

Principles to be utilised in determining when an exotic plant incursion warrants a nationally coordinated response with cost-sharing

A discussion paper endorsed by the Australian Weeds Committee

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Introduction

The following principles are intended to assist the Australian Weeds Committee Consultative Committee on Exotic Plant Incursions (AWCEPI) in formulating recommendations for the nationally coordinated management of new exotic plant incursions. P1 to P4 are decision principles and P5 to P10 are “rule-setting” principles.

- P1 The identification of the suspected weed must be authoritatively confirmed
- P2 The weed must be a potentially serious weed of Australia
- P3 Eradication must be feasible, the infestation confined to a small area and without there being major biological/ecological impediments to eradication
- P4 Cost-benefit of eradication must be favourable – there should be a clear and significant net benefit to Australia
- P5 A weed would be eligible for a national cost-sharing arrangement even where just one State is threatened.
- P6 A national, cost-shared eradication effort must be directed at all occurrences of the species in Australia
- P7 There is no lower limit to the size of a national cost-sharing program
- P8 The proposed program must include an estimate of the resources required for eradication, an operational program and an estimate of the time to eradication

- P9 All potential weeds must individually meet the criteria for national cost-sharing but may be managed in a joint program for operational convenience
- P10 A program must be subject to regular review against the agreed criteria and must continue to meet these criteria

These principles, and the guidelines to be followed in applying them, are discussed in greater detail in the following sections.

The Plant Health Australia (PHA) discussion paper, *Funding and Compensation for emergency eradication of exotic plant pests and diseases*, discusses principles in chapter 4 (Appendix 1). This paper addresses principle 2 and addresses principles 1, 4, 6, 7, 8 and 9 for government stakeholders.

Stage 1

The basic criteria determining the need for national cost-sharing arrangements (with contributions from the Commonwealth, States and Territories) to eradicate incursions of new exotic plants should be based on:

- a) potential weed impact of the plant (including where this is likely to occur in Australia) and
- b) feasibility of eradication.

Identification

P1 The identification of the suspected weed must be authoritatively confirmed

1. No program should be funded until there has been reliable confirmation of the name of the suspected weed. As the species is exotic, confirmation of the identification should be made by a taxonomic specialist working with the species concerned. A suitable taxonomist may be determined following consultation with Australian herbarium staff, preferably ones dealing with the family to which the weed belongs.

Potential impact

P2 The weed must be a potentially serious weed of Australia

2. The plant must be well documented as a serious weed elsewhere in the world¹. In addition, reliable documented overseas information should be applied to Australian conditions. The information should:
 - a) be used to quantify the impact on production systems, natural ecosystems and human welfare at risk;
 - b) include data on production losses and negative impacts upon natural ecosystems and human welfare;
 - c) at minimum demonstrates a match of climate between extra-Australian occurrences and substantial areas within Australia. Preferably, a match of soils, plant community types and land use should also be demonstrated.

Eradication feasibility

P3 Eradication must be feasible, the infestation confined to a small area and without there being major biological/ecological impediments to eradication

3. An essential requirement for eligibility for national cost-sharing arrangements is that a delimiting survey has been undertaken. The extent of the infestation must be established with a reasonable degree of confidence. This should be achieved by:
 - a) a systematic/structured examination in the immediate vicinity of the infestation;

- b) examination of additional sites selected on the basis of potential dispersal pathways and communication with personnel associated with linked sites;
 - c) an increased public awareness of the target species, achieved by communication via media.
4. Typically, the infestation should be restricted to a small area or exist as a low number of small, localised infestations. The upper limit of feasibility will depend on the biological/ecological factors discussed in point 6, as well as the ease of detection (cf an easily observed species in an open, easily traversed environment v. a relatively cryptic species in dense vegetation).
5. Biological/ecological factors that are relevant to an eradication program should be assessed:
- a) can the plant be easily targeted? for example:
 - a shrub, as opposed to a parasitic annual herb;
 - occurrence in cropland, as opposed to native vegetation in steep terrain;
 - other restrictions on finding the weed.
 - b) availability of effective control measures (e.g. ease of kill);
 - c) attributes of the targeted species that influence its tenacity and capacity for self perpetuation and rate of increase/spread such as:
 - capacity for vegetative reproduction;
 - length of the juvenile period;
 - breeding system;
 - seed production;
 - seed longevity;
 - seed dispersal by human mediated and natural means.

P4 Cost-benefit of eradication must be favourable – there should be a clear and significant net benefit to Australia

6. Eradication of a potentially serious weed (providing eradication is feasible) is certain to deliver very substantial benefits relative to the cost of eradication, thus a detailed cost-benefit analysis for eradication should not be necessary. Nevertheless, an assessment of the magnitude of costs likely to be incurred, if the weed became established, should be attempted, based on experience elsewhere and including:
- a) productivity losses (in dollar or volume terms);
 - b) impacts on trade (identify domestic and international markets at risk and make quantitative estimates in dollar or volume terms);
 - c) projected control costs (in dollar terms, e.g. costs of labour and chemicals) are significantly lower than the 'costs' of living with the weed;
 - d) degradation of amenity values (e.g. identify managed outdoor parks, recreational areas and road verges at risk);
 - e) effects on natural ecosystems/biodiversity¹;
 - f) effects on human health (e.g. severe allergens).

Other Considerations

P5 A weed would be eligible for a national cost-sharing arrangement even where just one State is threatened.

7. The extent of the threat to various States will be determined through the matching exercises undertaken (point 2c). Given a substantial potential impact, only the Commonwealth and the affected State(s)/Territories(s) would be expected to contribute to an eradication effort.

P6 A national, cost-shared eradication effort must be directed at all occurrences of the species in Australia

8. AWCEPI State/Territory representatives must determine and advise if the weed is present in their jurisdiction, including as cultivated plants in public or private gardens.
9. Many weeds in Australia have marketable attributes, providing the basis for a well recognised pathway for their introduction. For such species to be eligible for a national, cost-sharing arrangement, steps must be taken:
 - a) to ensure that the species is not available for sale in Australia;
 - b) to prohibit further trade if the species has been for sale;
 - c) to ensure the species is prohibited by AQIS.

P7 There is no lower limit to the size of a national cost-sharing program

10. If a weed is detected very early in the invasion, the annual cost of the eradication program will be minimal. However, if the weed meets the criteria in Stage 1 it is important to ensure that national eradication is achieved. No lower limit should, therefore, be set on the cost of eradication that would qualify for a national cost sharing arrangement. A State/Territory may bear the full cost where administrative costs of joint funding outweigh the benefits. Such situations would be determined on a case by case basis.

Stage 2

Where Stage 1 criteria have been met, Stage 2 criteria should be addressed.

Methodology

P8 The proposed program must include an estimate of the resources required for eradication, an operational program and an estimate of the time to eradication

11. An estimate should be made of the resources required for eradication of the target species, including costs of:
 - a) staffing and overheads;
 - b) consumables (e.g. chemicals);

- c) capital expenditure.
12. Care should be taken to avoid underestimating overall eradication costs. Requests for increased resources during the course of an eradication campaign would need to be based on circumstances that were not reasonably foreseeable. It may be appropriate to incorporate a business risk scenario analysis and associated cost framework.
 13. A program of activities should be outlined, including:
 - a) surveillance and monitoring procedures: this should not be underestimated or underdone as effective surveillance provides the measure of progress towards eradication;
 - b) the use of quarantine and containment procedures;
 - c) research required in support of the eradication effort;
 - d) methods utilised to increase public awareness of the target species;
 - e) community support programs where required.
 14. Cost-sharing arrangements at present involve the Commonwealth (50%) and the States/Territories affected or at risk. It is further noted that:
 - a) this is an interim arrangement: industry contributions and compensation are outside the scope of national cost-sharing arrangements, pending the outcome of Plant Health Australia negotiated arrangements with industry;
 - b) partitioning responsibility across government agencies, according to the ecosystems under threat (production, amenity and natural) needs to be addressed but is outside the scope of this paper;
 - c) the formula for dividing costs between States/Territories may be based simply on area at risk, but should include additional factors such as the value of threatened production and natural ecosystems, and the capacity of the State or Territory to contribute (based, for example, on population of the jurisdictions);
 - d) costs involved in conducting the delimiting surveys and other activities to determine the extent of the weed (point 4) and keep it contained are to be borne by the State or Territory undertaking these actions. These costs may be recoverable after cost-sharing arrangements are agreed.
 15. Time frame:
 - a) nationally-funded eradication campaigns cannot be open-ended;
 - b) an estimate of the time frame for eradication must be made;
 - c) alternative exit points should be identified. For example, if eradication is unsuccessful, what ongoing containment or suppression programs should be established and how should they be funded?

Multiple potential weeds

P9 All potential weeds must individually meet the criteria for national cost-sharing but may be managed in a joint program for operational convenience

16. Where weeds subject to eradication are in the same area and with similar program components, the eradication may be conducted and reported on as a combined program.

Stage 3

P10 A program must be subject to regular review against the agreed criteria and must continue to meet these criteria

17. Reporting and Review

- a) A report on the progress of the eradication campaign must be submitted annually, at which time the national cost-sharing arrangement will be reviewed;
- b) If, during the course of an eradication campaign, sufficient new infestations are located as to markedly reduce the feasibility of eradication, funding support may be discontinued;
- c) Independent, biennial or triennial reviews should be undertaken to assess progress against predetermined milestones.

18. Extension of Funding

- a) National cost-sharing arrangements are provided for a designated period. Extension beyond this period will only be considered where progress and substantial benefits to date can be demonstrated and upon clear evidence that eradication is still feasible. Such evidence might include:
 - substantial overall reductions in the extent and densities of infestations over the period;
 - absence of development (or limited development) of further infestation foci within the period;
 - achievement of eradication in at least some of the infestation foci;
 - marked reductions in seed banks within the targeted areas.
- b) Applications for extension of national cost-sharing arrangements for an eradication campaign must be accompanied by a new cost-sharing proposal that includes a detailed estimate of further resources required, as well as a contingency plan to be implemented if the program could be considered too small for national cost-sharing. If a decision is made that the species cannot be eradicated, containment plan requirements may then be requested.

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- 1 If, in time, reliable methods are developed to estimate potential impacts of species with no history of invasiveness and weediness elsewhere, it may be appropriate to broaden the scope of taxa for which national cost-sharing arrangements would be considered. This is of particular importance for assessment of potential invasiveness in natural ecosystems as prior history of such invasions may not be well documented.
 - 2 It is probable that fully funded eradication of all candidates that satisfy the criteria (i.e. high feasibility of eradication, with potential impacts outweighing costs of eradication) will exceed resources available. Further development of tools and principles to rank and prioritise candidates will be necessary if limited resources are to be allocated most effectively. The development of such tools is a key research objective of the CRC for Australian Weeds Management.

Appendix 1

Principles for funding and cost-sharing are listed in Chapter 4 of *Funding and Compensation for emergency eradication of exotic plant pests and disease* (Plant Health Australia 2001, <http://www.planthealthaustralia.com.au>):

1. Immediate reporting of, and rapid response to, suspected exotic disease outbreaks.
2. Incursions capable of being eradicated and/or contained.
3. Beneficiary contributes¹.
4. Equitable sharing of financial burden.
5. No one better or worse off as a result of reporting an incident.
6. Certainty in funding and compensation.
7. Certainty, consistency, integration and efficiency of structures and processes.
8. Stakeholders who share the costs of incursion management to have a role in decision-making.
9. Accountability to stakeholders who fund incursion management.
10. Simplicity.
11. Major risk creators contribute².

Chapter 5 of the PHA discussion paper also gives a framework (reproduced with minor alteration in Figure 1) for considering when eradication of an exotic incursion is justified. That flowchart provides a consistent framework for the principles and associated guidelines discussed here.

¹ The main point of contention

² An additional principle that is conceptually sound but difficult to implement

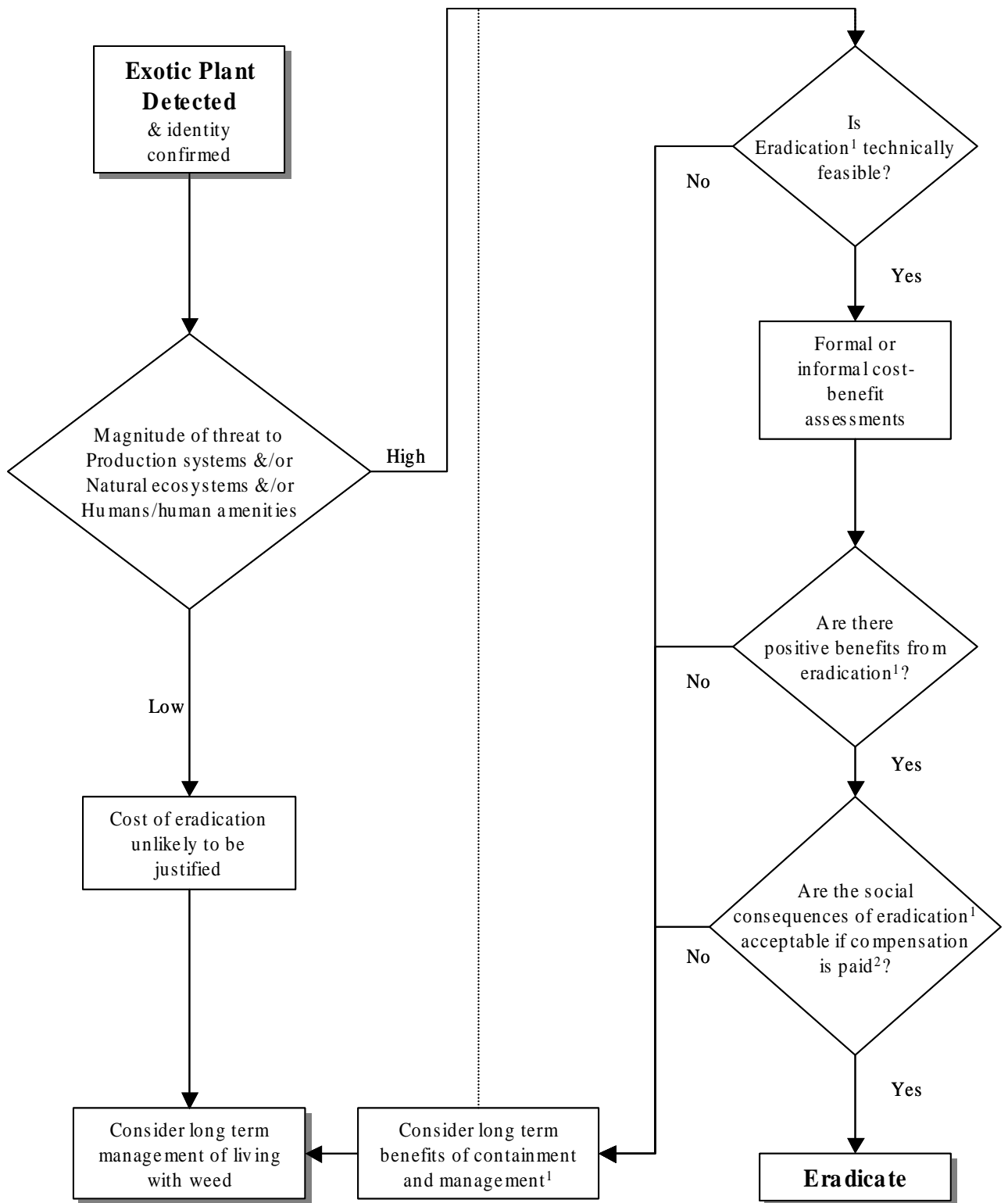


Figure 1. Framework for considering whether or not to eradicate an exotic incursion. Adapted from figure 5.1 of *Funding and Compensation for emergency eradication of exotic plant pests and disease* (Plant Health Australia 2001, <http://www.planthealthaustralia.com.au>).

1. Cost benefit arrangements for containment have not been considered to date. If it were to be, the term containment would be substituted for eradication in the appropriate boxes.
2. Compensation is not a component of current cost-sharing arrangements.