Manaaki Whenua
Landcare Research

The biological control of weeds in New Zealand

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Why Biocontrol?

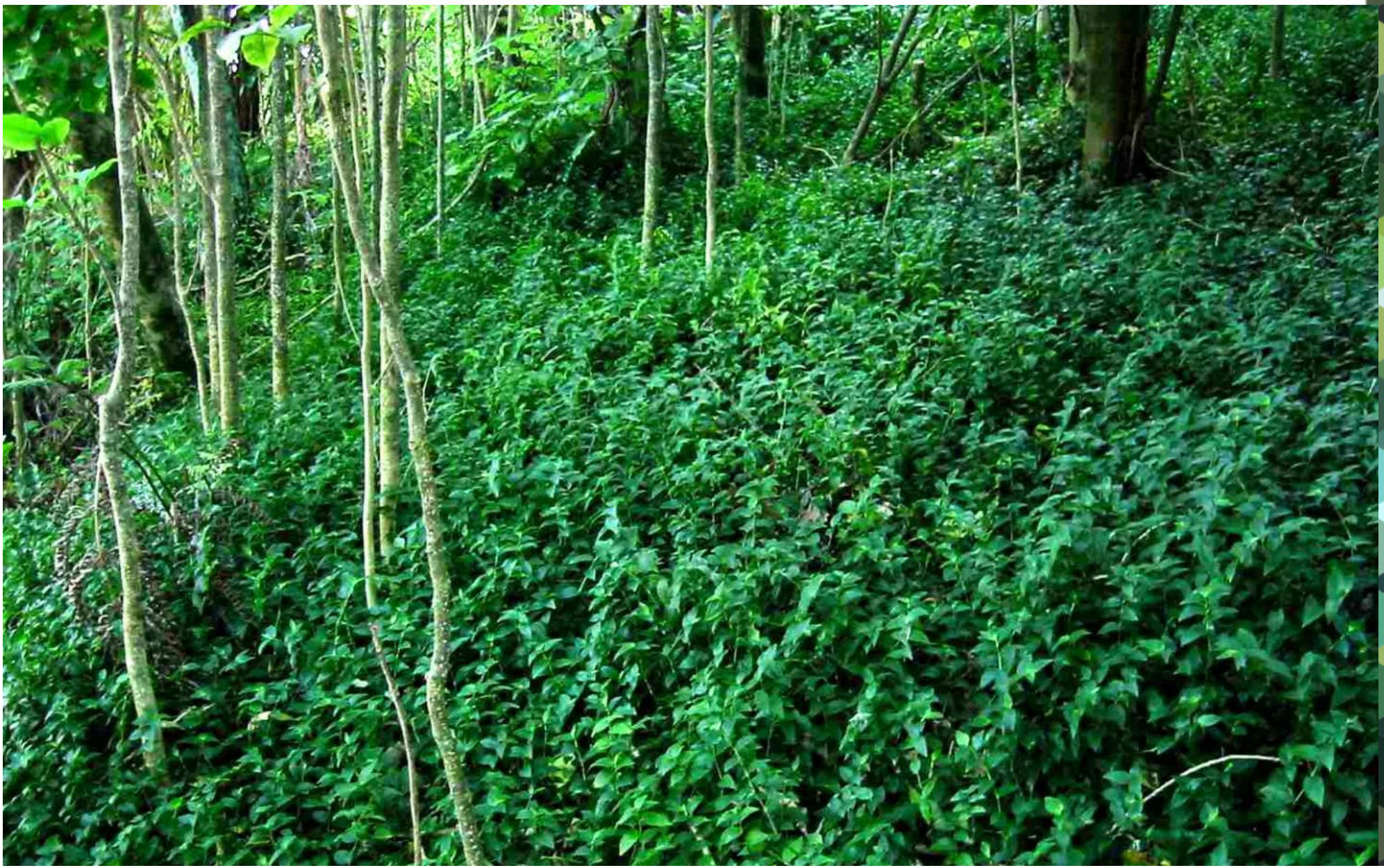
Since 1769, at least 25,000 exotic species introduced (10% of world's flora), 90% deliberately.

A species naturalises every 39 days.

Now more naturalised than native species.

~500 species considered weeds at present.

Why Worry?



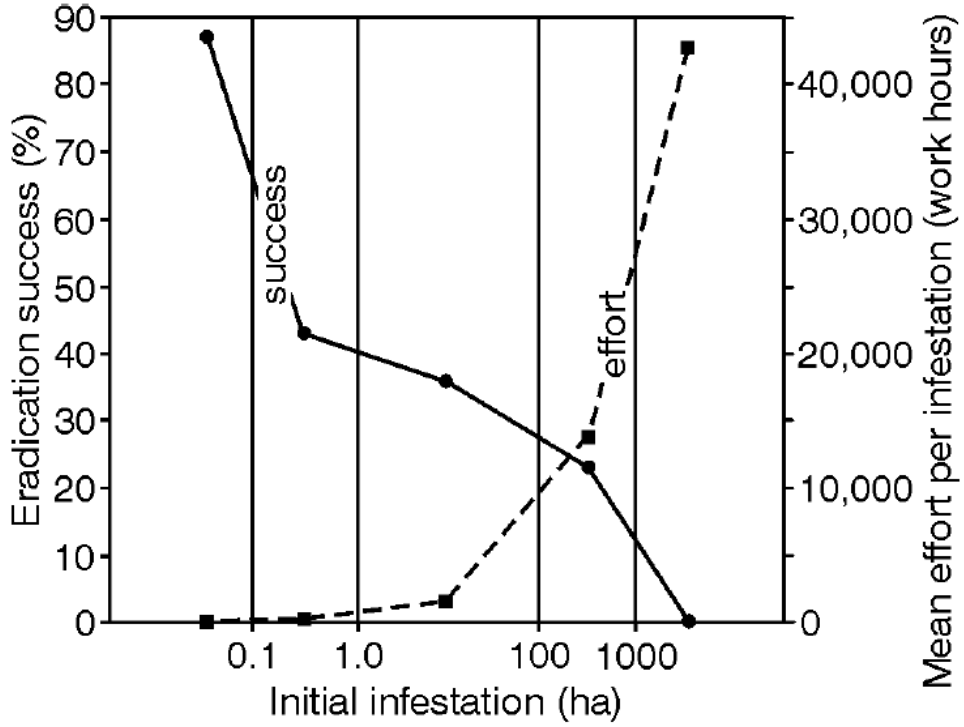
Eradication

Most cost effective strategy when weeds are low incidence.

Usually possible for infestations <1 ha.

33% success when 1-100 ha.

25% success when 100-1000 ha.



When Eradication Is Not Feasible:

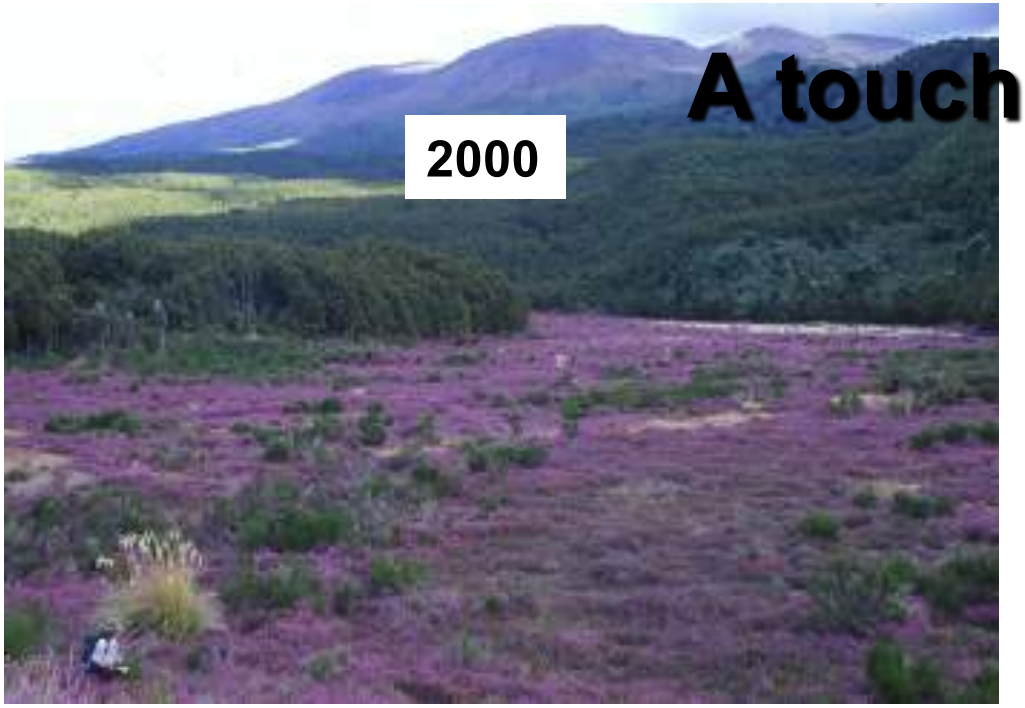
In many situations biocontrol is the best or least damaging control method & probably the only sustainable one.

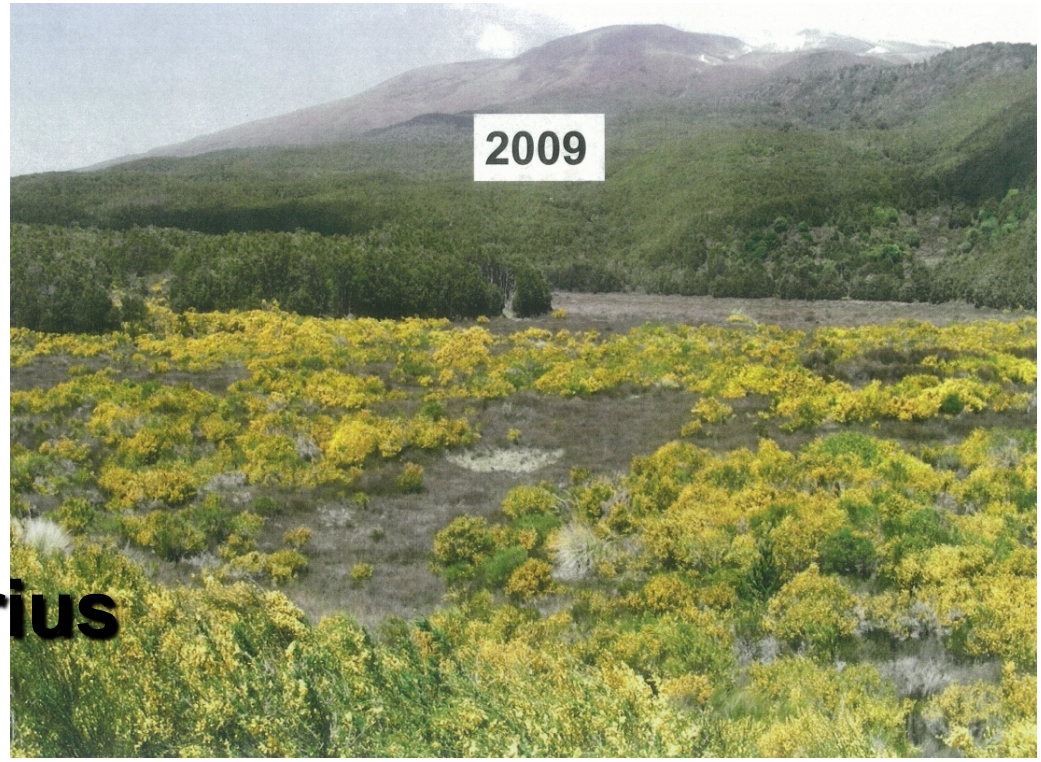
Successful biocontrol can provide enormous benefits to communities.

Tongariro National Park 1980

A touch of Scotland – Calluna vulgaris 2000

A touch of Calluna vulgaris





A lot of Cytisus scoparius


Get back you wild Beast!
ALFREDO
the Great
Weed Tamer!
Anne Rose

Classical

Inundative

Appropriateness:

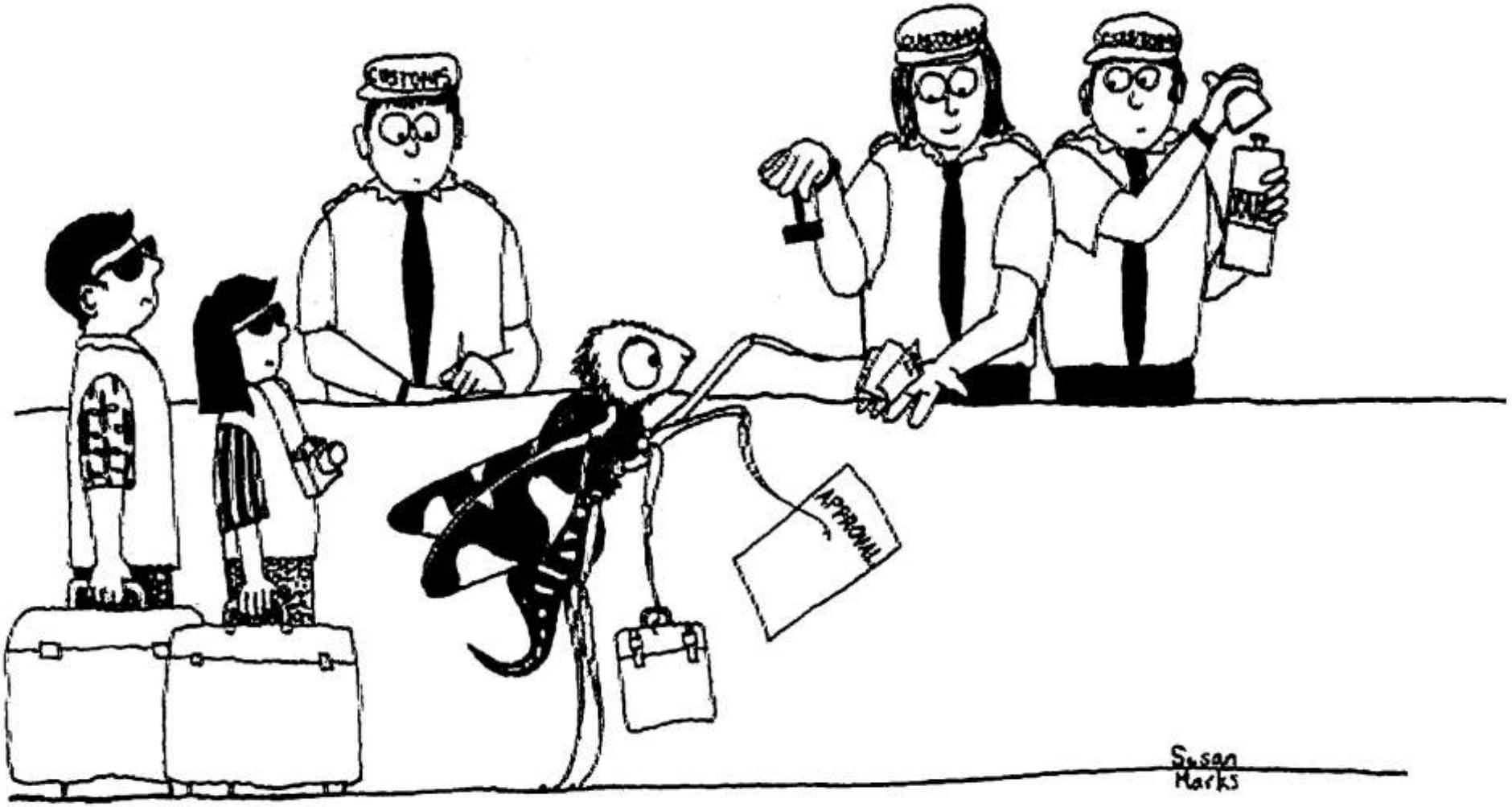

SUKO-BUS
Susan Marks '98
Landcare Research NZ Ltd

Choice

No choice

Vinca major

Araujia hortorum


APPROVAL
Susan
Marks

Distribution:

up:

Follow

Does it Work?

- ~1/3 of programmes so successful other control options are no longer required.
- ~1/2 are partially successful (e.g. biocontrol effective in some habitats, but not in others).
- ~1/6 are failures (no impact).
- We are working on improving success rate/cost-effectiveness!

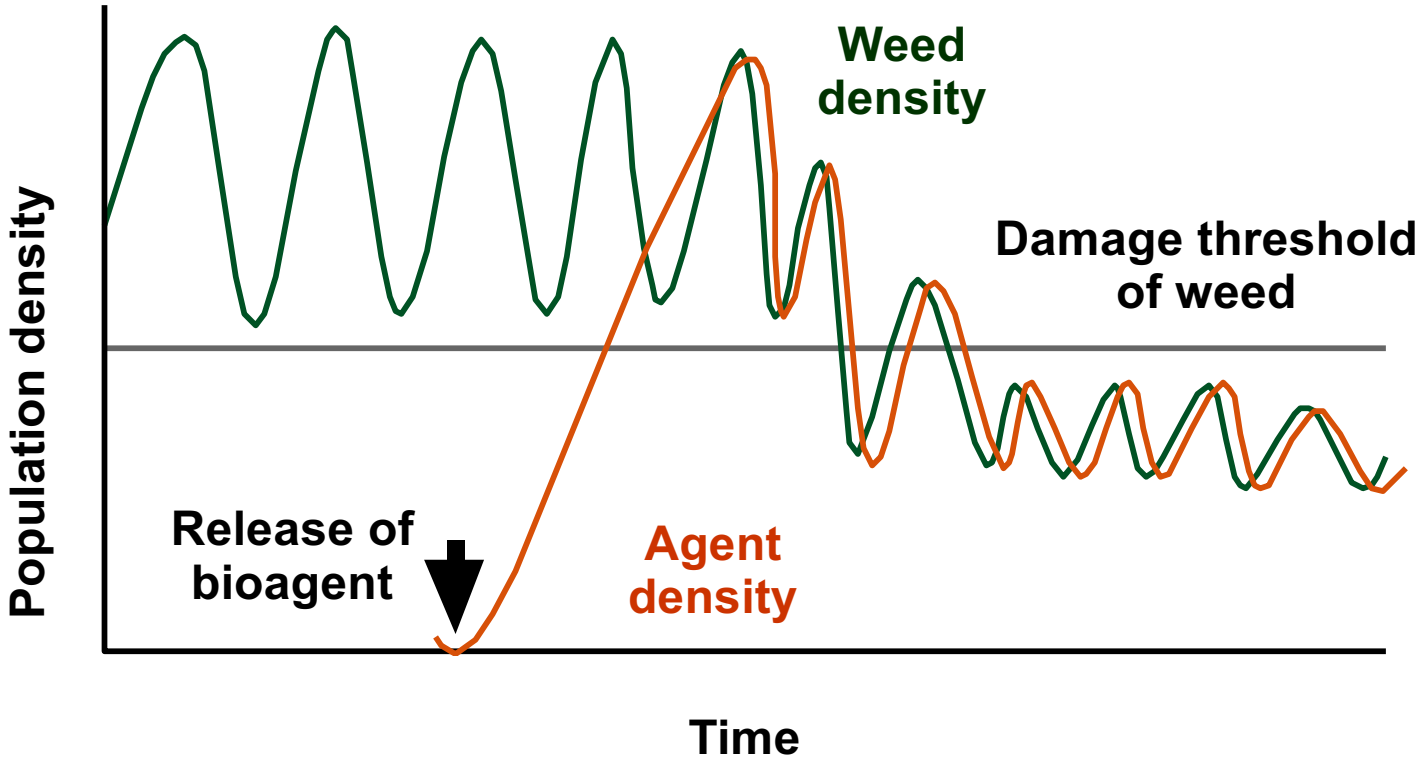
Economic Benefits

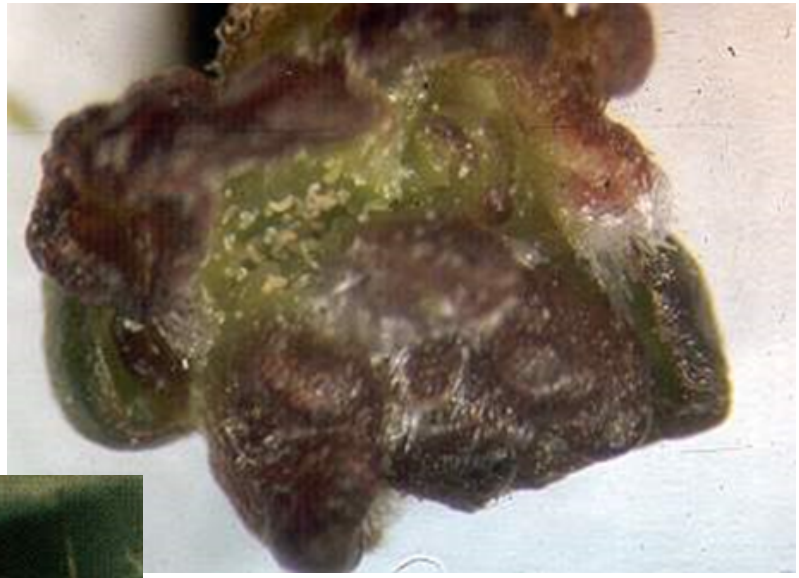
Current annual saving in herbicide use alone for the dairy industry from the ragwort flea beetle estimated to be NZ$44m.

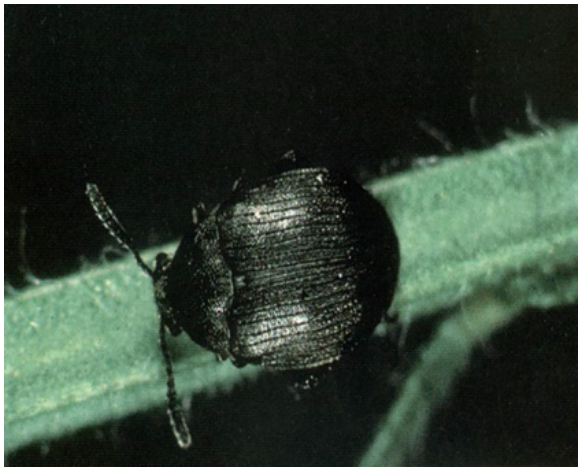
Benefit to cost ratio of $14:1.

Potential for further savings of p.a with the plume moth.

Decision to not proceed with the flea beetle in the 1920s cost NZ $8.6b!


Weed
density
Damage threshold
of weed
Population density
Release of
bioagent
Agent
density
Time



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