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An assessment of the Weed Management program in land managed by Parks Victoria

March 2008

Biosis Research

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Report to Victorian National Parks Association

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Final Report

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1.0 EXECUTIVE SUMMARY

An investigation into the capacity and ability of Parks Victoria to meet its responsibilities for environmental weed management was undertaken, through a review of legislation and planning documents, interviews with head office and park staff, and assessments of programs in three selected parks.

The investigation found that Parks Victoria's Levels of Protection framework guides the allocation of resources at a bioregional scale, but does not translate well at a local level, and does not ensure that natural values are protected.

There is a need for increased funding for resources to manage environmental weeds. These resources should be available as reliable, recurrent annual funding. The increasing use of initiative funding is inappropriate for weed control programs, and could lead to a deterioration in natural values across parks.

There is also a need for measurement and assessment of natural values as part of the State of Parks reporting, and for natural values condition monitoring to be an essential component of all weed control programs.

2.0 INTRODUCTION

2.1 Project Background

Biosis Research Pty. Ltd. was commissioned by the Victorian National Parks Association (VNPA) to undertake an assessment of the weeds management program of Parks Victoria (PV).

The results of the assessment will form a component of the VNPA submission to the development of the White Paper on Land and Biodiversity at a time of Change.

2.2 Objectives

The objectives of this investigation are to:

- Briefly identify the role and legislative responsibility of Parks Victoria with respect to weeds management, and associated issues.
- Briefly identify the management policies, strategies, plans and operational procedures that guide the management of weeds in parks.
- Identify any gaps or inconsistencies within 1 and 2 above.
- Determine whether relevant policies, strategies, plans, procedures, roles and responsibilities are being followed.
- Determine if the response of PV is sufficient to meet these responsibilities.
- Make recommendations for improvement where required.

3.0 METHODS

The assessment was undertaken through a brief review of current documents that relate to weed control on land managed by PV, interviews with head office and selected park staff and visits to three parks.

3.1 Information sources

The information in this investigation has been collected in two ways as follows:

1. Parks Victoria reports and other publications (as cited), relevant legislation and policy documents; and

2. Interviews with rangers and other staff with a role in the management of weeds in specific parks including investigation team site inspections in selected parks.

3.2 Selected Parks

Three parks were selected as examples of the weeds control program. The selection of the parks was undertaken in conjunction with the VNPA and Parks Victoria. The parks selected were:

- Wilsons Promontory National Park.
- Great Otways National Park.
- Warby Range State Park.

The basis of the selection was somewhat arbitrary, but we attempted to review parks that were from different environments with different histories and status.

3.3 Site Visits and interview process

We visited each of the three parks and interviews with relevant parks staff were conducted.

The park interviews, which took approximately two hours to complete, were conducted in an informal setting at each of the parks visited and at least two PV staff were interviewed at each park. Interviewees were provided with the list of questions prior to the interview. The full list of questions is listed in Appendix 1.

3.3.1 Park Visits

Park visits and interviews were conducted on the following dates:

- Wilsons Promontory National Park
    - Interview conducted 3 August 2007.
    - Field Inspection completed 4 August 2007.
- Great Otways National Park
    - Interview conducted 9 August 2007 at Anglesea and 10 August 2007 at Apollo Bay.
    - Field Inspection completed 9 and 10 August 2007.
- Warby Range State Park
    - Interview conducted 17 August 2007 at Wangaratta.
    - Field Inspection completed 17 to 19 August 2007.

3.4 Disclaimer

The information and opinions expressed in this report are based entirely on our interpretation of data gathered during the assessment process. The primary aim of the interviews with PV staff was to expand our understanding of the weed control process in PV. The results of the interviews, as reported here, have been paraphrased and summarised and represent the opinion and interpretation of the Biosis Research team. The information in this report should not be construed as the opinions of the PV staff or that of the VNPA.

4.0 RESPONSIBILITIES OF PARKS VICTORIA

PV has legislative and corporate responsibilities for the management of weeds on the land it manages.

Corporate responsibility includes tasks and obligations Parks Victoria comply with as part of a Victorian government department. Examples include self-imposed roles, directed by internal policies from State government to local strategies, such as the Good Neighbour Program.

4.1 Legislative responsibility

Legislative responsibility covers agreements, legislation, treaties and policies that are external to Parks Victoria and which it is obliged to follow as a manager of land.

4.1.1 National

Commonwealth legislation and strategies that guide the management of pest plants on Parks Victoria land include:

4.1.1.1 National Strategy for Ecologically Sustainable Development 1992

The National Strategy for Ecologically Sustainable Development has three core objectives that:

- enhance individual and community wellbeing and welfare by following a path of economic development that safeguards the welfare of future generations;
- provide for equity within and between generations; and,
- protect biological diversity and maintain essential ecological processes and life-support systems.

4.1.1.2 National Strategy for Conservation of Australia's Biological Diversity 1996

This National Strategy for the Conservation of Australia's Biological Diversity aims to bridge the gap between current activities and the effective identification, conservation and management of Australia's biological diversity; and it accepts the guiding principles of the National Strategy for Ecologically Sustainable Development.

Implementation of the Strategy requires cooperation and coordination from all

levels of government, industry, community groups and individual land managers.

4.1.1.3 National Weeds Strategy 1999

The National Weeds Strategy is the overarching policy document for weed management on both public and private land in Australia. The strategy generally recommends that those closest to the weed problem have the greatest responsibility.

4.1.1.4 Environment Protection and Biodiversity Conservation Act 1999

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) protects the environment, particularly matters of National Environmental Significance. It streamlines national environmental assessment and approvals process, aims to protect Australian biodiversity and integrates management of important natural and cultural places.

4.1.2 State

4.1.2.1 National Parks Act 1975

The National Parks Act 1975 is administered by the Director of National Parks (the Chief Executive Officer), Flora and Fauna within the Department of Natural Resources and Environment.
The objectives of the Act include the provision, in respect of national parks and State parks for:

- the preservation and protection of the natural environment including wilderness areas and remote and natural areas in those parks; and
- the responsible management of the land in those parks.

The Act requires that National and State parks are managed in a manner that will:

- preserve and protect indigenous flora and fauna, and
- eradicate or control exotic flora.

The Act also provides for the development of park management plans which may include or direct the development of weed management plans.

4.1.2.2 Catchment and Land Protection Act 1994 (CaLP Act)

The Catchment and Land Protection Act 1994 is administered by the Director of Catchment Management and Sustainable Agriculture within the Department of Natural Resources and Environment. The Act provides the power to

declare plants as `noxious' if they are considered to have, or have the potential to become, a serious threat to primary production, Crown land, the environment or community health in Victoria.

4.1.2.3 Victorian Pest Management: A Framework for Action

This framework is an over-arching document in Victoria that aims to integrate weed management actions of relevant industry, government and community groups. The Framework sets broad objectives to guide the strategies and internal policies of land and water management agencies including Parks Victoria.
Source: VPMF summary

4.1.2.4 Victorian Pest Management Framework: Weed Management Strategy

The Strategy has been developed within the Victorian Pest Management – A Framework for Action (VPMF) and deals with weed management in Victoria.

The goals of the Weed Management Strategy are to:

1. Prevent new weed problems.

2. Achieve a significant reduction in the impact of existing weed problems.

3. Achieve a Victorian community that is fully aware of the economic, social and environmental impacts and threat of weeds, and has the knowledge to act to minimise their damage.

4. Achieve effective working partnerships built for progressive weed management.

5. Achieve continuous improvement through review and evaluation.

4.1.2.5 Weed Alert Rapid Response Plan Victoria 2005/2006 - Surveillance and response plan for potential, new and emerging weeds in Victoria.

Weed Rapid Alert Response plan (WARR) covers potential, new and emerging weeds of known or potential impact to environments, industries and other social values in the State of Victoria. The plan covers all types of weeds; declared and undeclared, agricultural and environmental, land and aquatic (non-marine).

WARR fits within a framework of weed policy from national to local levels. The principles of WARR follow the objectives of *The National Weeds Strategy*, and within Victoria, in the *Victorian Pest Management Framework.*
Source: DPI, 2005.

4.1.2.6 Interim guidelines and procedures for managing the environmental impacts of weeds on public land in Victoria

This document outlines the principles, standards and planning procedures for managing the environmental impacts of weeds on public land throughout Victoria.

This includes the interface with private land and covers all terrestrial and aquatic environments (excluding marine). It is intended that the Interim Guidelines are placed under the Victorian Pest Management Framework. The guidelines and procedures aim to:

- provide a practical and adaptive framework to guide weed management decisions; and
- develop a high level of consistency in the planning, implementation and evaluation of weed management efforts on public land.

The environmental impacts of weeds is emphasised and seeks to raise performance in line with the long-term ongoing focus on agricultural weeds. The practical application of these Guidelines is being piloted in the Otways-Angahook region of Victoria (Great Otways National Park) with results to be used to develop a state-wide approach.
Source: DSE, 2006.

The interim guidelines are specific to the management of weeds on public land but also address the issue of weed dispersal across land cross tenures. Parks Victoria refers to this document for the principles, standards and planning procedures for managing the environmental impacts of weeds on PV managed land.

4.1.3 Regional and Local

The following regional plans may also be considered by Parks Victoria when setting priorities for weed management in parks.

- Catchment Management Authority Regional Vegetation Management Plans,
- Catchment Management Authority Regional Catchment Strategies,
- Catchment Management Authority Weed Action Plans, and
- Bioregional Plans.

4.2 Corporate responsibilities

Parks Victoria have a number of Guidelines, Frameworks and Protocols/Parks Victoria policies, strategies, plans and operational procedures that guide the management of weeds in parks.

4.2.1 State

Parks Victoria states that the primary objective for natural values management in Victorian parks is to:

> 'maintain and restore the natural values and ecological processes of Victoria's parks network for their long-term viability.'

Source: Parks Victoria, 2004

4.2.1.1 Directions in Natural Values Management

This program includes actions to prevent the introduction of pest plants or to eradicate, reduce or control the extent and density of pest plant infestations. Actions following pest plant control to replace or encourage regeneration of native species are included in other relevant program areas such as Habitat Restoration, Catchment and Water Management or Ecological Fire Management. The assessment of pest plant risk, preparation and implementation of operational plans, and monitoring of the effectiveness of pest plant control are part of this program area. The conduct of adaptive experimental management programs is included in this program but other research will be addressed in the Environmental Research and Performance Management Program.
Source: Parks Victoria, 2004.

Natural values management is considered one of the four key outputs of Parks Victoria alongside cultural values management, visitor services and wildfire and other emergency management. This document aligns natural values management outputs within the Parks Victoria corporate structure. The document represents Parks Victoria's move towards a risk management approach in environmental management.

4.2.1.2 Levels of Protection for Natural Values Projects

Parks Victoria's management of biodiversity within parks and between parks is prioritised using the Levels of Protection framework (LoP).

Legislation and government policies that apply to the parks and reserves network underpin the LoP Framework. The Framework uses the common elements advocated in international, national and state approaches and strategies for the establishment and management of protected areas, particularly the state and national biodiversity strategies, to value biodiversity attributes throughout the network.

The Levels of Protection framework has been developed to:

- transparently identify network level objectives that link to and inform park level directions in management plans;
- guide resource allocation across the network and improve the definition of total resource requirements for NVM;
- facilitate the integration of cross-tenure biodiversity conservation planning at the bioregional scale; and
- provide a basis for determining performance assessment priorities.

A key principle of the Framework is that protected area planning and management is conducted in a bioregional context with the value, and hence priority, of biodiversity attributes assessed on the basis of:

- conserving the range of ecosystems and existing biotic diversity;
- the occurrence of attributes that depend on a particular park for their security;
- conserving ecosystem structure and function through addressing high risk threats;
- higher ecological viability and integrity of populations.

Source: Parks Victoria, 2006

Parks Victoria's management of biodiversity within and between parks is prioritised using the LoP. The framework aims to integrate the implementation of strategies, policy and legislation by prioritising resource use at the bioregional scale. This document is an important tool to facilitate the allocation of resources for weed management in and between parks by managing on a bioregional scale.

4.2.1.3 State of the Parks Report 2007

Victoria's State of the Parks Report 2007 presents a summary of available information about park values including natural values protected within Victoria's parks and reserves. The report supersedes the 2000 State of the Parks Report and aims to:

- contribute to a better understanding of the condition of parks and the current and emerging threatening processes that impact on parks;
- evaluate the effectiveness of management; and
- inform planning and decision-making.

Source: Parks Victoria, 2007.

Chapter five of Victoria's State of the Parks report addresses threatening processes including weed invasions in Victorian parks. Weed invasions in this chapter are broadly described within the context of the current status of invasions, the efforts to manage the threat and the effectiveness of the management. A key aspect to the chapter is the identification of priority and non-priority weed species. Parks Victoria staff have identified 200 priority weed species. Eighteen of these 200 species were identified as a priority in more than five per cent of the 332 parks assessed and are listed in the report. Not all of these eighteen species are listed as noxious weeds under the CaLP Act 1994.

The report claims several Parks Victoria achievements relating to weed management, including:

- The stabilising or reduction in extent of 15 of the 18 most commonly reported weeds, where there was a control program;
- The implementation of targeted weed control programs within higher value parks and those affected by fire;
- The implementation of large-scale English Broom and Willow programs as well as predator control programs in response to post-fire weed concerns in alpine regions;
- A greater understanding of the effectiveness of different weed control techniques through the English Broom Adaptive Experimental Management (AEM) projects.

Source: Parks Victoria, 2007

5.0 THE AIM OF WEED CONTROL IN PARKS

> *Weeds are considered second only to land clearing as a major cause of biodiversity loss.*
>
> *Source:* Martin 2003 as cited in Parks Victoria 2007.

The reason for the control of weeds in parks is to conserve and enhance natural values. "Natural values" are not explicitly defined by PV although it is implied that "biodiversity" is synonymous with natural values (PV 2007, page 41).

If this is accepted, it follows that:

The primary aim of weed control in parks is to enhance biodiversity.

All of the PV staff interviewed during this process agreed with and accept this aim.

We recognise, however, that there may be other reasons to control weeds in parks. For example, there is a legislative requirement to control noxious weeds even though they may be having only a minimal impact on biodiversity in some parks; and, weed control on park boundaries or around visitor facilities may be desirable for reasons other than biodiversity protection and enhancement.

It is also recognised that the control of weeds for any reasons may be regarded as enhancing biodiversity – but this is not necessarily the outcome.

So, how do we know or judge that weed control activities in parks are enhancing biodiversity?

6.0 ASSESSMENT FINDINGS

The assessment was based on meetings with a range of PV staff and limited park inspections. The questions asked were purposefully broad with the aim of developing a discussion that would illicit the interviewee's understanding of why they are controlling weeds and how the whole weed control process works in PV.

The methodology allowed the Biosis Research team to better understand the approaches taken to weed control in parks and identify inconsistencies between the stated aims of PV and what is actually happening on the ground in parks.

The response to the interview questions and general discussions were then nested into a number of themes that assist in the understanding of the overall weed control program.

The themes that we considered are:

- Prioritisation of the weed control program.
- Reporting of weed control effectiveness.
- Weed control funding process.
- Weed control planning process.
- Staffing for weed control.
- Knowledge of weeds.
- Monitoring of weed control.
- Biological control of weeds.

6.1 Prioritisation of the weed control effort

It is recognised that current funding levels do not allow actions to be taken for all manageable threats and that some invasive species are almost impossible to manage with current resourcing.

In response, PV has developed a very sophisticated and potentially rigorous process for the prioritisation of the weed control effort at the State level and within individual parks. The prioritisation process is based on the Levels of Protection for Natural Values Project.

6.1.1 Levels of Protection for Natural Values Project

PV's management of biodiversity within parks and between parks is prioritised using the Levels of Protection framework.

The Framework uses the common elements advocated in international, national and state approaches and strategies for the establishment and management of protected areas, particularly the state and national biodiversity strategies, to value biodiversity attributes throughout the network.

The Levels of Protection (LoP) framework has been developed to:

- transparently identify network level objectives that link to and inform park level directions in management plans;
- guide resource allocation across the network and improve the definition of total resource requirements for NVM;
- facilitate the integration of cross-tenure biodiversity conservation planning at the bioregional scale; and
- provide a basis for determining performance assessment priorities.

The legislation and government policies that apply to the parks and reserves network underpin the LoP Framework.

At the park level, rangers and regional staff prioritise the actual weeds to be controlled or treated and the areas in which they will be treated.

In essence, the LoP process and the park prioritisation process determines where the line will be drawn between weed control programs that will be funded and addressed and those that will not. The location of the line is entirely dependant on the amount of money made available from the government for the funding the weed control program.

The LoP process provides a potentially rigorous and defensible basis for the allocation of scarce resources. It does not ensure that the natural values of the parks system are protected or enhanced.

The LoP process is an admission that resourcing for weed control is currently inadequate and results in many treatable weed infestations being untreated or inadequately treated due simply to the lack of resources.

6.2 Reporting of weed control effectiveness

Victoria's State of the Parks Report 2007 presents a summary of available information about park values including natural values protected within some of

the parks and reserves managed by PV.

In addressing the effectiveness of weed control, the report does not present any data to indicate that the natural values of the parks have been maintained or improved. It presents data on the area of parks treated to control weeds and lists a range of weeds where infestations have been stabilised or reduced as a result of the weed control effort but this is not necessarily coincident with an improvement in natural values either within a park or across the PV estate.

This is shortfall is recognised by PV. A new monitoring system, with the aim of obtaining a better understanding of the effectiveness of weed control on biodiversity, is currently being developed and tested in collaboration with DSE in the Great Otway National Park.

PV is also developing a *Signs of Healthy Parks* monitoring initiative in an attempt to gain a better understanding of the effectiveness of management actions but it is not in place yet.

There currently is no evaluation of the effectiveness of the weeds control program in protecting and enhancing the biodiversity of the parks system so this aim of the SoP has not been met.

6.2.1 Recommendations

- The SoP should in future report on the state of the natural values across the park system, and within each park, and how the weed control program has contributed to any improvements.
- PV should accelerate its planned biodiversity monitoring program to ensure weed control actions are effective in achieving the stated aim of improving park values and biodiversity.
- Individual parks should be included in the SoP report.

6.3 Weed control funding process

While in general terms funding for protection of natural values is based on the Levels of Protection Program it has no clear or direct relationship between the actual weed problem within a park and the level of funding.

Funding for weeds is received by PV from three principal sources:

- Annual appropriation as recurrent funding;
- Government initiatives;

- Program funding, such as the Good Neighbour Program; and,
- Third parties such as CMAs, DSE or DPI.

6.3.1 Annual appropriation

The annual appropriation is more or less guaranteed money on an annual and on-going basis. Notwithstanding some fluctuation in the amount of money, the annual appropriation money can generally be relied upon so that planning at a regional and park level can be undertaken with some confidence.

The confidence of the money allocation is an important component of weed control and all PV staff considered it was vital if weed control activities are to be effective.

PV field staff are more likely to attack a weed infestation if they have the confidence that the funding will be available for follow-up works in ensuing years.

There does not appear to be any clear connection between the level of funding and the level of weed threat to a particular park.

None of the interviewees were aware of how the amount of money provided to the park for weed control was determined.

As we understand it, the money is provided to a PV region where it is then allocated according to a bidding system within the region based on the weed control issues in each of the parks within the region. It appears to the Biosis investigation team that there is a very good knowledge of the weed control requirements within each park and a good knowledge of the relative weed problems within a PV region but that knowledge has no bearing on the size of the allocation from head office.

So, while we believe the annual appropriation funding is the best model for weed control in parks, the level of funding should relate to the weed problems in each park.

6.3.2 Government initiatives

Currently, government initiatives based on particular weeds or on particular situations in which the weeds occur are the primary sources of funding. For example, funding may be tied to weeds occurring in the alpine area of Victoria or weeds occurring on the interface between parks and private land through the good neighbour program or for some other reason. We understand that weeds

initiative funding is generally on a three year cycle.

Again, how the weed or particular area targeted for control is determined is unclear and does not seem to be necessarily related to the problem within the park. It represents a top-down approach to weed control which is the complete reverse of what we believe is the preferred method of determining and prioritising weed control in parks.

Initiative funding can give a large boost in weed control funding for the recipient park or parks but its effectiveness as a means of controlling weeds, not to mention improving biodiversity, is highly questionable. Field staff indicated that while the money was welcome on one level, they were less likely to embark on weed control in new areas or significantly expand the weed control effort as it could all be wasted if follow-up money was unlikely to be available at the end of the initiative period.

The initiative funding model significantly reduces the flexibility of PV to respond to weed control issues by tying money to target weeds or problems that may not be the greatest threat to individual park values. Indeed, initiative funding may even work against the aim of enhancing biodiversity if it diverts limited resources from other more important weeds or areas.

It is our view that short term initiative funding is a poor means of controlling weeds in the longer term and may even be negative for enhancing biodiversity in parks where it diverts energies from long-term control programs.

6.3.3 Good Neighbour funding

Good Neighbour funding is targeted at weed control at the interface between the park and neighbouring properties. In parks with a long boundary interface with private land, such as Warby Range State Park, a large proportion of the weed control budget and effort comes from the Good Neighbour program.

The control of weeds on the park boundary is recognised as a generally acceptable part of being a good corporate citizen and contributing to the protection of both the park and surrounding landholders. However, the control of agricultural weeds within a narrow strip of park does not necessarily enhance the natural values of the park. The ecology of agricultural weeds is often quite different to the ecology of invasive environmental weeds. Many agricultural weeds require regular soil disturbance and enhanced nutrient levels so the park environment beyond the boundary is not conducive to their spread.

The control of agricultural weeds along boundaries does not necessarily contribute significantly to the natural values of the park. Indeed, the

Good Neighbour funding could divert resources from control programs for the enhancement of biodiversity of some parks, particularly where it is the principal source of weed control funding.

There is also a danger that loud complaints about weeds from adjacent landholders can lead to a disproportionate level funding to particular parks at the expense of equally needy parks with less aggressive neighbours.

It is our view that Good Neighbour weed funding does not necessarily enhance the natural values of the park. It is a means of improving relations with adjacent landholders.

Good Neighbour funding and reporting should be clearly separated from weed control that is aimed at improving the natural values of the park.

6.3.4 Third party funding

We are concerned about the emerging trend of funding for weed control activities in parks via a third party such as the Department of Primary Industries (DPI). It is our view that funding of weed control in parks should be the realm of PV and not organisations with a whole of Victoria responsibility. The enhancement of biodiversity through the control of weeds in parks is an entirely different process to that of controlling noxious or other weeds on private farming land.

We see a real danger in organisations that deal predominantly with agricultural weed threats and have little if any experience with weed issues in an otherwise natural setting having control of the funding of weed control programs in parks.

Funding for weed control in parks should be administered and allocated by the manager of those parks – PV.

6.3.5 Recommendations

- PV develop a funding model for the weeds program that relates directly to the weed problem within the park.
- Funding for weed control to protect or enhance natural values in PV to be provided through the annual appropriation.
- Funding and reporting of the Good Neighbour program be clearly separated from weed control for the protection and enhancement of natural values.
- Initiative funding, if it is to continue at all, should be closely tied to the existing weed control program in the park.

- Weed control funding in parks remain the responsibility of PV.

6.4 Weed control planning process

The weeds planning process in PV fits into the overall parks planning process.

Section 17 (2) (e) (iv) of the Act requires the Secretary to:

> *"ensure that each National Park and State Park is controlled and managed, in accordance with the objects of this Act, in a manner that will eradicate or control exotic flora in the park.…"*

To enable this to occur, PV is required by the *National Parks Act* to prepare a management plan for each park covered by the Act. The three parks visited during this assessment have management plans although the Great Otway National Park still relies on management plans for the former Angahook-Lorne State Park and Otways National Park plans. However, all of the management plans except Wilsons Promontory (2002) are from the 1990's and all are very general when it comes to specifying management actions for the control of weeds.

Current management plans for parks provide very broad directional statements only. They are, in effect, enabling plans in that they generally direct managers to prepare a plan for weed control rather than instruct the manager or the public on weed control actions for the park.

The park management plan is the only planning document that is freely available to the public. As such, the weed control program in specific parks is not transparent as it is not generally available to the public.

Below the management plan, and depending on the size and profile of the particular park, there are a series of other plans that address the weed control program and the specifics of actual weed control. None of the parks we visited had a specific weed control strategy document. Wilsons Promontory has a three volume *Environmental Action Plan* (2003), volume three of which is the Environmental Management Program (EMP). However, the EMP does not specify target weeds, control methods or any other issues associated with weed control in the park. It does, however, specify that the weed control Action Plan be completed within one year (presumably by 2004). To our knowledge that has not been completed at this stage. So across the board there are a number of high level plans and strategies but no readily available actual weed control plans.

As a result, the actual weed control planning is undertaken at the park level annually, or on an on-going basis, where the rangers responsible for the control effort have the most influence. Under the circumstances, we consider this

approach to be the most logical and efficient means of controlling weeds in a park – with some caveats.

Planning at the local level presupposes that the rangers have a good understanding of the entire suite of weeds within the park, the distribution and threat posed by the weeds present, control methods and timing and associated natural values that are to be enhanced or possible detrimentally impacted.

This knowledge can be gained in a number of ways: firstly, history – where the ranger may have been in the park for a considerable time; secondly, the presence of an approved weeds plan for the park; thirdly, a suitable and maintained recording system; and, fourthly education particularly as it relates to the natural values that are being protected or enhanced.

Where rangers periodically shift between parks, we believe that the best method of maintaining weed control knowledge in a park is via an easy-to-use recording system preferably with a mapping component attached, such as the existing Environmental Information System with some modifications.

The skilling of rangers and other staff in the identification and monitoring of natural values may be a longer-term aim, but it would also have wider application beyond the weed control program and should be a priority for PV.

6.4.1 Recommendations

- Clear, explicit and approved weed control plans should be available for all parks to assist rangers in planning the weed control program.
- Up-grade the EIS to make it a more effective tool for the recording and planning of weed control actions in parks.
- Enhance the skills and knowledge of rangers in identifying and monitoring natural values that may be impacted by weed control activities.

6.5 Staffing for weed control

Weed control is undertaken directly by both park staff and contractors.

Park staff undertake the on-going control of weeds and contractors are utilised where the identified task is beyond the capabilities of the current park staff contingent or where there are seasonal factors that mean that the program is beyond the capacity of the permanent staff to respond adequately.

However, task conflicts do occur in some parks at some critical times, such as

visitor influxes corresponding to the growth period of some weed species. This is particularly relevant in parks with high summer visitor numbers that also have significant summer-growing weeds but is also relevant in the event of a major bushfire season as occurred in 2006/07.

Interviewees thought it would be beneficial if there were an increase in the number of staff dedicated to the management of weeds during summer to ensure that significant weeds will be treated during peak weed control periods such as November to April.

This perceived need indicates that the planning of weed control activities in some busy parks is either inadequate or that the LoP (section 3.2.1.2) is not responsive to seasonal issues in parks. What ever the case, the weed control program suffers and it is assumed so does the protection of natural values within those parks.

6.5.1 Recommendations

- Increase the number of staff dedicated to weed control, particularly where there are likely to be conflicts between weed control activities and other park related tasks.
- Review the effectiveness of the LoP model to ensure it considers weed growth characteristics and time for optimum control and other tasks that compete for staff time.
- Review the weed control planning in parks where there is likely to be a conflict with other seasonal activities.

6.6 Knowledge of weeds

The effective control of weeds in a park relies on knowing what weeds occur in the park, where the weeds are and then how to control them.

We do not have comprehensive baseline knowledge of the magnitude and distribution of the weed invasion across the parks system. Some individual parks have undertaken weed mapping and have a reasonable understanding of weed distribution, but this is the exception not the rule.

It is not possible to report on the state of parks and improvements to natural values if there is no baseline data on the actual weed problem in a park, how that impacts on natural values and how the distribution and impacts have changed as a result of management actions.

Simply reporting on the weed species and area treated within or across parks

does not equate to reporting on the state of the natural values.

The identification of existing and emerging weeds is also an important component of weed control. Some park staff have a good knowledge of weeds and how to identify them, however these skills are by no means universal. This has obvious implications for the management of weeds, particularly for new and emerging weeds that may not have been recorded in the park previously. This becomes particularly relevant in an era of climate change where weeds from northern Australia or other areas that once could not survive in Victoria may now be expanding their distribution.

We believe there are opportunities, beyond those already employed, to enlist park visitors, particularly those that venture into the more remote parts of parks such as bushwalking groups, and neighbours to assist park staff with the recording of weed infestations in the more remote areas of parks and in parks and reserves not regularly inspected by PV staff.

6.6.1 Recommendations

- Undertake detailed weed threat mapping across all parks to establish a baseline from which weed control programs can be measured.
- Incorporate measurement of natural values in the weed control program.
- Include a request in park literature for visitors to report weed infestations to PV.
- Liaise with bushwalking groups to improve knowledge of weeds in the more remote areas of parks.

6.7 Monitoring of weed control

The principal aim of weed control in parks is to enhance natural values through the protection or enhancement of biodiversity.

6.7.1 Monitoring for biodiversity

The monitoring of the weed control effort is measured through the volume of herbicide applied, person hours spent controlling weeds and the hectares treated.

We could find no instances where PV field staff monitor or measure the impact on biodiversity of weed control activity.

While it is likely that the control of weeds results in an enhancement of

biodiversity there is no way of knowing if this is actually happening. Based on the current monitoring effort where biodiversity is not measured, it is possible to have a very effective weed control program while having no positive effect or even a negative impact on biodiversity. ,

If the aim of weed control is to enhance biodiversity, biodiversity must be measured before and after the control program to determine its effectiveness.

This raises a couple of issues that need to be addressed.

The current level of botanical knowledge within PV field staff indicates that the measurement of biodiversity improvement would be difficult. To make this possible, there would have to be a skilling of field staff or the introduction of botanical/ecological experts in a park or a region to enable an effective biodiversity monitoring program to be developed. It is understood that the Centre for Excellence, currently being developed at Wilsons Promontory National Park may provide programs to develop the skills of current field staff in biodiversity monitoring.

With the currently available people and money resources, choices must be made between controlling a weed and monitoring the action. Control is undertaken preferentially every time. Therefore, to ensure that monitoring is undertake as a component of the weed control program it needs to be an explicit component of the weed program and have specifically allocated resources.

6.7.2 Recommendations

- Commence monitoring natural values as an integral component of the weed control program.
- Enhance the skills and knowledge of rangers in identifying and monitoring natural values that may be impacted by weed control activities.
- Allocate specific resources to the monitoring of natural resources in the weed control program.

6.7.3 Environmental Information System

PV runs a GIS based Environmental Information System (EIS) in which information regarding the extent of weed control and other textual data relating to the weed control program can be entered. When a budget is allocated, it is apportioned according to a set of programs that are to be undertaken within the

park. These programs are uploaded into the EIS automatically and rangers then input the relevant recording data as the program progresses. In the case of a weed control program, the area treated and other textual data are entered. The outputs of the EIS are then compiled at the end of the year for the State of the Parks report and for comparison with the budget allocation.

On this appraisal, we believe that the EIS is primarily a budget monitoring process rather than an environmental information system.

The EIS should be used to map on-going weed control activities (amongst other things) and the effectiveness of weed control programs in enhancing biodiversity in parks.

Field staff were somewhat ambivalent about the EIS for a number of reasons: the precision of the area of weeds treated is dependent on the scale at which the map is displayed when the data is being entered by the ranger – which could lead to over estimate of the area treated; the textual data accompanying the mapping polygon is somewhat arbitrary and dependent on the knowledge of the ranger entering the data; the system is a recording tool only and cannot easily or usefully be used for planning of future works; and, some staff find it difficult to use.

The EIS is being used as a reporting tool, and is viewed as only being as good as the data entered into the comments section. There was no evidence of the EIS being used as a planning tool, although the majority of Rangers thought this would be extremely valuable. The mapping component was also seen as being very rough, and easily mistaken. Rangers commented that they had to be extremely careful with the mapping component.

The current shortcomings of the EIS are recognised by PV and it is soon to be completely redeveloped to, amongst other things, facilitate the better management of weed monitoring data.

To be an effective tool in the weed control program the revamped environmental recording system should include the capability for planning future control and monitoring works, stores photographs of control sites, supports mandatory textual fields to record essential data such as the type and concentration of herbicide used and is simpler to use than the current EIS.

6.7.4 Recommendations

- Up-grade the EIS to make it a more effective tool for the recording and planning of weed control actions in parks as it relates to the protection and enhancement of natural values.

6.8 Biological control

Biological control of particular weeds in parks could greatly assist PV in the battle against weeds particularly in remote or other areas difficult to access.

Currently the majority of biological control research is directed towards weeds that impact on agricultural systems. PV is generally happy to accommodate researchers wishing to trial biological control vectors in parks but currently does not directly sponsor or promote biological control research.

We believe that there is an opportunity for PV to actively sponsor biological control research for weeds that are known to impact on natural values of parks but are not currently the focus of research.

Wandering Jew, now infesting many of the damp steep gullies in Great Otway National Park, is a suitable example. The weed occurs in dense infestations and it is clearly having a detrimental impact on natural values, it is very difficult to control by conventional herbicide treatments and it is difficult to access the infestations with spray gear. Without specific funding from PV, or other conservation organisations, research into the biological control of Wandering Jew and other non-agricultural weeds is unlikely to be undertaken.

A more proactive approach by PV to research into the biological control of environmental weeds in parks could have major beneficial and long-lasting impacts on natural values.

6.8.1 Recommendation

- PV should seek and sponsor research into the biological control of environmental weeds in parks.

7.0 CONCLUSIONS

It is difficult to assess the effectiveness of the weeds control program in PV for a number of very basic reasons:

- We do not have baseline knowledge of the magnitude and distribution of weeds across the parks system. Some individual parks have undertaken weed mapping and have a reasonable understanding of weed distribution, but this is the exception, not the rule.

- Reporting of the weed control program is based on area and species treated. Due to the lack of baseline data on the area infested by weeds, it is unknown if the area treated represents a small or large fraction of the actual problem.

- The impact of the weed control program on natural values is not measured in any park as far as we know. So it is not possible to judge whether the weed control program is fulfilling the stated aim of enhancing natural values.

It is clear from our interviews with staff and park visits that there is a total commitment to the control of weeds at both the staff and corporate level. We are not critical of the effort to control weeds in parks. However, improvements could be made in the planning, funding, reporting and monitoring process.

The prioritisation process for weed control is well developed at a corporate and park level through the levels of protection process. However, the LoP process only provides a potentially rigorous and defensible basis for the allocation of scarce resources, it does not ensure that the natural values of the parks system are protected or enhanced.

There is no systematic process for monitoring the effectiveness of the weed control program in enhancing the biodiversity within individual parks or across the entire parks system.

We consider that an effective weed control program requires a guaranteed funding stream. Therefore, we believe that the reliable recurrent annual appropriation should be the primary source of funds for the weed control program and that the level of funding should be substantially increased to ensure that treatable weed infestations are treated. The increasing use of initiative funding is considered inappropriate for a weed control program and could even lead to an overall deterioration in natural values across parks.

Reporting on the state of the parks requires that the condition of the natural values is measured and assessed in some way. It is not sufficient to simply

record the species, number and area of weeds treated and then extrapolate that to a statement on the impact on natural values. Monitoring and then reporting on natural values should be an integral and essential component of the weed control program.

We recognise that resources are limited but consider that measurement and monitoring of natural values within parks is core business for PV. To enable this to occur, there is a need for increased funding for resources to manage environmental weeds in parks and to ensure that weed control programs include a component that is tied to the recording of natural values.

Resourcing for weed control is currently inadequate, leaving many treatable weed infestations untreated or inadequately treated.

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APPENDICES

APPENDIX 1
Park Interview Questionnaire

Interview questions

Parks Victoria weeds investigation

Systems

- How is a weed designated for control?
- How is the budget developed to enable the weed to be treated?
- What is the process if you find a new weed?
- What weed control statistics do you report on?
- What is that reporting used for?

Implementation

- ❖ Do you undertake weed control in your park?
- ❖ Why are you undertaking weed control?
- ❖ What are the target species for control?
- ❖ How are weeds controlled in your park – PV teams or contractors? Is either better than the other?
- ❖ How have the key weed populations within the park behaved in response to management?
- ❖ What has been the most effective weed control project in the park?
- ❖ Why was that project effective?
- ❖ Does the status of the park influence the level of weed control undertaken?
- ❖ Is weed control action dictated by budget?

Monitoring

- ✓ How many weed control person days/$ - spent last year on priority weeds?
- ✓ How many weed control person days/$ - last year on other weeds?
- ✓ How many weed control person days/$ - last 5 years?
- ✓ How do you measure success of a weed control program?
- ✓ Do you map weed infestations?
- ✓

The future

- o If you had more money or labour for weed control, what would you do with the additional resources?