

Weed eradication—when is it feasible?

For people managing weeds, eradication is often desired but only rarely achieved. Eradication means eliminating every individual of a weed, with re-invasion unlikely. That's a big ask! Eradication *may* be the best management strategy for particular weeds, or particular situations.

We have developed a decision tree and a prospective scoring system to help us evaluate when eradication is likely to be possible. The scoring system incorporates all the factors we need to consider in assessing eradication feasibility, but it has yet to be fully tested.



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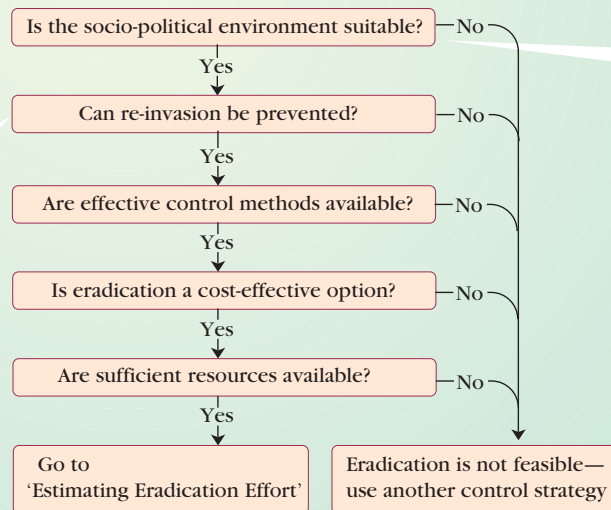
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Is eradication likely to be possible?

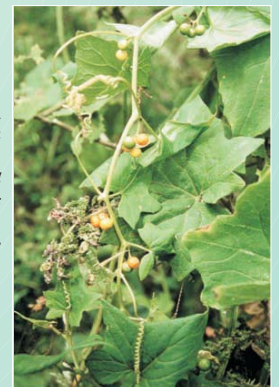
The following decision tree can help you assess if eradication is feasible. Unless all five conditions prevail—don't even think about it!



In regions where *Agapanthus praecox* is widely dispersed it is not a candidate for eradication because re-invasion cannot be prevented.



What pretty flowers! Unless people stop cultivating *Senecio glastifolius*, the weed will re-invade.



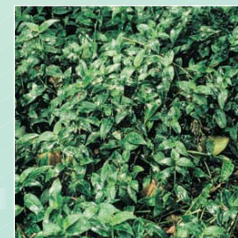
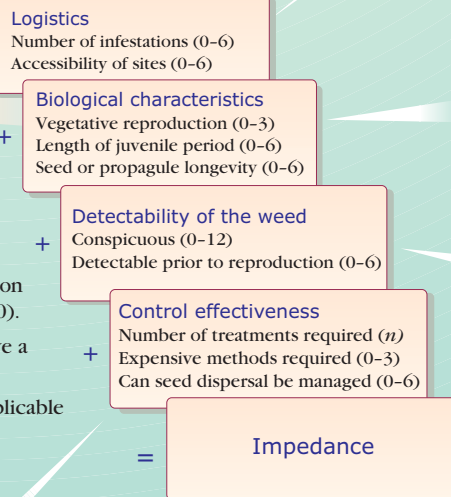
When *Bryonia cretica* was first discovered in a reserve near Wanganui, eradication seemed possible. When it was found at 50 more sites, eradication became unlikely.

Estimating Eradication Effort

We have developed a scoring system that estimates eradication effort by multiplying the areal extent of the weed (in hectares) by a score for impedance:

$$\text{Effort} = \text{Area} \times \text{Impedance}$$

- Area includes that which must be searched plus that actually occupied by the weed.
- The larger the score for effort, the greater the resources required.
- A weed with one accessible and conspicuous infestation that is easy to control would have a low score (< 20).
- A weed that is readily bird-dispersed is likely to have a much higher score (perhaps > 4500).
- The general principles of the scoring system are applicable at national, regional, catchment or smaller scales.



For weeds such as *Tradescantia fluminensis* we must get every last fragment if we are to eradicate it.

Conspicuous weeds such as *Chrysanthemoides monilifera* (below) can be detected relatively readily. By contrast, *Asparagus scandens* (right) is less obvious, and its seedlings are hard to spot—eradication will fail if we don't find them all.



To study the scoring system in more detail see: Panetta, F.D.; Timmins, S.M. 2004: Evaluating the feasibility of eradication for terrestrial weed incursions. *Plant Protection Quarterly* 19, 5-11.



Acacia dealbata fringing a river. At present we don't know how to control it effectively and cheaply. Until we do, we can't consider eradication.

Eradication successes?

The likelihood of eradication success declines rapidly as the area involved increases.

New Zealand has eradicated only seven species—all had barely formed self-sustaining populations before their removal. We need to test the scoring system with both successful and failed eradication attempts.

Conclusions

- The prospective scoring system identifies all of the factors that need to be considered when evaluating eradication feasibility.
- As there have been very few successful weed eradications anywhere, the exact value ranges that indicate whether eradication is feasible, or not, have yet to be determined. Feedback is welcome.



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