

## **Management of Weeds Procedure Declared and Problem Weeds**

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### **1. Scope**

Management of Declared and Problem Weeds will be carried out throughout The University of Queensland's campuses and sites.

A *weed* may be defined as 'any plant, which is a nuisance to, or interferes with, human activity' or 'a plant that is growing out of place'. Weeds are plants that have the ability to inflict damage on natural ecosystems and anthropogenic systems and reduce the flow of services and benefits to society from these areas. In Australia today weeds are considered a leading threat to biodiversity because of their detrimental effect on indigenous flora and fauna that is associated with weeds' ability to invade, spread, and colonise suitable local habitat sites quickly and initiate a process of biological simplification by which indigenous species are impeded, suppressed, and excluded.

Weeds that have, or could have serious environmental, economic, or social impacts are pest plants that are targeted for control under the Queensland *Land Protection Act (Pest and Stock Route Management) 2002*. State pest management legislation such as this aims to help protect Queensland's biodiversity, economy and people's lifestyles from impacts caused by weeds and is inherent to the future ecological sustainability and optimal functionality of The University of Queensland campuses. Imposed under this state Act is the legal responsibility of all land owners to control declared weeds occurring on land under their management. Recognised problem weed species not declared under this state Act may still be declared under local law and similarly require mandatory control.

The Property and Facilities Division of The University of Queensland is responsible for the management and control of declared and problem weeds on UQ campuses and sites. Therefore a continual and concurrent awareness of problems caused by weeds, and of pest management obligations under legislation are of fundamental importance to those involved in campus weed management practices and planning, as well as staff, students, and visitors of UQ campuses and sites.

### **2. Objectives**

- To implement integrated weed management practices that are ecologically sustainable, financially viable and technically feasible in accordance with The University of Queensland's Environmental Policy;
- To ensure compliance with legislation through the monitoring of The University of Queensland's declared and problem weeds; and
- To complement a stage approach to weed control by implementing integrated weed management procedures, subject to available resources.

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### **3. Management**

Given the large size and scale of UQ campuses and sites and the range of areas under the control of different educational or production sectors this procedure is intended to be applied to specific areas which qualify as high priority weed incursion areas rather than to a campus as a whole.

Landscape Management Plans that include weeds identification and control measures are also developed and implemented on a number of University campuses and sites.

#### **3.1 Prevention**

It is far more cost effective to prevent weed incursions from occurring than it is to control and attempt to eradicate them. Good weed management is the promotion of a weed resistant landscape which allows for the restoration of natural ecosystems and agricultural productivity as well as maintaining and protecting weed free sites. Regular monitoring with good vigilance and effective weed prevention are coupled.

Weed examination sites should be chosen for standard weed monitoring. Site positions should be chosen in relation to the possible pathways of entry and vectors for weed seeds. Vectors in this case could be humans, automotives and machinery, livestock, wildlife, contaminated seed or planting stock, or wind, or water. It is advantageous if weed examination sites also facilitate the germination of weeds due to moist and fertile soil conditions or if the sites are in close proximity to areas of significance requiring weed protection.

Good monitoring sites are:

- Drain culverts or cattle grids which retain water
- Roadside verges or ditches
- Regular livestock or animal feeding sites
- Wildlife habitat and bird roosts
- Anywhere with bare open soil providing possible germination sites

Habitual monitoring of such sites will provide good weed samples aiding weed identification, and provide early warning signs of possible weed incursion and seed build up so prevention and control measures can be instigated.

Using a focused team-approach prevention strategy with strong communication links between people involved in different sectors of the University of Queensland allows for precise and timely information transfer and resilient weed prevention techniques. Weed awareness programs will be conducted from time to time to promote the understanding of weed threats among staff. Aimed at training grounds and farm staff in the identification of the current 'worst weed' in relation to weed monitoring and present weed targets such knowledge will facilitate quick action when new weed incursions are found and reported. Academic programs focusing on weed identification and management will increase student education and campus awareness complementing and assisting weed prevention strategies.

Maintaining a proper preventative level of hygiene with respect to persons, tools and machinery, incineration and disposal of weeds, animals and feed, and seed and planting stock, as well as encouraging desired vegetation and buffer strips to prevent weed incursion in areas of importance are actions that will support the resilience of the campus grounds to incursions of declared or problem weeds.

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### 3.2 Site Assessment

In the case that certain weeds species have established in areas of a UQ campus grounds a site assessment should be conducted. This will help to evaluate the level of weed infestation and what it means to the continued function of that area of land within the campus. Site assessment may take a considerable amount of time; however the more time invested in the first assessment the more relevant the information gathered, which will save considerable time later on down the track.

Site assessment aims to:

- Establish the exact location of the site with GPS
- Identify what the site's primary uses and functions are
- Identify the weeds
- Map the weeds and features of the area
- Develop some idea of why the weeds are present and the history of their invasion into the area
- Identify risks
- Identify local indigenous flora and fauna which require restoration and protection

It is important to know that there is no need to map every weed species that occurs on the site. It is a matter of deciding what the priority weeds to manage are in the light of:

- The seriousness of the threats and problems that they present to the continued function of the campus
- The ease of application and success of control methods used; and
- The amount of resources available to manage the weed.

(Please see [UQG Weed Register](#) and [UQG Weed Site Plans](#).)

### 3.3 Objective Setting and Strategy Development

To have a successful integrated weed management plan specific objectives should be set and strategies to prevent, eradicate, control and manage weed populations must be developed.

Developing the weed management strategy requires:

- Determining weed priorities
- Setting measurable objectives to achieve priorities using available resources
- Maintaining a long term perspective

Whether a weed represents a small or a large threat is dependant on factors that relate to its invasiveness and impacts. The University of Queensland recognises the guidelines outlined by the Natural Heritage Trust in cooperation with the CRC for Australian Weed Management by determining weed priorities through a weed assessment regarding:

- Its ability to establish amongst existing vegetation
- Its competitiveness once established
- The likelihood of long distance dispersal (wind, water, livestock, wildlife, machinery)
- The extent of reduction in desired vegetation caused by the weed
- The potential losses or damages to agriculture
- The feasibility of control measures for this weed

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Realistic and achievable objectives should be chosen. Whether eradication is a realistic possibility or whether control and containment is going to be the focus of the management program must be decided. Short, medium, and long term objectives together will provide guidance over the given time frame. Main objectives may be to reduce expenditure on weed control costs, improve productivity of the site, or foster restoration and protection of ecologically significant areas within the site.

### **3.4 Strategy Finalisation and Implementation**

To determine how the action plan will be constructed the following questions must be regarded:

- What weeds and what locations are the highest priorities?
- What resources are there available?
- What management options will be most *effective, minimise environmental damage* and make the site more *resilient to weed invasion*?

Having discerned weed priorities the most important decisions are:

- Selecting which control measures will be applied to each weed
- The timing and regularity of the applied control measures
- Delegating tasks to be carried out
- Which University organisations or sectors require prior notification of weed control measures to be implemented and within what time frame?
- What monitoring needs to take place to measure the impacts of the control methods used?
- Is the required amount of resources available?

Resource assessment must also be carried out to provide an idea of the levels of financial support supplied by the budget and the number of people available to carry out the required weed management tasks. This gives an idea of the validity of certain tasks and whether they may be successful or not in reference to the pooled resources available.

### **3.5 Monitoring and Review of Performance**

Monitoring allows for:

- The identification of performance indicators that determine how well control measures are working
- The rate of spread or contraction of weed infestations
- The rate of successful establishment of desirable vegetation and ecological restoration
- The identification of new weed threats or other factors that may affect site restoration

As a result of gathering fresh information through the monitoring process the weed management plan can be altered as needed to improve results and respond to changes in the environment. This gives the weed management plan resilience and flexibility to react to seasonal conditions and changes that may compromise existing priorities and previously set objectives.

Such monitoring will involve mapping the site at regular intervals, every 6-12 months, as well as taking photos and revisiting the site and site information to check if data that impacts on the

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weed management plan needs to be updated. This may be the case after heavy rainfall or in the event of a fire or natural disaster.

Monitoring activities should focus on:

- Recording the details of when and what control techniques were used
- Changes in the extent of weed populations (spreading / contracting)
- Changes in the density of weeds
- Occurrences of other or new declared or problem weeds
- Unexpected impacts of weed control activities such as off target damage, erosion, or even invasion by other weed species
- Changes in the extent and condition of native or desirable vegetation
- Changes in any conditions that will impact on the site's restoration

By recording such information it is then possible to begin to establish what is happening on the site over time. This enables informed management decisions to be made and allows for the alteration and tailoring of the weed management plan to suit new priorities. Such information should be documented in a Weed Spreadsheet to allow for further reference and evaluation.

#### **4. Responsibilities**

The Property and Facilities Division is responsible for the management and control of declared and problem weeds on UQ campuses and sites as discussed above.

Faculties, Schools and Centres are responsible for managing activities that might impact on weeds management, eg. animals/livestock.

Any enquires with respect to the management and control of declared or problem weeds at The University of Queensland campuses and sites should be addressed to the following personnel as listed in Table 1.

**Table 1. Responsibilities**

<b>Campus</b>	<b>Department</b>	<b>Contact</b>	<b>Telephone</b>
St Lucia campus and other sites	Property and Facilities Division	Shane Biddle Senior Supervisor Grounds	07 336 52747 Ext. 52747
Gatton and Ipswich campuses	Properties and Facilities Division	Steve Barakin Grounds Supervisor	07 5460 1435 Ext. 50435

#### **5. References**

- Qld. Land Protection (*Pest and Stock Route Management*) Act 2002
- Dight, G.A., Huggins, J.A., Lucy, M.J., Zerner, G.R., 2003, '*Weeds of Southern Queensland*', 2<sup>nd</sup> Ed, Qld. Dept. of Primary Industries; Natural Resources and Mines.
- Kleinschmidt, H.E. & Johnson, R.W., 1977, '*Weeds of Queensland*', Qld. Dept. of Primary Industries.

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## 6. Useful links

Weeds of National Significance

<http://www.weeds.org.au/natsig.htm>

Australian National Dept. of the Environment and Heritage

[www.deh.gov.au](http://www.deh.gov.au)

Weeds Australia – National Weeds Strategy

[www.weeds.org.au](http://www.weeds.org.au)

Council of Australasian Weed Science Societies

<http://www.caws.org.au/>

Australian Association of Bush Regenerators

<http://www.aabr.org.au/>

Weedeck national guides to identification

<http://www.sainty.com.au/wdpg2/wdpg2.html>

Landcare Australia

[www.landcareaustralia.com.au](http://www.landcareaustralia.com.au)

Queensland Weed Strategy

[http://www.dpi.qld.gov.au/cps/rde/dpi/hs.xsl/4790\\_6686\\_ENA\\_HTML.htm](http://www.dpi.qld.gov.au/cps/rde/dpi/hs.xsl/4790_6686_ENA_HTML.htm)

Weeds at Qld. Dept. Employment, Economic Development and Innovation

[http://www.dpi.qld.gov.au/26\\_4823.htm](http://www.dpi.qld.gov.au/26_4823.htm)

Greening Australia

<http://www.greeningaustralia.org.au/>

Landcare Queensland

<http://www.landcare.org.au/default.htm>

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