

WEED STRATEGIC PLAN 2004-2008



ROYAL BOTANIC GARDENS MELBOURNE
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BACKGROUND

National Context

In the scope of this WSP, weeds are defined as invasive plants that pose real or potential threats to the conservation of indigenous plant habitats, sustainability of agricultural industries and horticultural values of managed gardens <http://www.weeds.crc.org.au/>.

The *National Weeds Strategy* (ARMCANZ and ANZECC 1999) provides the assessment that weeds are one of the most serious threats to Australia's natural environment and primary industries. In 2004, it was estimated that weeds cost Australia from \$3.5 to 4.5 billion dollars per annum in environment protection, lost production and control (Sinden *et al.* 2004). This does not include the costs of losses to biodiversity by weed invasion of natural habitats or other losses to conservation, recreation and aesthetic values (ARMCANZ and ANZECC 1999). While the environmental costs are difficult to estimate, it is suggested they are similar or even greater than that is estimated for agriculture (<http://www.affa.gov.au/>).

Most weeds found in Australia originate from the Americas (31%), Europe (27%), Africa (26%) and Asia (10%). Australasia contributes 2% with 4% remaining from other origins (<http://www.weeds.crc.org.au/>). Of about 3,000 weed species occurring in Australia, about 1,900 are environmental weeds (Blood 2003).

Significantly, 25,360 (94%) of plants imported into Australia were for ornamental horticulture. Over 1,300 (5%) of these have found to be agricultural, prescribed or environmental weeds, and comprise 70% of all introduced weeds (Glanzign *et al.* 2004).

The high percentage of 'garden escapes' is very significant when it is considered that the 12 major Botanic Gardens within Australia cultivate about 40,500 different taxa in total (Fagg pers. comm. 2003). This figure is very similar to what is commercially available, with about 45,000 taxa being grown for ornamental horticulture by nurseries across Australia (Spencer pers. comm. 2003). In comparison, the total of native taxa recorded for Australia is about 16,000 (ABRS 1999).

Victoria

About 3,400 indigenous vascular plants (72% of total) occur within Victoria compared to about 1,200 exotic naturalised flora (28% of the total). It is considered that Victoria may contain the highest proportion of naturalised exotics compared to other respective states (Ross and Walsh 2003).

Royal Botanic Gardens Melbourne

RBG Melbourne is world-renowned for its picturesque landscape. It is also characterised by a rich diversity of plants with about 12,000 taxa currently in cultivation (Glissman-Gough pers.comm. 2003) representing a variety of habitats and geographical locations from around the world. This plant diversity presents challenges in the management of weeds. If the precedent of higher proportions of weeds originating from ornamental horticulture is considered with the relatively high numbers of taxa cultivated by RBG Melbourne, then there is a need to develop risk management strategies.

There are also considerable opportunities to provide education for visitors and improve public awareness of the issues that may potentially reduce weed problems beyond RBG Melbourne managed land. In addition, botanical and horticultural staff are readily able to observe and monitor existing species in cultivation for invasive characteristics. These technical observations can then inform others involved in land management and conservation as a preventative 'early warning system' for species that may not have a known weed history.

There have been no formal strategic documents or guidelines specific for weed management in the history of RBG Melbourne. Generally, the control of weeds has been to meet horticultural objectives rather than consider risks to natural habitats. Weed control in the Gardens is addressed through operational plans and on a day-to-day and often reactive basis. Documents such as the *Policy for the Spraying of Agricultural Chemicals* provide for general OHS requirements and use of chemicals for control of pests - but are not weed specific. In addition, the current scientific and socio-political emphasis in developing more sustainable and integrated land management practices, rather than just relying solely on chemicals, demonstrates a need for effective planning and management.

The potential spread of environmental weeds from RBG Melbourne has been managed by restricting propagation and sale of 'known' weedy species. Botanical staff currently undertakes most of this assessment. A Weed Risk Assessment Procedure (WRAP) is currently being developed to involve horticultural and botanical staff in their areas of expertise and also provide a more structured system of assessing weed potential.

In 2000, the *Policy for conservation of plant biodiversity: conserving Australia's plants for the future* was published by the Royal Botanic Gardens and outlines the responsibility of the organisation in preventing and managing the spread of invasive plant species.

The *Policy* states:

(Objective 4.6)

Restrict the spread of environmental weeds and pathogens from and within RBG lands by seeking not to propagate known local environmental weeds on RBG lands other than for educational displays, by disposing of waste vegetation in such a way that plant reproductive material and pathogens are not released into the environment, and by responding rapidly to any invasion of exotic plant species to new areas.

In recent years, RBG Melbourne has been actively networking with a range of people from external agencies with expertise in weed risk assessment and management to improve the knowledge and skills of staff in effectively preventing the spread of invasive plants.

Weed Strategic Plan

This Weed Strategic Plan (WSP) aims to build upon current staff commitment, strong support from external agencies and the objectives of the *Policy for conservation of plant biodiversity: conserving Australia's plants for the future* to prevent future spread of weeds, and improve and develop weed management goals. RBG Melbourne is also committed to complying with legislation such as the *Catchment and Land Protection Act 1994* that provides for the declaration of prescribed weeds whether State Prohibited or Noxious species.

In addition, the WSP is also written in context of the following publications:

- *Victorian Pest Management - a Framework For Action : Weed Management Strategy*
- *The National Weeds Strategy : a strategic approach to weed problems of national significance*

In summary, these documents aim to establish programs that:

1. Prevent new weed problems
2. Reduce impacts of existing weed problems
3. Provide for continuing improvement to management, partnerships and coordination, research and education.

Of particular note, the *National Weeds Strategy* encourages the development of strategic plans for weed management at all management tiers from national bodies down to local property level.

It is anticipated that this WSP would provide a means to strategically link education opportunities, management requirements and current scientific knowledge to reduce infestations and spread of weeds both within and outside RBG Melbourne managed land.

The WSP will be reviewed by the working group on an annual basis, and under the direction of Manager, Horticulture, to incorporate current scientific knowledge, management practices and organisational priorities.

OBJECTIVE 1 – WEED MANAGEMENT

Manage the risk of invasive plants from dominating within or spreading beyond the managed lands of the Royal Botanic Gardens Melbourne.

Strategy 1.1

Reduce the risk of weedy species being imported into or exported from Royal Botanic Gardens Melbourne.

- Develop a formal Weed Risk Assessment Procedure (WRAP) framework for implementation within RBG Melbourne and RBG Cranbourne
 - Capture both technical and scientific input in plant assessment
 - Maintain plant lists of observed weedy characteristics, particularly recruitment potential
 - Implement and test WRAP to inform the development of the national framework for Weed Risk Assessment in Botanic Gardens
 - Define the roles and responsibilities of Royal Botanic Gardens staff involved in plant introductions and exchanges

- Develop a national framework for Weed Risk Assessment in partnership with the Australasian Botanic Gardens and the CRC for Australian Weed Management
 - Represent effectively the needs of Royal Botanic Gardens Melbourne

- Develop effective procedures to reduce the risk of the spread and establishment of weed species.
 - Review the Hygiene Protocol to include weed issues, movement of materials within the Gardens and transport and disposal of waste materials
 - Review the disposal and processing of weed propagules including disposal of identification material from Herbarium
 - Develop a list of priority weed species for control and inclusion in workplans each year
 - Assess and manage Growing Friends plant propagation and sales lists
 - Review and assess weed risk of project plant lists and other new plant accessions prior to final selection
 - Incorporate weed risk assessment clauses in collection of biological material agreements and exchanges of plant material

Strategy 1.2

Develop and continue to build information base on weed biology, control, distribution and management options

- Develop a weed database, which captures existing information compiled by Royal Botanic Gardens staff
- Establish and build a list of all species that will be excluded from cultivation within the living collections because of their weed potential – possibly incorporating this with the Living Collections Census
- Establish and build a list of all species that will be assessed as safe or low weed risk for cultivation within the living collections
- Establish an information pack in relation to the known weed potential of popular garden genera or families, eg Poaceae, Iridaceae, etc
- Develop a priority list of environmental weeds currently cultivated in the living collections and establish management plan/s and timeframe for their gradual removal
- Develop an Information and Resource Pack for RBG staff, Growing Friends and others as a brief to the background issues and resources relating to environmental weeds.
- Investigate alternative and more sustainable weed control methods

Strategy 1.3

Continue to build strategic partnerships with allied institutions on weed-related issues.

- Maintain networking and regular communication with the following key organisations on weed management issues:
 - Australasian Botanic Gardens (particularly the development of a National Weed Risk Assessment framework in partnership with CRC for Australian Weed Management)
 - CRC for Australian Weed Management (as above)
 - Victorian Department of Sustainability and Environment
 - Victorian Department of Primary Industries
 - Sustainable Gardening Australia
 - Department of Environment and Heritage
 - Local Government
 - Neighbouring land and environmental land managers including Government House, City of Melbourne, Parks Victoria and Melbourne Water
 - Conservation Volunteers Australia
 - Other relevant organisations.

OBJECTIVE 2 - COMMUNICATION

Develop effective communications to enhance the education of staff, visitors and the community of the impact that weeds have on the environment.

Strategy 2.1

Communicate with internal and external stakeholders regarding weed management issues.

- Develop a Communications Plan for implementation of the Weed Strategic Plan
(include following items to Action Table)
 - Develop DL flyer and fact sheet for distribution to the general community at the Visitor Centre
 - Develop a web page to inform the community of environmental weed issues, including an Information Resource Pack and the WSP
 - Provide information on weed management strategies to the public at Growing Friends Plant Sales
 - Provide regular and current information on RBG Melbourne weed management strategies to voluntary guides for including messages in garden tours
 - Develop weedy species display in the Visitor Centre for events such as World Environment Day, Weedbuster Week and Threatened Species Day
 - Investigate opportunities for interpretative signage of weedy species that have been retained for educative purposes within the Gardens
 - Nominate RBG Melbourne staff that Visitor Centre staff can direct enquires to on management of invasive plant species
 - Publish articles on RBG Melbourne weed risk assessment and management strategies in horticultural journals, trade publications, media and magazines.

Strategy 2.2

Promote staff access to training and development opportunities.

- Continue membership of the Weed Society of Victoria (Inc) and subscriptions to weed-related publications
- Support staff attendance and involvement in the activities and meetings of the Weed Society of Victoria
- Facilitate access for staff attendance at relevant conferences, workshops or seminars relating to weed management
 - Attend biennial Weed Society of Victoria conference
- Encourage staff subscription to and participation in the mailing list 'Enviroweeds'.
- Subscribe to the Plant Protection Quarterly magazine

Strategy 2.3

Revive and develop education materials and programs appropriate for school and TAFE students.

- Review and reprint 'Alien Invaders' book for sale to schools and TAFE institutions
- Enhance Education website relating to 'Alien Invaders'
- Incorporate the topic of environmental weeds in the 'Sustainable Gardening' Education Program.

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