

The control of three-cornered jack (*Emex australis*) and other spined weeds on public land in Victoria

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Summary

The responsibilities of the Victorian Department of Conservation and Environment for management of weeds on public land are outlined. The priorities for weed control are based on criteria of distribution of the weed, its perceived seriousness, and the availability of control or eradication techniques. *Emex australis* is discussed in relation to these criteria.

Introduction

The Department of Conservation and Environment is charged with the management of public land and the protection of private land in the state of Victoria. As part of these responsibilities, the Department has a responsibility for the control and eradication of pest plants and animals.

Within Victoria there are approximately 103 plant species proclaimed as noxious weeds. These proclamations have occurred over the past 100 years, often under quite different circumstances to those that occur today. Clearly, a system to order priorities is needed for any program of control of noxious weeds to be efficient.

Strategies of government

Three major strategies of government provide guidance for the development of policy in respect to the control and eradication of noxious weeds. These are the State Conservation Strategy, the Economic Strategy, and the Social Justice Strategy.

The intent of the Conservation Strategy is to provide for the management of public land and the protection of private land with a prime objective of arresting those processes which jeopardize the integrity and well-being of the native flora and fauna. Locally, plants such as bridle creeper (*Myrsiphyllum asparagoides*) and boxthorn (*Lycium ferocissimum*) invade native vegetation and reduce the incidence of the native flora and fauna. These weeds generally rank high in programs aimed at protection of flora and fauna.

The intent of the Economic Strategy is to protect public and private lands with prime purpose of arresting those processes which adversely affect the economic wealth and well being of Victoria. Three-cornered jack (*Emex australis*), spiny burr grass (*Cenchrus longispinus*) and caltrop (*Tribulus terrestris*), by contaminating dried fruit, are clearly relevant to this strategy.

The prime intent of the Social Justice Strategy is to protect those values of human welfare in areas set aside for recreation and

aesthetic values. The control of three-cornered jack which has the potential to cause injury is therefore consistent with this strategy.

Responsibilities for weed control on private land

Within Victoria, responsibility for weed control lies with the owner of freehold land, and the occupier of licensed public land. In both cases, the owner or occupier is responsible for the control of weeds on the adjacent half-width of roads. Government Departments are generally responsible for the control of weeds on land that they control. The remainder of the land, referred to here as public land is the responsibility of the Department of Conservation and Environment.

There are particular circumstances where the State may assist in the control of weeds on private land. In line with the strategies of Government, weeds that have the potential to spread over much larger areas than their present distribution and if spread, will substantially impact on economic, conservation or social values are likely to attract the interest of Government. Within Sunraysia, camel thorn (*Alhagi maurorum*) is one such weed. It has limited distribution, is extremely expensive to control and has the potential to substantially reduce economic and social values wherever it occurs. The government now contributes to the control of this weed.

Weeds of agricultural importance

The Department is establishing a categorization system to guide decisions as to the seriousness of a weed, and the responsibility for its control. A summary of these categories is presented in Table 1.

In the case of prohibited pest plants, there is a strong argument for government assistance in their control. The case for government assistance is justified on the basis that it is not economic for the occupier of the land to control the weed. However, if the weed is allowed to spread over extensive areas, then it has the capacity to influence community values, or the values of a series of private individuals.

In the case of priority pest plants there is also a strong argument for the government to be involved in the control of at least some of these weeds, in certain areas. One such local weed is hardheads (*Centaurea repens* L.) (also known as blue weed). Within the horticultural areas this is a nuisance weed and farmers have gone to various degrees to control or eradicate it. Within dryland areas,

hardheads can substantially reduce the capability of the land for wheat production and its control is often more expensive than the net value of the land where it grows. The intent of control programs is to reduce its spread and therefore reduce its potential impact across larger areas of the wheat belt. The Government is prepared to assist in the con-

Table 1. Categories of proclaimed pest plants

Prohibited pest plant (whole State)

- Plant which is of very limited distribution or does not occur in the State.
- Plant which poses a serious threat to agriculture, non-agricultural land or the community.
- Any areas of infestation are small enough for eradication to be achieved.

Action required:

- Eradication is required wherever this plant occurs;
- Cost of eradication is to be borne by the government;
- Quarantine, or some inspection system, is required to prevent its introduction into, and spread within Victoria.

Priority pest plant (part of State)

- Plant which is present in part of the State only and which has the potential to spread to other areas.
- Plant which poses a serious threat to agriculture, non-agricultural land or the community.
- Areas of infestations are small enough for eradication to be achieved.

Action required:

- Eradication is required in specified areas, control to be achieved elsewhere.
- Cost of eradication is to be borne by the landholder and the Government. Cost of eradication on roadsides is to be borne by DCE.
- Quarantine, or some inspection system, is required to prevent its introduction into, and spread within Victoria.

Restricted pest plant (part of State)

- Plant which is well established in an area, which has the potential to spread to other areas and eradication would not be feasible.
- Plant which is a problem to agriculture, non-agricultural land and/or the community.
- Control measures are available.

Action required:

- Control measures are to be enforced within the area where a plant is a threat to adjoining clean areas or it is likely to be spread through contamination of agricultural produce (including livestock). Eradication is aimed at wherever practical.
- The cost of control is to be met by the landholder.

trol of hardheads in wheat growing areas on the basis of community benefit in terms of its potential adverse economic benefit.

There has been some discussion and debate in recent years as to the most appropriate category for three-cornered jack, caltrop and spiny burr grass. There is a strong argument that they should not be classified as priority pest plants as they are already widely distributed within the state, and eradication is not feasible. They are probably more appropriately classified as restricted pest plants in the case of horticultural areas in Sunraysia. These plants are well established in the area and it is unlikely that they could be eradicated, although the cost of control for individuals on traditionally small irrigation holdings is not excessive. It is therefore unlikely that a strong case could be developed for government assistance towards the control of these weeds on private land or the adjacent half widths of roads. Responsibility for weed control on public land would rest with the government.

Weeds of concern on public land

Certain plants have the capacity to substantially reduce the recreational and conservation status of land. There is a need to be able to identify those weeds that offer the most significant threat and allocate resources accordingly.

Some criteria for selecting priorities for the control of weeds on public land is listed in Table 2. Also provided is an analysis of some of the local weeds against these criteria. It can be seen that the Department has an interest in the control of three-cornered jack from two points of view. Firstly, it has the potential to interfere with agricultural production, in particular the contamination of produce. Secondly, the plant also has the ability to reduce the recreational values of public lands.

Much of the land used for recreation is managed under committees of management or are directly owned by local government or sporting organisations. In these cases it is the responsibility of the relevant body to control three-cornered jack. Conservation and Environment undertakes control of three-cornered jack in National Parks and other areas of high recreational use where there is potential for the burrs to injure people, damage property and generally reduce the enjoyment experienced on public land.

The objectives for the control of three-cornered jack on public land are therefore quite different to those of the horticultural industries. It follows that unless special account is taken of these varying objectives, it is unlikely

Table 2. A check-list to assist in setting priorities for control of weeds on public land

	Hardheads	Boxthorn	Three-cornered jack
1. Plant of limited distribution in the Region which has the potential to further invade natural systems.			
- competes with native vegetation	N*	Y+	N
- interferes with natural systems	N	Y	N
2. Plant of limited distribution in the Region which has the potential to spread and seriously affect agricultural enterprises.			
- competes with crops	Y	N	Y
- interferes with agricultural operations	Y	Y	Y
- contaminates produce	Y	N	Y
3. Plant occurring in the Region which can interfere with recreational activities where such activities are planned for that particular land use.			
- inhibits movement/access	N	Y	Y
- causes injury	N	Y	Y
- downgrades aesthetics	Y	Y	Y
4. Plant occurring in the Region which offers harbour to pest animals, insects and diseases.			
- protects other pests by spiny growth	N	Y	N
- protects other pests by cover	N	Y	N
5. Plant of opportunity which is widespread throughout most of the Region but has not yet invaded all DCE managed lands.			
- invader of disturbed environments	N	Y	N

* = No

+ = Yes

that our actions will be complementary. There is a need for close co-operation between respective managers and continuing and meaningful discussions to achieve our joint objectives.

A great deal more could be achieved in the control of three-cornered jack, caltrop and spiny burr grass through the use of established technology and available resources, by better targeting of these resources and techniques to the sources of contamination and infestation. This is only likely to be achieved if there is strong public support and there is an obvious role for some formal system of advice, liaison and co-ordination.

Questions and discussion

Q. Greg Buchanan. *Emex* and *Tribulus* are both spreading weeds in Australia. Both are present on Crown Lands. How can they be controlled on Crown Lands?

A. The major source of weeds is cultivated lands. Once they reach adjoining Crown Lands their progress slows down appreciably. The spread however will continue as broad-acre farmers do not see spiked weeds as the same problem as horticultural producers do.

Q. Greg Buchanan. There is a public good in controlling these weeds. Should the Government increase the awareness of the general public about these weeds?

A. It would be necessary to estimate the extent of public good, and then to respond at a level appropriate to the estimate. My feeling is that there is justification for the Government to support increased extension.