Response to Victorian Alert Weeds

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Summary   The Victorian Weed Alert program aims to prevent the introduction of serious new weeds into Victoria and eradicate the highest risk incursions. The focus of the program is on weeds of the future, which pose a serious threat to Victoria's agricultural and natural assets or may affect human health.

Some of these weeds are thought to be naturalised in small numbers in Victoria but are still eradicable from the state. Others may not have yet reached Victoria but present a significant threat if they were to arrive.

Following a rapid prioritisation process, the Victorian Alert Weeds undergo a formal weed risk assessment to determine the risk they pose if allowed to enter the state or spread unrestricted.

By utilising a volunteer Weed Spotter network, staff from the Weed Alert program can assess the statewide distribution of each of the highest priority Victorian Alert Weeds before implementing eradication programs.

Fact sheets are being developed for the highest priority species to assist with identifying weeds in the field and to highlight the seriousness of the weed threat.

The Voluntary Removal Framework is an incentive-based approach to eradicate high risk weeds. Through this framework, the Weed Alert program will hopefully see a reduction in the most serious incursions that have naturalised.

Keywords   Victorian Alert Weeds, Weed Spotters, Weed Alert, voluntary removal framework.

INTRODUCTION

Victorian Alert Weeds are plants that pose a threat to social, economic or environmental values and that are not in Victoria, or are present in low numbers. For these species, eradication is still a realistic goal.

A rapid prioritisation process reduced the global list of 28,000 or so potential weeds (Randall 2007) to 410 species, which pose the greatest risk to Victoria's biosecurity. These high priority Victorian Alert Weeds are being comprehensively assessed for weed risk in terms of their invasiveness, impact and potential distribution (Primary Industries Research Victoria 2006).

By quantifying their potential weed risk, the creation of a 'weed hierarchy' is possible. In ranking and prioritising the weed species, the Weed Alert program can make objective management decisions, and ensure that the allocation of resources is justified by the perceived benefit.

The development of a series of Victorian Alert Weed fact sheets enables a network of volunteer Weed Spotters to help validate the distribution of these high priority species. Without a thorough understanding of current distribution, there is a risk of overestimating the ability of the Department of Primary Industries to eradicate high priority Victorian Alert Weeds.

As the Victorian Alert Weeds are not proclaimed noxious and supported by legislative powers, the development of a Voluntary Removal Framework provides Weed Alert Contact Officers with a suite of tools to assist in eradicating high risk incursions.

MATERIALS AND METHODS

Rapid prioritisation and risk assessments   In an attempt to reduce and prioritise the global list of potential weeds, the Weed Alert team designed a rapid assessment process to identify species that posed a specific threat to Victoria's biosecurity (Blood and Joubert 2006). The process relies on species information from weed references, together with experienced officers' knowledge of invasive species in Australia and overseas. The perceived 'threat' is combined with an estimate of the potential distribution of each species (from predictive climatic models) to arrive at a prioritised group of 410 high risk species (the Victorian Alert Weeds).

Following the rapid prioritisation process, Biosciences Research used a robust weed risk assessment (WRA) process to estimate the risks associated with potential, new and emerging weeds (Primary Industries Research Victoria 2006). The WRA is a semi-quantitative risk assessment which formally ranks the impact, potential distribution and invasiveness of each species, using criteria similar to those of other WRAs (i.e. Pheloung *et al*. 1999).

Weed Spotter network   Before any attempt at eradication is deemed feasible, the extent of the infestation(s) must be known (Panetta and Lawes 2005). Weed Alert Contact Officers coordinate the 1200 volunteer Weed Spotters, ensuring a strategic

and thorough assessment of the statewide distribution of each of the highest priority Victorian Alert Weeds. Weed Spotters are requested to report naturalisations (plants that have escaped from cultivation) of high priority weeds on both public and private land.

Victorian Alert Weed fact sheets Fact sheets were prepared for 20 high priority species, to simplify and assemble the science captured during the WRA process. Featuring factual information designed to help Weed Spotters identify target weeds in the field, fact sheets include: images; plant biology; invasive potential; legislation; growth calendars; health impacts for humans or animals; and hints as to where to look for each species. Also included where appropriate is advice on selecting non-invasive alternative plants with similar size, form and habitat suitability.

Voluntary Removal Framework As Victorian Alert Weeds are not proclaimed noxious, the control of these species is entirely voluntary. Casting a broad net (410 species in total) potentially results in an extensive and complex distribution range, including public land, local council parks and gardens, private agricultural land, home gardens and plants being traded. The development of a set of incentive instruments to encourage voluntary removal might assist in the eradication of Victorian Alert Weeds. By targeting land managers with incentives, the Weed Alert program is motivating and empowering them to help control weeds.

RESULTS

Rapid prioritisation and risk assessments Rapid prioritisation is vital in setting strategic targets and ensuring responses are adequately resourced to meet potential eradication attempts. In reducing the number of potential weeds to a manageable list of 410 species, Weed Alert can strategically focuses resources on those that pose the highest threat, rather than solely focusing on new weeds as they emerge around the state.

Each WRA is time consuming, with researchers utilising weed references, databases, scientific journals and the internet to source information to help determine whether a particular species may become invasive in Victoria. Data searches often reveal species-specific climatic constraints enabling predictive climatic modelling to be completed (e.g. use of CLIMATE – Pheloung 1996). This helps build the WRA process and ensures Weed Alert is targeting eradication efforts on species most likely to become invasive. The impact that each of these weeds may have on the state's social, economic and environmental values carries the most weight within the WRA process and is also the most difficult variable to estimate. Predicting the

influence of a species at an ecosystem level, without records of its existence in Australia, is challenging. An example of the top 10 ranked species which have been weed risk assessed through this process is included in Table 1.

Table 1. The current top 10 Victorian Alert Weed species listed following the WRA process.

Botanical name	Common name	Rank
Pereskia aculeata	leaf cactus	1
Arundo donax	giant danube reed	2
Rhododendron ponticum	rhododendron	3
Zantedeschia aethiopica	arum lily – green goddess	4
Pueraria triloba	kudzu	5
Hydrocotyle ranunculoides	hydrocotyle	6
Cistus monspeliensis	rockrose	7
Eupatorium cannabinum	hemp agrimony	8
Gleditsia triacanthos	honey locust	9
Centaurea maculosa	spotted knapweed	10

Weed Spotter network In targeting a specific set of species, Weed Spotters with varying levels of experience in plant floristics can be utilised to search for weeds, rather than relying solely on weed or native vegetation experts. A targeted approach (rather than reporting any plants that look unusual) increases the value of the Weed Spotter's search efforts – knowing a species does not occur in an ecosystem can have as much value in decision making as knowing where it is present. High risk species that occur infrequently and sporadically within Victoria are more likely to be targeted for a formal eradication attempt by the Weed Alert team.

Victorian Alert Weed fact sheets Development of fact sheets helps Weed Spotters identify target species in the field. As the eradication program relies on land managers voluntarily surrendering plants for removal by Weed Alert Contact Officers, the fact sheets will also assist extension staff to explain why these species have been selected and the importance of removing the weeds.

Voluntary Removal Framework In developing the framework it is hoped that an incentive-based approach will see some short-term costs outweighed by the long-term benefits of eradication. Responses range from Weed Alert funded eradication for the highest priority weeds to the potential for like-for-like replacements

in the amenity garden industry. Other options include rate rebate schemes through local councils where weeds may occur on private land and support to volunteer groups engaged in community led eradication. The tools allocated to each response depend upon the priority of the species determined by the WRA, its distribution, the perceived benefit of funding the eradication attempt and the likelihood it will achieve eradication. A multi-agency Weed Alert panel makes a management decision based on these criteria.

DISCUSSION

With the Victorian Alert Weed program still in its development phase, it is difficult to measure true successes at this stage. It is hoped that robust scientific research and evaluation, supported by adequate resourcing for dedicated extension staff and a vibrant Weed Spotter network will result in the overall aim of the Weed Alert program being met.

Improvements will be made to the WRA process to include the impacts of future climate change which will strengthen the model. In Victoria, predicted climatic change is likely to see progress further south of warm temperate weeds and a colonising from the west of more drought tolerant, arid weeds (Kriticos 2007).

New species will be nominated to the Victorian Alert Weeds list by the team's weed profiler, while other species may be eradicated as Weed Spotters become more active in the field, supported by the Voluntary Removal Framework.

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