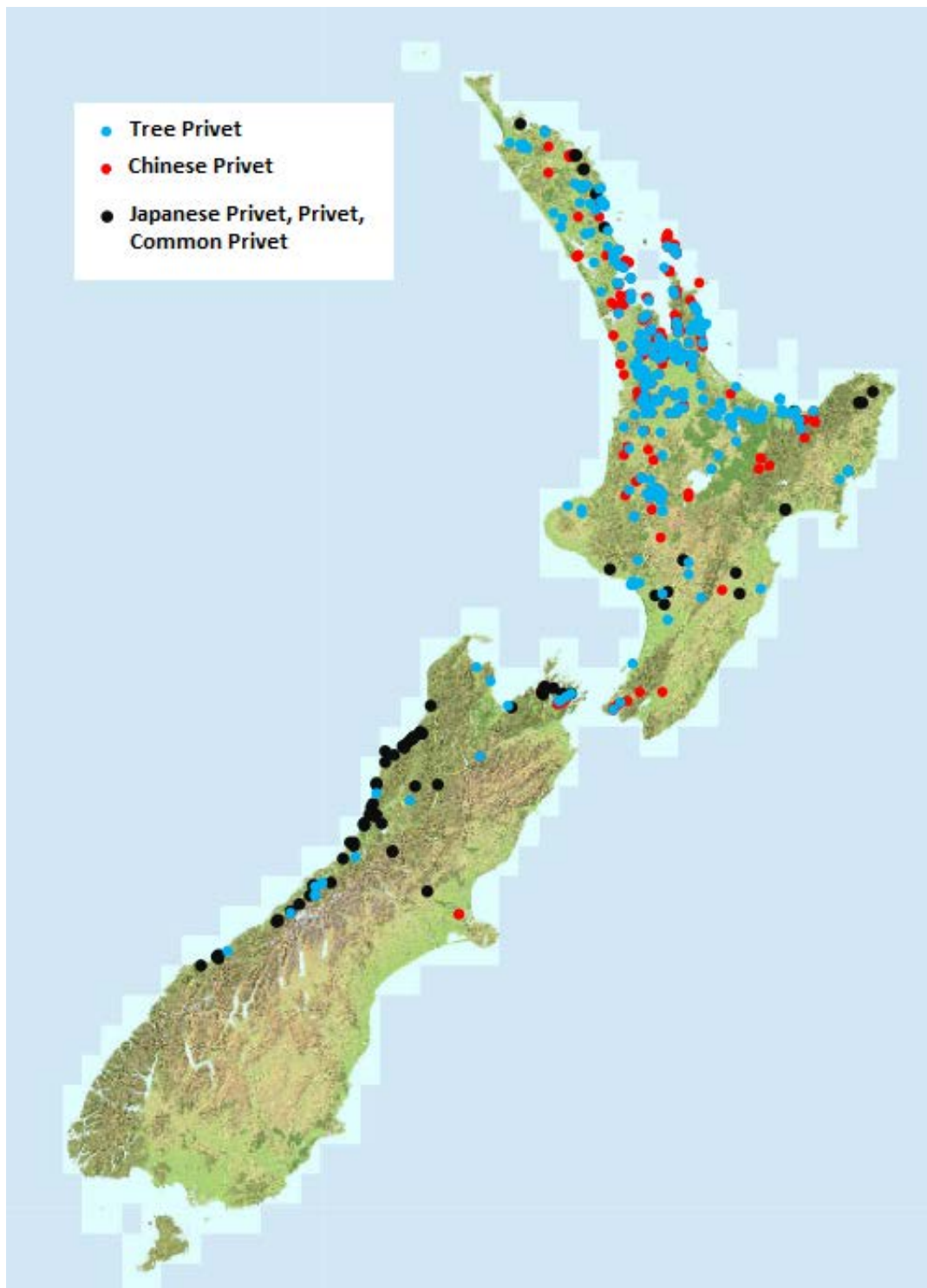


Figure 2. Privet species locations in New Zealand, DOC Bioweb records.

Environmental Impacts of Privet.

Chinese privet, *Ligustrum sinense* is known to reduce shrub biodiversity by forming dense thickets and repress natural regeneration,

http://cber.bio.waikato.ac.nz/PDFs/CBER_41_Chinese_privet_Grove_Clarkson.pdf.

<http://www.doc.govt.nz/Documents/getting-involved/in-your-community/community-conservation-projects/pukemokemoke-bush-reserve/pukemokemoke-fights-privet.pdf>

<http://www.te-ngahere.co.nz/projects.htm>

Observation of tree privet *Ligustrum lucidum* in the Auckland region indicate that it can form thickets, as well as a tall forest canopy estimated at over 15 metres high, with crowns over 14 metres across, over topping native canopy trees such as *Dysoxylum spectabile*, *Corynocarpus laevigatus* and *Melicytus ramiflorus* in edge habitats, (Figure Three). Native shrub growth under tree privet is also suppressed, Figure 4(a)



Figure 3. Tree privet overtopping Karaka, Auckland Domain, privet management site.



Figure 4 (a). Low shrub diversity area

under Tree Privet showing native and weed seedling development after privet pruning.

Figure 4 (b) Shrub regeneration following privet trunk removal

privet occurs in several sites where nationally critical threatened plants occur, such as *Pseudowintera insperata*, *Parahebe jovellandoides*, *Hebe* aff. *bishopiana*, as well as in sites of other threatened species such as *Pimelea tomentosa*, and *Picris burbridgeae*.

In Figure 5, the proximity of Chinese privet patches to threatened plants is shown.



Figure 5. Chinese Privet (small sky blue circles) in location to threatened and at risk plant species.

Patches of lowland native vegetation which are often under protected and nationally threatened are sites where privet species commonly occur. Privet locations in Figures 1 and 2 show that privets occurs in national biodiversity priority sites such as wetlands, sand dunes, and naturally uncommon ecosystems. Privet species are known to occur in restoration plantings where they sometimes overtop flax, shrubs and small trees used in restoration plantings, Figure 6. From personal observation Chinese privet seeds can disperse several kilometres into regenerating manuka bush from roadside privet patches, the closest mature privets to the privet in Figure 6 is at least 250 metres away.



Figure 6. Tree privet overtopping karamu in a 5 year old restoration planting. The tree privet appears to have grown faster than Karamu, and NZ flax.

Current Privet Management Methods.

Privet management methods include: (a) Cut and stump painting with herbicides such as metsulfuron, triclopyr, glyphosate, triclopyr – aminopyralid - picloram blends such as Tordon Brushkiller, and picloram aminopyralid gels such as Vigilant; (b) Foliar spraying with glyphosate, metsulfuron, or triclopyr; (c) trunk spraying, (basal spraying) with triclopyr ester mixed in oil, (d) frilling and pasting with Tordon Brush killer; (e) injecting trunks with metsulfuron, or Tordon Brushkiller; (f) Hand pulling, mulching or digging plants up, followed up with herbicide control of suckers.

Privets are hard to kill, some programmes initiated prior to 2002 are still active in 2014, though there have been island programmes which have achieved good outcomes. Management effectiveness is limited by ongoing fruit dispersal into management sites from uncontrolled privet patches elsewhere, and by new stems which sucker from roots and trunks, Figure 7.



Figure 7, Privet stems growing from an old stem which has either been cut too high from the ground or cut without herbicide treatment.

Cut and stump painting methods using water based formulations can be affected by high sap pressure, delayed applications of herbicide to the trunk, and stump cuts too high above the ground. Basal spraying can be affected by high temperatures, bark thickness, and insufficient spray on the trunks. Cut and stump painting and basal spraying require all trunks on a plant to be treated which can be difficult in large infestations and plants. Repeat chemical control may be required. The current chemical methods use non selective herbicides which can kill non target vegetation and seedlings, and in some situations herbicide damage to non target plants is unacceptable. Mechanical control is unlikely to be successful because privet species readily sucker. Privet control can also be unpleasant for staff because of physical reactions to privet and control agents.

Current DOC privet programs.

Privet species are formally managed in at least ten weed projects as part of site led management programmes. Privet species are too widely dispersed to be managed under weed led programmes with exception of remote sites such as Great Barrier Island where only a few privet locations occur.

In at least 3 programmes old privet sites are under ongoing regular surveillance to control suckering and seedling development. In all northern island sites ongoing surveillance to prevent privet establishment is required.

In three programmes where costs can be determined, the effort ranges from 5 hours per hectare to 16 hours per hectare, at a maximum cost of \$670 per hectare. Weed management programmes where privet species are managed as part of a complex of weed species vary from \$1000 per year to \$33,000 per year.

Addition programmes.

Tree privet is managed in the Auckland Domain by Te Ngahere at a cost of \$10,000 to \$20,000 per year.

Conclusions.

There is some risk of minor leaf damage to individual Nestegis plants where privet and Nestegis co – occur but given that Privet lace bug does not reproduce on Nestegis species, the risk to Nestegis from Privet lace bug is likely to be low. Because of the known adverse impact of privet on native vegetation including bush relics and sensitive sites such as wetlands, privet species should be controlled; but control is limited by the extent of the privet distribution in New Zealand, ongoing dispersal from unmanaged sites, and the sensitivity of non target species to herbicides used to control privet. Given the benefits to threatened plants and ecosystems from privet management the benefit of Privet Lace bug control is likely to outweigh any risk from the Privet Lace Bug.

ENVIRONMENTAL ORGANISATIONS AND THE GENERAL PUBLIC

Penny Jorgensen, Allergy Advisor, Allergy NZ

I circulated your queries re privet to members of our Medical Panel & the NZ Clinical Immunology and Allergy Group (NZCIAG). The replies are as per below. Essentially privet is not considered to be a significant allergen.

Dr Penny Fitzharris is the Clinical Director of the Clinical Immunology & Allergy Dept at Auckland City Hospital (ADHB); Dr Richard Steele is Clinical Director of the Immunology Dept at Wellington Hospital and current chair of NZCIAG; and Dr Vincent Crump is an Allergy Specialist in private practice.

Many thanks for your email. Below is the reply from our Medical Director:

I would be interested in the Foundation's comments on three things:

- Do you have a view whether privet itself is a significant cause of allergies

Anecdotally many asthma sufferers attribute worsening symptoms to privet exposure. To my knowledge it is not routinely tested for as part of allergic skin testing procedures so I am fairly sure there is no hard scientific data on this.

Do you have any facts or figures around the incidence of privet-related issues?

No

Could you tell me who in the Ministry of Health (or elsewhere) might be able to advise me further about the role of privet in the incidence of asthma and hayfever in NZ.

Not sure about the ministry, but suggest they approach a specialist immunologist for comment.

Warren Stace, Friends of Barratts bush

Privet is the main plant pest that "Friends of Barrett Bush" volunteers spend time attempting to control.

A calculation of hours spent on this task uses the following items.

- Number of days each year: 12 working parties. Say one a month.
- Number of volunteers each working party: 8 people on an average.
- Number of hours spent each working party: 3 hours.

During the Winter the time 3 working parties/months are taken up with planting tasks so that the remainder of the year is directed towards weeding, releasing and animal pest control.

The calculation of hours therefore is:

- Planting 3hrs X 8 people X 3 months = 72 hrs.
- Weeding 3hrs X 8 people X 9 months = 216 hrs.

The main weeding task is spraying, digging and pulling privet although Barrett Bush has many other weeds also.

Privet requires a constant weeding programme to keep some control over the weed. We have managed to eliminate most of the larger seeding privet but birds seem to be constantly reseeding the Bush.

In terms of a costing I would suggest if an hourly figure of say \$20 was a labour cost the total financial cost could be 216 hrs X \$20 = \$4320. That is my basic estimate of costing.

Alan Wills, Hikuai Ti Kouka Reserve (Waikato Regional Council)

Sounds like great research, the privet lace bug would definitely be useful on the Coromandel. At the Hikuai ti kouka reserve we have carried out extensive weed control over the last 4.5 years, controlling

a range of weeds including; privet, wattle, honey suckle convolvulus, wilding pines, large willow and poplar. Although privet is the dominant weed throughout. When we initially kicked off the control we controlled a 1.5 hectare area of privet, convolvulus and honey suckle but mainly privet, using a 14 tonne excavator with a mulching head on it. The cost was \$10, 000. Another 1.5 hectare area was controlled the following year for same cost. It should be noted that we were controlling large trees some up to 4 meters in height, in areas there was very little native.

The rest of the privet control has been a lot more selective some areas have been sprayed others controlled via cut and paste so as not to damage the native vegetation. The Hikuwai reserve is a total area of 13 hectares in size this financial year we will be looking at selectively controlling the privet over an approximate 8 hectare area, the contractor has quoted \$6,500 for controlling just the privet. Even after this control I imagine we would spend at least \$5000 each year for the next few years to get on top of the privet, over the 13 hectare area. It should be noted we have used native plants and planted grass as a tool to suppress the privet this is also effectively a cost to controlling the privet.

The Hikuai project was first initiated by Ngati Hei who has plans to restore the site, they contracted wildlands to undertake an ecological assessment of the site. The Tairua catchment is of great significance to Ngati Hei, there are traditional travel routes and 6 pa sites within 1 km of the restoration site.

Give me a call if you would like any more info. This photo sequence shows the privet control at the 1.5 hectare area we started with.

Sam Stephens, Chairperson, Kirikiripu Catchment Care

While tree privet is a big issue for the catchment our group, Kirikiripu Catchment Care (KCC), is focussing on, unfortunately we are a new group (formed just this year) and haven't put any time or resources into privet control yet so can't provide any quantitative data on costs, time etc put into privet control.

It is definitely the biggest pest plant issue we have in the catchment, there are very large old tree privets that birds feed on and then appear to be spreading into some previously restored areas (riparian areas planted with manuka/flax/carex), and an area of regenerating coastal forest is also full of privet. We will be dropping the big trees this year with help from the District Council, and then will go through the previously restored areas that are being invaded and will cut and past the saplings.

The woman that owns the land that the previously restored areas are on, has put a lot of time into trying to control the privet coming through the native plantings, but again sorry I can't give you any data.

The only thing I can do is provide you with is the area that is affected by privet that we will have to control in the coming years. This is as follows:

- Total area under management: 5.8ha
- Area under management significantly affected by privet and requiring control: 4.4ha (76%)

Alan Leadley, Pukemoke Trust

Warwick has asked me to reply to you about some of the costs involved in removing privet manually from Pukemokemoke. I'm glad you've seen the website with "Pukemokemoke Fights Privet"

The main problems as I see them were that Privet prevented any re-seeding by birds and by human effort. It had to be removed either by hand or mechanically before re-forestation could take place.

It's hard to estimate the cost of **just** privet control but **since early 2009** my notes on finances indicate the following costs in round figures . Note: if it was prior to 2009 I'd have to go into my archive box! This period 2003-2009 involved the time and cost spent in removing the privet and replanting **west** of the bridge, if you know a little about the location of Pukemokemoke.

Grants: DOC weed control \$9K (incl mulcher hire) , DOC Mulcher hire \$10K, Lion Mulcher hire \$7K, WEL Mulcher hire \$5K, WRC Weed and predators \$5K

So approx \$35K for the mechanical removal and mulching of about 4-5 acres of solid privet, but worth it considering the endless input required by volunteers.

Several other funders such as David Johnstone Charitable Trust, Honda, WEL, Trust Waikato, pvte donors.....etc granted approx \$35K for plants, signage, track formation, the teaching resource and so on. This EXCLUDES the dollar value of all the volunteer time in pulling, scarfing and cutting/poisoning the privet. I did estimate the hours volunteers put in over 2 years at \$15 per hour per person and it was many \$000s.

The mechanical mulcher was our saviour: The Terex RC-100 owned and operated by Steve Hyland in Ak, ph 027437999 Cost per machine about \$800 per day. The rest of the story is on our website.

NON-GOVERNMENTAL ORGANISATIONS

Gareth Eloff, Genevieve Bannister, QEII National Trust

Since 2010, we have only had 5 externally funded projects targeting Japanese honeysuckle, Chinese privet or tree privet. We have had no projects targeting Moth plant. 4 of those 5 targeted Japanese honeysuckle with 1 also targeting Chinese privet. 1 project targeted Tree privet alone. The total amount granted to those projects from the Biodiversity Condition Fund was \$105,948.07 +GST. QEII National Trust spent \$11,620.56 +GST in monitoring and administration of those projects. The landowners spent \$62,695.56 +GST towards this control and Hawke's Bay Regional Council contributed \$9,975.13+GST towards 3 of those projects as the work took place in their area.

Below please find an initial assessment of the extent of the records for each of the species you listed broken down to the three regional councils you mentioned. Please note, that this is largely based on a presence/absence recording and not an in depth analysis of the degree of infestation. In all cases, it would appear as if the species are targeted for progressive control or containment, meaning an ongoing attempt to control and eradicate where possible, unless part of a greater landscape wide eradication program which Genevieve could highlight if they exist.

PRIMARY PRODUCTION ORGANISATIONS

Bill Dyck, Forest Biosecurity Manager, Forest Owners Association (2014)

I have canvassed some of our members to see how much of a problem honeysuckle, privet and the moth plant are it and it seems the answer is "not much". However, there was no adverse response to releasing biological agents to control these weed pests and only positive comments.

Mark Ross, Federated Farmers of New Zealand.

In relation to your request I put a message out to our members and so far have only received feedback from one farmer (see below). I realise that this is not overly helpful and will try to chase up further.

We will definitely comment on the submissions and supportive of your on-going work.

“we have both privets and honeysuckle, these are mostly controlled by the hedge cutter with larger privets chainsawed out and stumps painted. Honey suckle also sprayed when we spray blackberry in the hedges”

“after googling Moth plant we also have that on the boundary growing in our shelter belt and having been wanting to control it and as the paddock was a sacrifice paddock this year the seed were really obvious across the paddock”

REGIONAL AND UNITARY COUNCILS AND TERRITORIAL AUTHORITIES

Shane Grayling, Senior Biosecurity Officer, Bay of Plenty Regional Council

All three species are listed as Restricted Pests under our current RPMP, in our RPMP this means the plant is either too widely spread, therefore fails the cost-benefit analysis, or its environmental impacts are not deemed high enough to warrant active management. Japanese honeysuckle is extremely widespread, Privet is relatively widespread, moth plant is not particularly widespread but on the increase. Restricted pests are not required to be controlled by landowners and BOPRC's role is to provide advice and education to those wanting to control the pests of their land

Due to the classification in the RPMP, BOPRC to not collect information on spatial distribution or control effort either internally or externally:

Cost benefit analyses - ... none for Japanese honeysuckle unfortunately

Levels of infestation, real costs of control - We do not collect this information currently due its classification in our RPMP.

We would get approximately 100 calls a year regarding privet, calls are generally regarding the impact of privet on allergies and they are generally not convinced other factors could be the exacerbater. Generally they are unimpressed when we explain the fact there is no requirement for landowners to control and we will not control the plants.

We only get a few calls a year regarding honey suckle and moth plant and they are usually wanting information on how to control.

We have had the odd caller concerned about the impact of moth plant sap as a irritant and wanting BOPRC to enforce landowner control.

Phil Karaitiana, Biosecurity Team Leader – Plant Pests, Gisborne District Council

The three targeted weeds are presently listed in the RPMS for the Gisborne District Council and have a “Limited Control” status. Essentially weeds in this category are widely spread, established in suitable habitats and cause adverse effects in specific areas. Council’s approach is on awareness, education, identification and advice to landowners on suitable control options to manage infestations. Control of such weeds is at the landowners discretion and costs.

Privet is a problematic weed species during the spring and dry summer periods in the Gisborne Region particularly where infestations are established near residential or outlying communities. The region has a high proportion of the population that succumb to respiratory ill health and Privet is one plant that the public identify as being a cause for their ill health.

All three targeted weeds have a negative impact in this region environmentally, socially and economically. The proposal to introduce biological control agents to assist in controlling any of the three targeted weeds in my view is supported as the potential benefits from successful control outcomes outweigh any risks and costs.

Unfortunately I do not have any cost benefit information to assist with your proposal. I hope the information is helpful none the less.

Sara Brill, Jenny Dymock, Northland Regional Council

I have a site on SH14 at Conns Hill getting nuked right now. A bit has been dealt to at Parua Bay recently. We are offering herbicide packs to landowners to do their roadside privet, ginger and gorse so could be more. Do you need these sites too?

Is this bug for both privet species? There is so much Chinese privet on the roadside from here to Kaikohe – one person was hospitalised for 3 days after driving from Kaikohe to Whangarei from privet induced breathing difficulties.

As you probably have noticed, privet is one of the most common roadside plants in Northland.

I don’t think there are any control/removal programmes undertaken aside from roadside trimming – I will check.

Randall Milne, Southland Regional Council

Privets and Moth plant are not an issue in Southland.

Darion Embling, Biosecurity Officer, Waikato Regional Council

Privets

WRC plan: Sustained Control – health complaints only

Active/Historic sites: widespread across most of the Waikato

RPMP, Active surveillance in some parts of the Waikato – community initiative areas

WRC only follows privet if there is a health complaint and people can prove privet is the cause. WRC receive around 1500 calls per year mainly from November to end of February. WRC historically has spent around \$15,000/year. This has got less over the last few years (due to budget cuts, not lack of pest).

Darin Underhill, Biosecurity Team Leader – Plant Pests, Hawke's Bay Regional Council

Privet is well established in Hawke's Bay, mainly in urban areas but it is also present in rural areas.

Privet is a problem in two ways, firstly it can cause health issues to some people by exacerbating symptoms of people who suffer from asthma or hay fever, and secondly by being extremely invasive, particularly in native bush margins.

In regards to human health issues, the Hawke's Bay Regional Council receive over 800 phone calls per year complaining about Privet, either on their property or their neighbours, affecting their health or their family's health.

Privet is designated as a Total Control (Service Delivery) plant pest in the Hawke's Bay Regional Pest Management Strategy 2013 in urban areas. The HBRC will arrange and pay to remove Privet from private property if a valid complaint is received. This costs the HBRC over \$120,000 per annum in contractor's costs and staff time.

The introduction of biological control could have a huge impact in Hawke's Bay if not New Zealand. If it works the human health benefits would be huge with less health issues for people affected by Privet. This would reduce the HBRC's cost in responding to the public's requests for removal of Privet as well as saving numerous doctors visits by sufferers. Successful biocontrol may also have an aesthetic effect on Privet which may make property owners more proactive in removing Privet from their properties.

Many high biodiversity sites have Privet infestations in them or near them. Privet is extremely invasive and can shade out more desirable plants. Successful biocontrol will mean less money being spent on controlling Privet, and less negative effects to biodiversity from Privet, in these areas.

Successful biocontrol for Privet in New Zealand has the potential to save millions of dollars in control and health related costs but more importantly the possibility of improving the quality of some people's lives.

Richard Grimmett, Wellington Regional Council

Our team (Harvey great majority) have put together some thoughts for the species in question and there are only figures for Moth plant over the last 5 years, but these are accurate.

Privets

Cost benefit analyses -No cost benefit analyses available as this is listed as a KNE species in the Greater Wellington Regional Pest Management Strategy

Information about levels of infestation, real costs of control - There are no figures for this species, there are very few naturalised sites of Privet in the region. In the Wairarapa the main cultivar which has naturalised is *Ligustrum vulgare*. The sites where this has naturalised, the plant has obviously come from old homesteads.

If this species is found to be present in a biodiversity site it would be controlled as an undesirable species (being exotic). Over the years there has been very little interest shown by the public towards this species other than a few inquiries for plant id and a few about the effects of pollen, especially for people suffering asthma and bronchitis