

Off-label advice within natural situations, including riparian zones

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Off-label herbicide use is any use other than those specified on the product label. Common examples of off-label situations are: use in Victoria when the label only specifies the use in other states, use on weeds that are not mentioned on the product label and use for weeds that are on the label for Victoria but in situations not included on the label. Off-label use is sometimes legal in Victoria without the need for a permit. Conditions under which off-label use may be allowed are addressed by Stranger (2003) and Roberts (2003). This paper discusses the Department of Primary Industries (DPI) approach to providing off-label advice, particularly for natural vegetation and riparian situations. Other states and territories have different control of use regulations and policies; readers there should consult the relevant agencies.

Off-label use is not intended to be a long-term solution to large-scale weed problems. It should function in most cases as a transitional measure for newly-emerged problems until products can be registered. Weeds of only very local importance are unlikely to be added to herbicide labels and in these cases continuing off-label use may be unavoidable. Only a small number of DPI staff are authorized to issue off-label advice within their area of expertise. Advice will usually be specific to a particular property, will be valid for only a restricted period of time and be supplied in writing. Preparation of advice may take several days to several weeks, depending on staff availability and on the urgency and complexity of the situation. Restricting the advice to specified locations enables DPI to assess whether the application will be safe and effective in the particular circumstances, including considerations such as proximity of waterways or sensitive crops and presence of livestock. Limiting the duration of the advice stresses the need to check frequently that the advice has not been modified as experience has accumulated or has not been superseded by a new registration. A record keeping and internal review process is in place to ensure the quality of advice is maintained. This includes internal assessment of the risk attached to each piece of advice and extra checking of advice falling into some categories.

Information provided does not just consist of a product, rate and application

method. Advice is also given on the most effective way to use the herbicide, special precautions relevant to the site and suggestions for non-chemical control options that might be preferable in some parts of the site or in conjunction with the chemical control. For the assistance of users some examples of trade names for suitable products are supplied, making clear that any other product with the same active ingredients and registered for the same uses is equally acceptable. There is no legal requirement to seek advice from DPI before using herbicides off-label but it is a good way to ensure that the intended use is permitted and that it will not be ineffective or cause environmental damage.

Often off-label use involves transferring use of herbicides registered for agricultural situations to natural vegetation. If the weed is interspersed with the native species so that completely selective application is not feasible a key question is whether chemical control is possible without unacceptable damage to the natives. Information on herbicide sensitivity of native species is very patchy and it is extremely risky to assume that because no injury to native species occurred in a few previous cases that it will always be so. There is a reluctance to report adverse outcomes and it is often difficult to determine whether damage was due to careless or inexperienced operators or to intrinsic high sensitivity of native species to a particular herbicide. What constitutes acceptable off-target damage to native vegetation in a particular case is affected by several factors. There will be a low tolerance to death of native species that are slow-growing and long-lived, are locally rare or are highly obvious to the public. Off-target effects would generally be more acceptable if the outcome is likely to be complete eradication of a serious weed than if the weed control is expected to be indefinitely continued.

Use of herbicides around water is an extremely sensitive subject. Consequences of herbicide use will tend to be experienced downstream as well as at the site of application, potentially affecting more people and making the risks more difficult to assess. Some aquatic organisms are extremely sensitive to quite low concentrations of chemicals and the potential risk to the species actually present has to be estimated on the basis of toxicity data available from

only a very small number of test species. Specific regulations may also exist e.g. the restricted list of herbicides approved by Melbourne Water for use in water catchments. Assessing the risks involved at a particular site is a complex problem; labels of most herbicides carry only very general instructions regarding protection of watercourses and these directions need to be interpreted carefully by the user. Toxicity, mobility and persistence of the herbicides, amount to be used and method of application should be taken into account, together with site characteristics such as soil type, slope and frequency of flooding. Presence of hard surfaces from which herbicide may be readily washed into waterways increases the risk and is addressed by Williamson (2003). There is a widespread impression that only glyphosate products registered for use in aquatic situations can be used anywhere near watercourses. A small number of other products are in fact registered for some aquatic situations and a larger number of herbicides may sometimes be appropriate for use close to watercourses, where conditions are such that contamination of the water can be avoided. Some of these products are selective and may sometimes be preferable to glyphosate. Selectivity may be improved and the risk of water contamination reduced by wherever possible using cut-stem, stem-injection or wiping equipment in preference to foliar sprays.

When dense riparian weed infestations are to be treated the potential adverse effects go beyond the possible direct toxicity of the herbicide to aquatic life. Sudden removal of woody weeds can reduce shade so that water temperature is increased, with adverse effects on aquatic life. Algal blooms or aquatic weeds may also be promoted by increased light. If little other vegetation exists on the banks weed removal can result in increased erosion, causing waterways to silt up and also increasing nutrient inputs. Native fauna may have been using the riparian weeds as habitat and as a corridor to move across an otherwise largely cleared landscape. Such species may be badly affected in the interval before replacement vegetation becomes established. Wherever possible a phased approach to removing large riparian weed infestations and replacing them with native species is preferable.

Existing guidelines on herbicide use in riparian and aquatic weed management are scarce. On a national level there has been nothing since the Australian Water Resources Council publication of 1985. Some state agencies have produced information for individual weed species or local areas (e.g. Johnstone River Catchment Management Association 1999) or short publications with general guidelines (e.g. Water and Rivers Commission of WA 2001). Recently the Tasmanian Department

of Primary Industries, Water and Environment (2002) produced a short guideline for safe and effective herbicide use near water that briefly addressed many of the issues referred to here, using the expected frequency of inundation to define appropriate herbicide treatments for a number of riparian weeds. The CRC for Australian Weed Management is currently developing more extensive guidelines. Due to the considerable differences in control of pesticide use and environmental protection arrangements and land management issues amongst different states and territories the current intention is to produce separate versions with a common format that contain appropriate information and examples for each one.

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Problems with controlling weeds on roadsides: case studies on the control of Spanish heath and whisky grass in East Gippsland

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Summary

This paper summarizes the outcomes of control programs carried out by VicRoads on two environmental weed species, *Erica lusitanica* (Spanish heath) and *Andropogon virginicus* (whisky grass), on the Princes Highway in East Gippsland. The discussion briefly outlines the importance of roadside vegetation in East Gippsland, VicRoads approach to managing roadside weeds and the factors influencing the establishment and spread of roadside weeds.

Background

VicRoads is a State Government Authority charged with the responsibility of managing Victoria's arterial road network in accordance with the Transport Act, 1983. This function is carried out by each of VicRoads seven Regions. Part of this responsibility involves the management of roadside vegetation, including pest plants, in accordance with the Catchment and Land Protection (CaLP) Act, 1994, Victoria's Biodiversity Strategy (NRE 1997) and Victoria's Native Vegetation Management – A Framework for Action (NRE 2002).

VicRoads Eastern Region maintains a network of around 3200 km of arterial roads in Victoria's Gippsland region. This network has been assessed for its conservation values using the method outlined in the Roadside Conservation Advisory Committee's Roadside Assessment Handbook (RCAC 1992) as part of VicRoads Roadside Management Plan process. Approximately forty percent of Eastern Region's road network was assessed as having high conservation values using this method. Other targeted biological surveys support these findings. Of this forty percent, over half occurs in Far East Gippsland which amounts to some 1300 km of roadside (including both sides). Many significant native plant species such as the Nationally significant *Grevillea celata* (Colquhoun grevillea) have been identified within these roadside areas.

An important road in Far East Gippsland is the Princes Highway which forms the major transport and tourism link between South Eastern New South Wales and Eastern Victoria. Between Lakes Entrance and the NSW border, the Princes Highway passes through very high quality native bushland that supports high

levels of native plant species diversity. Recorded vegetation communities are associated with various woodland complexes including significant areas of Lowland Forest (Commonwealth of Australia 1996). In many areas, the roadside vegetation is near natural in structure and composition and consequently, the presence of any invasive weed species presents a significant risk to its conservation values.

The major factors that influence the establishment and spread of roadside weeds are: roadworks, both in terms of construction and maintenance activities; natural processes such as the actions of wind, water and animals; human actions including the dumping of garden waste; and external influences such as edge effects, climate, transport of stock and fodder and wind generated by continuous vehicle movement (Muyt 2001, Sindel 2000). The greatest problems with controlling weeds on roadsides stem from the conflict between weed control and the management of the road reserve as a transport corridor. This requires careful planning and coordination of activities in order to maximize the effectiveness of weed control programs.

VicRoads approach to controlling roadside weeds has been to target priority weeds in consultation with the Department of Primary Industries (DPI, formerly the Department of Natural Resources and Environment, NRE), Catchment Management Authorities and Landcare networks subject to available resources. In Eastern Region, this process has been greatly assisted by a working partnership between VicRoads and Pest Plant and Animal Officers from DPI Gippsland. This partnership is discussed in Victoria's Pest Management – A Framework for Action (NRE 2002). While control efforts are primarily focused on reducing the size and spread of priority noxious weed infestations, there is limited ability to target certain key environmental weed species.

Two such weed species that have recently been targeted on the Princes Highway between Lakes Entrance and the NSW border are *Erica lusitanica* (Spanish heath) and *Andropogon virginicus* (whisky grass). The control of these species provides interesting examples of successful use of off label chemicals in native vegetation.