Newsletter of the Weed Society of Victoria Inc.
volume 19 issue 1 2008

# Weedscene

## Victorian Blackberry Taskforce: a community led approach to blackberry control

The first task of the Victorian Blackberry Taskforce (VBT), formed in 1999, was to oversee the preparation of the Victorian Blackberry Strategy (VBS) which was completed in 2001. The VBT was then in recess until the end of 2005 when a new Chair and Executive Officer were appointed, along with thirteen community and Agency members. It is now actively working towards achieving the goals and objectives of the VBS. The promotion of a community led approach to blackberry control is a high priority, using a model which is operating successfully in far North East Victoria.

The North East Blackberry Action Group – Upper Murray, an initiative of the Upper Murray Landcare Network, was formed in early 2005 in response to community concern about the spread of blackberry. There are sixteen private and public land management organisations represented in the Group, initially funded through the Victorian Government's 'Tackling Weeds on Private Land Initiative.'

Lyn Coulston, Chair of the VBT and Secretary of Upper Murray Landcare Network, attributes the success to date to the initial planning undertaken by the Group, the commitment of the Steering Committee and the communication skills of the Project Manager. Lyn said 'Before we started we had a couple of sessions to come up with an Action Plan. This means that all the partners have ownership of the project and there are no unrealistic expectations. There is a benefit to the whole community if we can identify the barriers to successful control programs and work with landholders to find ways of achieving better management practices.

We were able to get started with DPI funding support and then value add with other successful funding applications such as National Landcare Program and Envirofund.

The land managers often welcome the opportunity to speak to someone about difficulties they have implementing a successful control program. Our Project Manager, Damian Wall, has been able to identify barriers, map the blackberry infestations and negotiate a management agreement in a single visit. Support is then available by phone until a follow up visit.'

The focus of the project is a voluntary management agreement, to be implemented over a three year period, then to support to achieve the goals. Blackberries are mapped on the private land, public land boundaries and adjoining roadsides. This mapping is then provided to the appropriate land managers so they can target future works programs to support the community effort. Sharing resources enables all land managers to be involved in a targeted control program that has very visible on ground results.

Education and information sharing is a significant part of the project. A chemical treatment demonstration site has been set up so landholders can see the results of different herbicides, timing and application rates. A forum was held last year to learn about biological control, demonstrate mechanical mulching techniques and provide control options for organic farmers. Another forum including a tour of the target areas is planned for April 2008. The forum will highlight the benefits of an holistic approach where discussions about future land use after blackberry is removed are essential to a successful control program. Using National Landcare Program funding the Action Group has established pasture and fertiliser trials, held soil health field days and information sessions on the management of native grasses on steep hills.

While agricultural productivity is a focus for private land managers, biodiversity protection has a key role in the project. High quality remnant vegetation has had the benefit of fencing and establishment of tracks constructed to provide access to large blackberry infestations in very steep terrain.

The VBT is interested in the Upper Murray project as a pilot for blackberry management based on the community led model. VBT Executive Officer, Michael Reid (DPI), believes the outstanding results so far reflect the willingness of the Action Group and landholders to work together.

The VBT is supporting two community initiated blackberry projects in Gippsland and will be visiting other areas of Victoria during 2008 to talk with local communities.

To find out more contact Lyn Coulston 02 6072 7534 or Michael Reid 02 6043 7975.

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**WSV Membership Rates 2008**

| | |
|---|---|
| Concession* | $20.00 |
| Ordinary | $45.00 |
| Corporate | $110.00 |

* *Students and Pensioners*

WSV is not registered to collect GST

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**Copy deadline for next issue:** Monday 18 April 2008

**Joining the Weed Society of Victoria**
The benefits of membership to WSV include:

- Weedscene: quarterly newsletter packed full of information
- Discounts to WSV seminars, workshops, conferences and other events
- Opportunities to network with others.

To apply for membership, download and print the membership application form from the WSV website, www.wsvic.org.au, complete the details and mail to the WSV Secretary.


**Weedscene** Newsletter of the Weed Society of Victoria Inc.




**Advertising rates**

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| One sixth page | 56 mm wide × 128 mm high | $90.00 |
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| Half page | 180 mm wide × 128 mm high | $275.00 |
| Whole page | 180 mm wide × 257 mm high | $450.00 |


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# Defeating the Weed Menace 2007–2008:

## Blackberry projects underway

The National Blackberry Taskforce (NBT) received funding through Defeating the Weed Menace for four Blackberry projects in 2007–2008. All the projects are well underway and are described below. Projects 1 and 2 have Steering Committees to guide the national application of the projects. The NBT also supported a project application for the eradication of blackberry on Kangaroo Island. This project received $81,440 for the removal of all known infestations of athel pine, blackberry and gorse on Kangaroo Island and control of the first generation of recruitment from the soil seed bank.

### 1. National Blackberry Best Practice Management Manual

This project aims to consolidate all available information on the control and management of blackberry in a concise management guide. The manual will contain clear information on biology and ecology, options for management in various situations and case studies highlighting real-life examples of how individuals and groups have been able to achieve success by implementing different management regimes. The project is being undertaken by the NSW DPI Weed Extension and Training Team and the manual will be available later in the year. The team will be contacting blackberry experts and people with on ground knowledge and experience to provide the most current information.

### 2. Developing Blackberry Management Priorities from Local to National Level

This project will develop a priority setting decision support system (DSS) for blackberry management that can be used at a regional scale. This tool can be used by NRM/ CMA and other regional organisations such as local councils to determine the optimum blackberry management for their area in terms of prevention, eradication, reduction, impact reduction, containment, asset protection and biological control. A workshop was recently held in Victoria to develop the tool. The DSS and report will be available later this year.

### 3. National Blackberry Strategic Management (Eradication and Control) of Isolated and Outlier Infestations

This project aims to eradicate and contain blackberry in outlying sites that threaten agricultural production and environmental values. The project will focus on remote sites in south-west Tasmania, Warwick and Stanthorpe shires in Queensland and regions of Western Australia which are experiencing an expansion of blackberry.

### 4. Increasing Public Awareness of WoNS through National Blackberry Species Identification Workshops

This project has run five blackberry species identification workshops in areas of demand nationally, including two in Victoria (held in January). This will lead to increased capacity of weed professionals and community members to identify the blackberry species in their area, increased community capacity to map blackberry species, and more targeted and effective blackberry control programs. Through value adding, an additional four workshops are being run nationally to meet the demand.

For further information contact Penny Richards, National Blackberry Coordinator Ph: (03) 9785 0135, Mobile: 0448 304 347, Penny.Richards@dpi.vic.gov.au

## Control by consumption: Blackberry ice-cream

Blackberry season is upon us and making blackberry icecream is a perfect way to prevent seed set!

### Ingredients

- 250 g (1 punnet) blackberries
- 300 ml thin cream
- 250 ml (1 cup) milk
- 1 vanilla bean, split
- 6 egg yolks
- 150 g (2/3 cup) caster sugar

### Method

1. Combine the cream, milk and vanilla bean in a saucepan. Bring to a simmer over medium heat. Remove from heat and set aside for 5 minutes to cool slightly.
2. Whisk egg yolks and sugar together in a heatproof bowl until thick and pale. Use tongs to remove bean from cream mixture. Use a sharp knife to scrape seeds into the cream mixture. Gradually stir cream mixture into egg mixture.
3. Pour into a clean saucepan and place over low heat. Cook, stirring constantly with a wooden spoon, for 15 minutes or until the custard coats the back of the spoon. Transfer to a medium heatproof bowl. Set aside for 10 minutes to cool.
4. Place blackberries in the bowl of a food processor and process until smooth. Use the back of a spoon to press the puree through a fine sieve into a small bowl. Discard seeds. Add blackberry puree to the custard and stir to combine. Place in a shallow metal container. Cover with foil and place in the freezer for 6 hours or until almost set.
5. Roughly break up ice-cream with a metal spoon and transfer to a bowl. Beat with an electric beater until smooth. Quickly return to container. Cover with foil and freeze for 4 hours or until firm. Makes approximately 1 litre.

**Source:** Australian Good Taste January 2003, page 91. Recipe by Tracy Rutherford

# News

## National Weeds Research funded

The Rudd Labor Government has committed to investing $15 million from unallocated departmental funds in a new National Weeds Research and Productivity Program to reduce the impact of weeds on farm and forestry productivity and biodiversity. The aims are to:

- Establish a comprehensive national applied research program to investigate and solve the most serious invasive plant problems.
- Bring together national experts, land managers and relevant stakeholders to develop improved understanding about the information required to effectively manage the risks associated with the most important invasive plants.
- Ensure better coordination and information exchange between researchers, land managers and regulatory agencies.

The program follows on from the planned closure of the Weeds CRC in June 2008.

## Transfer of responsibility for weeds and pest animal management

On 30 November 2007 the responsibility for biosecurity policy across all land tenures, and the management of weeds and pest animals on private land as well as all wild dog operations, transferred from the Victorian Department of Sustainability and Environment to Biosecurity Victoria within the Department of Primary Industries.
The transfer recognises the need to apply a biosecurity approach to weed and pest management in Victoria and aligns policy and investment responsibilities with the tenure management responsibilities of each department. It is believed that the change will strengthen the Government's ability to work together with stakeholders to protect Victoria's natural environment and primary industries and enable a stronger focus on prevention and early intervention to control the establishment of invasive species.

## Weed and plant collecting manual

A weed and plant collecting manual produced by the Australian Quarantine and Inspection Service (AQIS), the Indigenous Land Corporation (ILC) and the Weeds CRC is designed as a resource for indigenous ranger groups and communities contracted by AQIS to collect plant and weed samples. The Northern Australia Quarantine Strategy (NAQS), a division of AQIS, surveys remote areas of Australia's north coast to look for pests, weeds and diseases that may have come from other countries. These surveys are carried out by NAQS scientists, with help and guidance from local community members. This liaison is co-ordinated by the NAQS Remote Area Team. The Weeds CRC in conjunction with the ILC have supported this project with AQIS to promote weed awareness in Aboriginal communities of Northern Australia. To view a copy of this new publications visit: http://www.weeds.crc.org.au/publications/education_training_resources.html http://www.weeds.crc.org.au/projects/project_4_1_4.html

## Weed management in national parks of Victoria

The Victorian National Parks Association commissioned a report by Biosis Research to audit the effectiveness of weed management in Victoria's national parks. The report has identified a number of areas for improvement, particularly an increase in reliable, recurrent annual funding and for effective monitoring of the condition of a park's natural values. A full summary of the report will appear in *Park Watch*, the Victorian National Parks Association's magazine.

## Improving Provincial Victoria's Biosecurity

A new $3.6 million project entitled 'Improving Provincial Victoria's Biosecurity' aims to reduce the risks surrounding the introduction of high priority Victorian Alert Weeds in identified provincial urban and lifestyle regions. The four year project will work with communities and industry to stamp out the new generation of weed species before they establish, saving millions of dollars in eradication and management costs. Small landholders on lifestyle properties will be the focus of the education phase of the project. The increased capacity of the Weed Spotter network in lifestyle regions will contribute to improved surveillance of new and emerging weeds in these areas. Business activities which have the potential to introduce new weeds into Victoria will also be examined.

## Weed Spotter website upgrade

An upgrade to the website for Weed Spotters has been launched. New additions to the website include:

- Frequently Asked Questions such as how to become a Weed Spotter and how to make a report
- Hygiene tips to ensure that weed spotters don't contribute to weed spread
- Health and safety tips about some of the dangers weeds can pose to people who have allergies or through spines or barbs entering clothing or footwear and how to keep safe in the field
- Weed Alert Species with details of the State Prohibited Weeds and the Victorian Alert Weeds

Weed Spotters can also find a training calendar and list of contacts at the website. For further information visit www.dpi.vic.gov.au/weeds, follow the links to Weed Spotters.

## Green Grants Guide 2008

The Australian Green Grants Guide is a listing of environmental and heritage grants offered by government and non-government organisations. There are more than 300 grants around Australia listed in the 2008 edition. To order a copy or for further information contact Anthea at Molino Stewart on (02) 9354 0300.

## Best Practice Management Guides

A number of best practice management guides are now freely available: **Willows** – http://www.weeds.org.au/WoNS/willows and **Chilean needle grass** – http://www.weeds.org.au/WoNS/Chileanneedlegrass/ or contact the National Chilean Needle Grass Coordinator Kelly.Snell@dpi.vic.gov.au.

Other guides available include **Spanish heath** (*Erica lusitanica*) and other *Erica* species, **African boxthorn** (*Lycium ferocissimum*) and **Coolatai grass** (*Hyparrhenia hirta*). Another five manuals are planned. For more information go to http://www.weeds.crc.org.au/publications/weed_man_guides.html#biodiversity.

# WSV News

## Commercial Weeds Seminar

We are dependent on crops and pastures, but many species are weedy and impact on the environment. Who is responsible for managing these weeds? What are the costs and strategies? What innovations are there in managing commercial weeds?

A seminar on commercial weeds will be held on **Thursday 17 April 2008** with guest speakers from around Australia. For further information see the enclosed flyer or visit www.wsvic.org.au.

## WSV Annual General Meeting

The WSV AGM will be held from 4 pm on **Thursday 17 April 2008** at the Lecture Theatre, Department of Primary Industries, 475-485 Mickleham Road, Attwood (Melways ref 5, J2-K2) following the Commercial Weeds Seminar. All members and prospective members are welcome. If you are a WSV member and are unable to attend the AGM, you are invited to complete the proxy form below.

## Executive Committee membership

At the November 2007 meeting of the Executive Committee, Ken Young resigned as President of the Weed Society of Victoria. In December Ken moved to Canberra where he started a new role with the Australian Pesticides and Veterinary Medicines Authority. The Committee will miss his enthusiasm and a formal note of thanks for his work as President was moved. Michael Hansford has assumed the role of Acting President until the Annual General Meeting in April.

At the AGM all positions on the Executive Committee will be declared vacant. If you wish to have an impact on the direction of WSV, nominate for a position on the committee. New committee members bring new ideas and help to keep WSV focused on new and emerging issues. If you are passionate about weeds and their effects, be involved and have your say!

The committee meets for 2 hours every four – six weeks. Depending on their interests, committee members may be responsible for portfolios such as newsletter editor, treasurer, secretary, president etc. The nomination form is available on the website (look under news under the tab 'What's on?' the home page). Completed nomination forms should to be sent to the secretary by **Friday 11 April 2008**. If you require further information or assistance with securing a nomination from WSV members please contact the WSV Secretary.

## Travel grants

Are you a WSV member planning to attend a weeds conference? Or a student with a focus on weeds? Or someone just starting out their career in weeds management or research and thinking of attending a conference or undertaking a study tour? Now is the time to consider an application for WSV supported travel grants.

***WSV Travel Grants*** are provided annually, depending on the standard of applications, to enable up two members to attend a weeds conference. The maximum grant per recipient is $1500. WSV members are encouraged to apply for support to attend a conference in order to present a paper or learn about the latest in weed research and management. Applications should be submitted by **28 February 2008** to allow time for consideration to attend the 16th Australian Weeds Conference in Cairns.

***CAWS Travel Grants***, awarded annually, support students and early career scientists to attend national or international conferences, or to undertake specific overseas study tours of a short duration. The value of the annual student travel award is $3000 and the value of the annual early career scientist travel award is $2000. Applications for the CAWS Travel Awards should be submitted by **1 April 2008.**

***Download guidelines and application forms*** from our website (look under the 'Grants' tab) or email secwssv@surf.net.au.

## 2007 Weed Management Award

Nominations for the 2007 Outstanding Contribution to Weed Management Award are now open. Nominees must have made a significant contribution to the management, science, technology, promotion and practice of weed management. Nominations can be made by one or more people, but at least one nominator must be a WSV member. Nominations forms can be printed off the website (see news under 'What's on?' tab) and must be sent to the WSV secretary by the **3 March 2008**. Nominations will be considered by the WSV President and two Executive Committee members. The winner will be presented the award at the Commercial Weeds Seminar on 17 April.

## New look Weedscene

This marks the first edition of Weedscene in its new colour format on 100% recycled paper. If you have…

- an idea for an article
- an article you are considering writing
- information about an event or would like to advertise an event
- comments on a previous article
- feedback on the new look…

please feel free to contact Lisa Minchin, Editor. Your comments and feedback will help to make the newsletter even better.

By now you will have received the first eWeedscene – an email with up-to-date information about news and events. If you have not received the email or wish to receive a hard copy, please contact the WSV secretary to update your details.

## PROXY FORM

I, (a).....appoint

(b).....

as my proxy to represent me at the AGM on Thursday 17 April 2008 and vote on any motion as he/she sees fit.

Signed .....Date...../...../.....

(a) Name of financial member wishing to vote (non-financial members votes excluded).

(b) Insert name of member attending meeting to whom proxy is delegated.

# Recent journal articles by Chris Timewell

## On specific weeds occurring in Victoria *(although not necessarily Victorian based research)*

Cristaudo, A. *et al.* (2007). Effects of after-harvest period and environmental factors on seed dormancy of *Amaranthus* species. *Weed Research* **47(4)**: 327–334. [Italy based research]

Downey, P.O. *et al.* (2007). A review of the *Chrysanthemoides monilifera* biological control program in Australia: 1987–2005. *Plant Protection Quarterly* **22(1):** 24-32.

Gaur, S. *et al.* (2007). Spraytopping reduces seed production in Chilean needle grass (*Nassella neesiana* (Trin. & Rupr.) Barkworth). *Plant Protection Quarterly* **22(1):** 35-39.

Gentry, A.H. *et al.* (2007). The biology of Australian weeds. 48. *Macfadyena unguis-cati* (L.). *Plant Protection Quarterly* **22(3):**82-91.

Karlsson, L.M. and Milberg, P. (2007). Comparing after-ripening response and germination requirements of *Conyza canadensis* and *C. bonariensis* (Asteraceae) through logistic functions. *Weed Research* **47(5):** 433–441. [Sweden based research]

Lamoureaux, S.L. and Bourdot G.W. (2007). A review of the ecology and management of *Ranunculus acris* subsp. *acris* in pasture. *Weed Research* **47**, 461–471. [NZ research]

Landenberger, R.E. *et al.* (2007). Seed dispersal of the non-native invasive tree *Ailanthus altissima* into contrasting environments. *Plant Ecology* **192(1):** 55-70. [USA based study]

Mau-Crimmins, T.M. (2007). Effects of removing *Cynodon dactylon* from a recently abandoned agricultural field. *Weed Research* **47(3)**: 212–221. [USA based study]

Sparkes, E.C. and Midmore, D.J. (2007). Responses of two species of mesquite to initial and follow-up applications of selected herbicides in a potted trial. *Plant Protection Quarterly* **22(3):**100-105.

Tan, M.-K. *et al.* (2007). Molecular basis of multiple resistance to ACCase-inhibiting and ALS-inhibiting herbicides in *Lolium rigidum*. *Weed Research* **47(6):** 534–541.

Vilà, M. and Gimeno, I. (2007). Effect of intercropping and ploughing on Mediterranean managed grasslands invaded by *Oxalis pes-caprae*. *Plant Protection Quarterly* **22(2):** 62-66.

Vivian-Smith, G. *et al.* (2007). Review: The biology of Australian weeds. 46. *Anredera cordifolia* (Ten.) Steenis. *Plant Protection Quarterly* **22(1):** 2-10.

Walsh, M.J. *et al.* (2007). Frequency and distribution of herbicide resistance in *Raphanus raphanistrum* populations randomly collected across the Western Australian wheatbelt. *Weed Research* **47(6):** 542–550.

Williams, M.C. and Wardle, G.M. (2007). *Pinus radiata* invasion in Australia: Identifying key knowledge gaps and research directions. *Austral Ecology* **32(7):** 721–739.

Williams, N.S.G. and Holland, K.D. (2007). The ecology and invasion history of hawkweeds (*Hieracium* species) in Australia. *Plant Protection Quarterly* **22(2):** 76-80.

Wilkie, L. *et al.* (2007). The effects on terrestrial arthropod communities of invasion of a coastal heath ecosystem by the exotic weed bitou bush (*Chrysanthemoides monilifera* ssp. *rotundata* L.). *Biological Invasions*, **9(4):** 477-498.

## On a range of weed issues from Australia and overseas

Cacho, O.J. *et al.* (2007). Applying search theory to determine the feasibility of eradicating an invasive population in natural environments. *Australian Journal of Agricultural and Resource Economics* **51(4):** 425–443.

Dehnen-Schmutz, K. *et al.* (2007). A century of the ornamental plant trade and its impact on invasion success. *Diversity and Distributions* **13(5):** 527–534. [UK based study]

Dorrough, J.W. *et al.* (2007). From plant neighbourhood to landscape scales: how grazing modifies native and exotic plant species richness in grassland. *Plant Ecology* **191(2):** 185-198.

Leishman, M.R. *et al.* (2007). Leaf trait relationships of native and invasive plants: community- and global-scale comparisons. *New Phytologist* **176 (3):** 635–643.

Li, J. *et al.* (2007). Grassland responses to multiple disturbances on the New England Tablelands in NSW, Australia. *Plant Ecology.* **193(1):** 39-57.

Lunt, I.D. *et al.* (2007). Long-term effects of exclusion of grazing stock on degraded herbaceous plant communities in a riparian *Eucalyptus camaldulensis* forest in south-eastern Australia. *Austral Ecology* **32(8):** 937–949.

Neve, P. (2007). Challenges for herbicide resistance evolution and management: 50 years after Harper. *Weed Research* **47 (5):** 365–369. [with *Lolium rigidum* as a case study]

O'Connor, P.J. and Bond, A.J. (2007). 'Maximizing the effectiveness of photopoint monitoring for ecological management and restoration.' *Ecological Management & Restoration* **8(3):** 228–234.

Rask, A.M. and Kristoffersen, P. (2007). A review of non-chemical weed control on hard surfaces. *Weed Research* **47(5):** 370–380. [Denmark based research]

Ricciardi, A. and Cohen, J. (2007). The invasiveness of an introduced species does not predict its impact. *Biological Invasions* **9(3):** 309-315.

Rinella, M., and Luschei, E. (2007). 'Hierarchical Bayesian methods estimate invasive weed impacts at pertinent spatial scales'. *Biological Invasions,* **9(5):** 545-558.

Ruegg, W. T. *et al.* (2007). Herbicide research and development: challenges and opportunities. *Weed Research* **47(4):** 271–275. [Swiss based research]

Theoharides, K.A., and Dukes, J.S. (2007). Plant invasion across space and time: factors affecting nonindigenous species success during four stages of invasion. *New Phytologist* **176 (2):** 256–273.

# Conferences and events

### 2008 International Year of Planet Earth

See http://info.see.leeds.ac.uk/newsitems/localnewsitem.2006-05-11

### 12 – 13 February 2008

'Pesticide Application Technology in Viticulture': A workshop in the Hunter Valley, NSW on advances in adjuvant research and applications. For further information contact Dr Andrew Hewitt, Centre for Pesticide Application and Safety, University of Queensland, Gatton Tel: 0427 025 354 or 07 5460 1293 or a.hewitt@uq.edu.au. To register contact Liz Quinn at 07 5460 1291 or gaequinn@uq.edu.au

### 15 – 17 February 2008

Sustainable living festival, Federation Square, Melbourne. For further information see www.slf.org.au/festival/

### 6 March 2008

'Nozzle optimisation in ground herbicide applications': One day workshop on nozzle effects on spray coverage, efficacy and drift, Centre for Pesticide Application and Safety, University of Queensland, Gatton. For further information or to register contact Dr Andrew Hewitt, Tel: 0427 025 354 or 07 5460 1293 or a.hewitt@uq.edu.au

### 27 – 29 March 2008

International Conference on Biotic Plant Interactions, Brisbane, Australia. Abstract submissions close on 15 February 2008. For more information see www.uq.edu.au/plants/icbpi

### 31 March – 3 April 2008

2nd International Salinity Forum: 'Salinity, Water and Society - Global issues, local action' Adelaide, South Australia. For further information see www.internationalsalinityforum.org or email conference@conlog.com.au

### 17 April 2008

Weed Society of Victoria AGM Seminar: 'Commercial Weeds - Roles, responsibilities and innovations' to be held from 9am – 4pm at Lecture Theatre, Department of Primary Industries, Mickleham Road, Attwood. Seminar followed by Annual General Meeting. For further information visit www.wsvic.org.au or email secwssv@surf.net.au

### 18 – 22 May 2008

16th Australian Weeds Conference: 'Weed Management 2008 – Hot topics in the tropics', Cairns, Queensland. For further information visit www.16awc.com.au or email 16awc@eventcorp.com.au

### 23 – 27 June 2008

5th International Weed Science Congress: 'Weeds – Local problem, global challenge', Vancouver, Canada. Information on deadlines for submissions of abstracts and registration procedures see http://iws.ucdavis.edu/Second%20Circular%20IWSC%20updated.pdf

### 29 June – 5 July 2008

2008 Joint Meeting of the International Grassland Congress and the International Rangeland Congress, Huhhot, China. For further information see www.igc-irc2008.org or email secretariat2008@hotmail.com

*Do you have an event you would like to include in this listing? Please email Lisa Minchin, Editor at* lminchin@tpg.com.au *with the details.*

## 2007 WSV membership list

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B. Mason
D.C. Matthews
D. Mclaren
Melton Shire Council
L. Minchin
L. Mitchell
M. Moerkerk
J. Moore
T.B. Morley
Mornington Peninsula Shire
NZ Plant Protection Society
National Herbarium
F. Overmars
R.W.G. Packer
W.T. Parsons
S. Partington
A.R. Paul
M Pernat
Plant Protection Society of WA
D. Richards
R.G. Richardson
J. Robertson
M.G. Rouch
Royal Botanic Gardens
L. Saffron
R. Scott
B. Setchell
R.C.H. Shepherd
Shire of Yarra Ranges
S.M. Smith
South African Weed Science Society
D. Spence
State Library of Victoria
J. Steel
S.J. Stewart
N.E. Stone
J. Stoner
M. Strong
E. Swan
P. Symes
B. Tadday
Tasmanian Weed Society
M. Taylor
J.R.A. Thorp
L. Trevaskis
M.-C. Van Besouw
C. Van Megan
VicRoads Info Centre
J. Virtue
Weed Society of NSW
Weed Society of Qld
J. Weiss
G. Wells
J. White
P. Wilcock
P. Wlodarczyk
I. Woff
K. Young

# On the ground

## Managing Weeds in Public Open Spaces

Located within the urban expanse of Broadmeadows and only 15 km from the Melbourne CBD, the Broadmeadows Valley Park (BVP) was acquired by Hume City Council during the 1980s. At this time much of the land was highly degraded and infested by woody weeds and exotic grasses. Today the Council managed park covers a total area of 211 hectares and is approximately 4.8 kilometres long, varying from 200 to 500 m in width.

Defined by the strong natural topography of the valley and the Yuroke Creek and Otway Creek, the park's boundary reaches from Johnstone Street, Broadmeadows in the south to Somerton Road, Meadow Heights in the north. The valley branches off after about 2 km, just north of Erinbank Crescent, with the main western valley extending northwards to Somerton Road. Located to the south of BVP, Jacana Wetlands is a recent initiative of Melbourne Water which was created to control litter and improve water quality. It is for these reasons it has proven to be a great asset for the Moonee Ponds Creek system.

Broadmeadows Valley Park

Contractor spot spraying serrated tussock

Council faces many challenges in the conservation of native vegetation and in the control of declared noxious weeds and other environmental weeds. These challenges stem from the park's mosaic of land ownership, communication between Council departments, the variety of land uses, the diverse topography and the interaction between weed infestations and remnant native vegetation.

Council has performed extensive works over many years to transform a neglected landscape into attractive parklands. Recreation infrastructure, including pathways, sporting facilities, playgrounds and benches have been developed and installed. Council has invested significant resources into landscape management, weed control and revegetation within the park. Today the area is utilised by the local community for a variety of uses including passive and active recreation, cultural events, festivals and for conservation values.

Nine zones of conservation significance have been identified within BVP and these are actively managed by Hume's Natural Landscape Management Team. Limited budget and time constraints restrict Hume's land managers from performing weed control works on all areas of the park. Therefore it has been necessary to identify and prioritise the time and resources allocated to the management of specific weeds and areas within the park. Council has identified priority weeds within BVP as being those which are harmful, unsightly or highly invasive and are found in areas which are prominently used by the public. These priority weeds include; Gorse, Briar Rose, Serrated Tussock, Fennel, Paterson's Curse, Artichoke Thistles and Chilean Needle Grass.

Weed management of BVP is complicated by the mosaic of land ownership within its boundaries. Whilst Hume Council owns the majority of the park, other authorities such as the Department of Human Services, Vic Urban, the Department of Infrastructure and the Office of Housing, own substantial portions but perform little vegetation management. Consequently, in order to maintain the aesthetic and environmental qualities of the park, Council manages weeds on 55 hectares of land which is not owned by Council.


On ground works within the park are the responsibility of various departments within Council. The Sustainable Environment Department and the Parks and Open Space Department work cooperatively to ensure weed and conservation efforts within the park and other reserves under the management of Council, are well coordinated and implemented. In order to streamline works and ensure that adequate internal and external lines of communication exist, Council has assembled the Natural Landscape Coordination Committee, comprising of land managers from relevant internal departments. This committee meets monthly to discuss a range of works programs and conservation issues. By combining resources and budgets, land management outcomes are attained with greater efficiency.

…/continued on page 12

# People

## Weed IDentity: Karen Jones, buster of weeds

Karen Jones' attachment to the north-east of Victoria began when she studied at Charles Sturt University in Albury. Seven years after completing her course, Karen returned to the region, drawn by the strong sense of community and the natural beauty. As the Sustainability Program Coordinator at the Rural City of Wangaratta, Karen's role encompasses all things environmental with a focus on educating and involving the community in sustainability practices. Her single biggest issue is weed management on council and crown land, which includes upstream heritage-listed sections of the Ovens River, floodplains and high quality remnant bushland within urban settings.

'It is not the noxious weeds which are the biggest problem in the municipality – it is the garden escapees and environmental weeds', said Karen. Wangaratta's most problematic weeds reflect the township's 120 year history of English cottage style gardens: plants with berries such as hawthorn (*Crataegus monogyna*), privet (*Ligustrum lucidum*) and *Cotoneaster* sp.; those spread by wind, such as desert ash (*Fraxinus angustifolia* subsp. *augustifolia*) and box elder (*Acer negundo*); and creepers, such as English ivy (*Hedera helix*) and blue periwinkle (*Vinca major*).

The council is committed to weed management on its own land and aims to lead the community by example. It has also developed materials about weeds which aim to educate and engage community members and inspire change, including:

- a guide to local weeds
- a booklet for new land owners, *You and your land*, which describes why weed management is good for the landholder and the community.
- A DVD *Keeping Roadside Secrets Safe*, which highlights the value of the ecosystems of roadsides and considers the range of impacts on their ecological values, including weeds.

Karen's presentation on the impact of weeds on our roadside secrets at the WSV Third Biennial Conference in October 2007 was of great interest to many conference attendees.

Karen believes that the role of the community in weed management cannot be overstated. Local volunteers include Guides, Scouts, school groups, Green Corp, service clubs (Lions and Rotary) and individual residents. Wangaratta Urban Landcare has undertaken land management including weed removal at Kaluna Park every Thursday for more than 10 years. Its members have even been known to work on Christmas Day when it falls on a Thursday! The Rural City also benefits from being within 100 km of the Beechworth Prison which runs a Landmates program, where low security prisoners complete work such as weeding, fencing and tree planting. Karen reports that the Landmates enjoy the satisfaction of a day's hard weeding and their work has been an inspiration for many. In all, 10,000 volunteer hours have been spent in weed management over the past two years on public land. Five hundred tonnes of woody weeds have been removed and 10,000 seedlings planted. It is little wonder that the Rural City of Wangaratta won the 2007 Weed Buster Award in the public land category. But the real prize is seeing the understory beginning to return along One Mile Creek and in Kaluna Park, two of the jewels in the municipality. With support from the North-East Catchment Management Authority, the Rural City is the also the first council in the north-east to employ a bush regenerator. This is already paying dividends with new indigenous species being added to the council's list of flora following hand-removal of Jerusalem cherry (*Solanum pseudocapsicum*), box elder, hawthorn and privet sp.

Karen views weeds as being a relatively simple problem to solve, and considers that it is often placed into the too hard basket. 'Weeds can be managed within a lifetime! The seedbank of many weeds is exhausted within 7 years. Compared to the problem of, for example, salinity, which takes 50 years to recover from, weeds are infinitely easier to address', remarked Karen. There are the issues of resources and the size of the land to be managed but it is achievable when people work together. 'Addressing weeds has aesthetic values, is important for recreation and, best of all, is satisfying work. The management of weeds needs to be better marketed or branded. People who work within natural resource management are usually scientific in their orientation and not necessarily skilled in marketing. It is about trying to engage the next ring of people', said Karen. She points to the roles of Jack Thompson and James Blundell, who have raised the profile of Landcare issues. There is also the important role of mentoring newcomers working in the field and not becoming disillusioned by the fact that they are often on short-term contracts or change jobs. Karen is inspired by the energy of those who have recently started their careers and stresses the value of more experienced workers investing time and providing support as a contribution to the long-term management of weeds which do not recognise council or state boundaries, just as workers often don't.

Karen Jones with the 2007 Weed Buster Award (public land), in front of the government offices in Wangaratta

Outside work Karen plays hockey twice a week – in the seniors and the veterans teams now that she has reached the age of thirty. Outdoor activities such as hiking, cycling and kayaking are all things she enjoys. And at the end of a hard day's weeding, when the woody weeds are being burnt, Karen delights in sharing toasted marshmallows with volunteers.

Lisa Minchin

For copies of the DVD *Keeping Roadside Secrets Safe* contact the Rural City of Wangaratta on 03 5722 0888.

# Weed profile

*Pereskia aculeata* (Photo: Sheldon Navie, Weeds CRC)

Flowers (Photo: DPI Victoria)

Fruit (Photo: DPI Victoria); Leaves (Photo: Richard Plant)

## Victorian Alert Weed: Leaf Cactus or Pereskia (*Pereskia aculeata*)

### Why is this species a Victoria Alert Weed?

An attractive and highly unusual leaf-bearing cactus plant, popular for its pretty lemon scented flowers, edible fruits and creeping growth form. Hidden away under the leaves are hundreds of dangerously long, sharp spines helping the vine climb towards the canopy. Employed as a cheap protective fence in South Africa, *Pereskia* has since escaped and now grows so aggressively it has developed the reputation of a 'tree strangler'. Producing attractive berries after an abundance of flowers, it is easily spread by birds. A known weed of temperate/subtropical areas world wide, *Pereskia* needs only to be introduced to natural areas in Victoria, allowing it to 'strangle' a Eucalypt forest.

### Type of weed

Invasive garden plant. Climbing shrub, vine with a preference for clambering up tall trees, heading towards the canopy.

### What does it look like?

Young shoots are vine-like, growing as a creeper, and have pairs of spines along their length (similar to those of roses). Adult stems can grow to 10 metres long and become woody as they age. Spines on the adult stems are different to those of the shoots. Spines are 30 mm long, branching from a central core with 15–20 spikes protruding. Leaves are egg shaped, bright green and glossy. Leaves are picked, cooked and eaten in its native Central and South America and accounts for some of the spread of Leaf Cactus. *Pereskia* produces a mass of white, rose-shaped flowers with a strong lemon scent. Small fruit develop after flowering and are green, spherical and covered in tiny, yellow-coloured leaves. Each fruit contains a single seed, four to five millimetres in diameter, popular with birds and foraging animals and easily germinated. Roots are hardy and extremely drought tolerant.

### Why is it a problem?

*Pereskia* exhibits all the characteristics of a nasty weed: drought tolerance, easily dispersed prolific seeds, ability to sprout from mere fragments of leaves, stems or roots. Add to this no registered chemical for control, sharp spines making mechanical control difficult and the fact that all plant parts must be killed to remove an infestation, *Pereskia* is a weed we definitely don't want to encourage.

*Pereskia* is native to Central and Southern America and has now spread its range to the USA, China and South Africa – all associated with garden escapes. It exists as a devastating weed in temperate coastal areas of South Africa with similar climates to Australia's eastern coastal belt.

*Pereskia* favours not only disturbed sites, but will readily colonise native and plantation forest canopies, smothering much larger trees and eventually overpowering them. It is restricted to only a few garden escapes in Queensland and New South Wales and fortunately not known to have yet naturalised in Victoria. *Pereskia* is still sold in nurseries throughout the State and the Weed Alert program is encouraging its removal from sale.

If you suspect you have found *Pereskia*, please report it to your local Weed Alert Contact Officer on 136 186.

Richard Plant, Department of Primary Industries

# Industry

## Optispray™ a twin fluid nozzle with exceptional flexibility

by Harry Combellack, Spray Smart Enterprises, Maiden Gully Victoria and Brian Knight, Knight Farm Machinery, Wireless Hill, Rutland UK

Existing commercial designs of twin fluid nozzles, Airtec™ and Airjet™, enable a range of flow rates and spray qualities, fine to very coarse, to be generated by varying both liquid and air input pressure. However, their flexibility is limited particularly their ability to generate a fine spray at liquid flow rates much above 1.0 L $min^{-1}$ and yet there is a need for up to 1.5 L $min^{-1}$ to accommodate the demand to increase sprayer speed. Further both these nozzles require relatively high volumes [30 to 40 L $min^{-1}$] of low pressure [<200kPa] air which restricts compressor type, typically rotary vane are used, and their use on booms much over 30 m.

The performance characteristics of Optispray™ shows that it is able to generate extra coarse to fine spray over wider range of flow rates than either Airtec™ or Airjet™ and uses much lower volumes of higher pressure air generated by cheaper piston compressors.

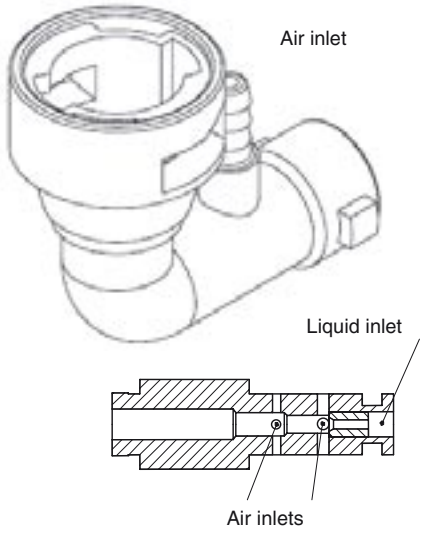
The Optispray™ nozzle design is novel in that it has a removable insert that creates a vacuum through a Venturi effect when liquid flows through it to help draw in both air and liquid. The insert is also designed to have two separate impinging air streams on the liquid to enhance droplet generation. Further Optispray™ utilises a novel parallel slotted nozzle tip design to more efficiently utilise air to enhance the flexibility of droplet generation and to ensure more effective lateral spray distribution by producing a spray angle between 105 and 125º. Uniquely when pressurised air is used with Optispray™ spray flow is almost doubled with a doubling of pressure, the flow rate alogorithm fits a power fit regression [ y = a.x^b], whereas with conventional nozzles the pressure has to be increased fourfold to double spray flow. This means that Optispray can be used over a much wider range of spray flow rates for a given spray pressure range. This makes the Optispray™ nozzle far more versatile and able to be used over a wider spray flow rate range and or sprayer speed thus avoiding the need for a range of inserts and or nozzle sizes or types to accommodate a wide range of spray quality, application volume rates or sprayer speeds.

With Optispray™ air is delivered from a piston compressor by way of an air regulator to boom sections at pressures ranging from 50 to 600 kPa. The air is then delivered to individual nozzles through an in-line fixed orifice which controls the volume and pressure to each nozzle. This novel arrangement results in both air pressure and flow being more constant thus generating a relatively consistent spray quality over a wider range of liquid flow rates for a set air pressure than possible for any other twin fluid nozzle.

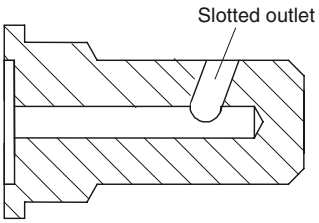
Droplet sizes generated by Optispray™ were measured by The Arable Group, at the Silsoe Research Institute, Bedfordshire, England by spraying water and using a Malvern SprayTec droplet sizer fitted with a 450 mm lens. The Optispray™ nozzle was mounted on a computer controlled transporter at 350 mm above the laser beam and a single plane scan at a transporter speed of 20 mm $sec^{-1}$ was used. Measurements were also made with reference to flat fan nozzles at defined operating pressures so as to enable estimates of spray quality to be made. The boundaries for spray quality using water as the spray liquid were: fine 113 to 151µm; medium 152 to 205 µm; coarse 206 to 241 µm; very coarse 242 to 344 µm and extra coarse 345 to 414 µm.

The droplet size data for Optispray™ nozzle shows that if the spray pressure range is varied between 100 to 600 kPa then a fine spray can be generated for spray flow rates from 400 to 1600 ml $min^{-1}$at a boom air-line pressure of 600 kPa; medium from 650 to

### Nozzle body




### Nozzle tip




1800 ml $min^{-1}$at 400 kPa air-line pressure; coarse from 650 to 2000 ml $min^{-1}$ at an air-line pressure of 200 kPa and extra coarse from 800 to 2100 ml $min^{-1}$ if the boom air-line pressure is 50kPa. Importantly these are achieved using the same insert and nozzle tip.

The data show that uniquely with Optispray™ there is no need to vary air pressure with liquid flow to maintain the same spray quality as is the case with Airjet™ and Airtec™. This makes spray quality selection simpler and overcomes the need for custom built spray controllers. To put the flexibility of Optispray™ into perspective, to generate the same range of spray quality over the same liquid flow rates with conventional nozzles one would need to use: for an extra coarse spray over flow rate range of 1000 to 2140 ml $min^{-1}$ 02, 025, 03, 04 and 05 air induction nozzles; for very coarse over a flow rate range of 900 to 2000 ml $min^{-1}$the Turbo Teejet™ 1103, 04 and 05; for the coarse spray quality range of 660 to 2000 ml $min^{-1}$pre orifice drift reducing 11002, 03, 04 and 05 nozzles ; for the medium spray quality range of 650 to 1840 ml $min^{-1}$ extended range or flat spray nozzles 11002, 03 and 04 and for

the fine spray quality range of 400 to 1550 ml/min extended range 110015, 02 and 03 or Twin Jet™ TG60-1103 and 04 for flow rates above 1360 ml $min^{-1}$. Thus to mimic Optispray™ a user would need to have sets of: 02, 025, 03 and 04 XR, TT or DG and AI nozzles, thus 16 different nozzle sets. Optispray™ therefore overcomes the hazardous need to change nozzles as well as the challenge of selecting the correct nozzle for a task. With Optispray™ the user merely selects the air pressure to give the spray quality desired.

Spray volume distribution measurements were made by mounting a four nozzle boom, with nozzles spaced at 500 mm, 480 mm above a patternator. A height of 480 mm was used rather than the conventional 500 mm to account for the projection of the spray from the nozzles. Nozzle alignment was offset from that of the boom by 10° to prevent interference of sprays from adjacent nozzles. The patternator had a groove width of 75 mm and the spray collected in each groove. The coefficient of variation values were consistently less than 10%.

For availability details contact: Ashley Smart, Airtec Australia, Box 213, Lucindale SA 5272: Phone 08 8766 2294, Mobile 0148 849940, E-mail: airtec@bigpond.com

## Optispray: Spray quality × Air pressure

| Air pressure [kPa] | Liquid pressure [kPa] | Liquid volume ml/min | Application volume l/ha — Speed km/h 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 | 30 | 32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | 100 | 765 | 115 | 92 | 77 | 66 | 57 | 51 | 46 | 42 | 38 | 35 | 33 | 31 | 29 |
| | 200 | 1140 | 171 | 137 | 114 | 98 | 86 | 76 | 68 | 62 | 57 | 53 | 49 | 46 | 43 |
| | 300 | 1440 | 216 | 173 | 144 | 123 | 108 | 96 | 86 | 79 | 72 | 66 | 62 | 58 | 54 |
| | 400 | 1700 | 255 | 204 | 170 | 146 | 128 | 113 | 102 | 93 | 85 | 78 | 73 | 68 | 64 |
| | 500 | 1930 | 290 | 232 | 193 | 165 | 145 | 129 | 116 | 105 | 97 | 89 | 83 | 77 | 72 |
| | 600 | 2145 | 322 | 257 | 215 | 184 | 161 | 143 | 129 | 117 | 107 | 99 | 92 | 86 | 80 |
| 100 | 100 | 735 | 110 | 88 | 74 | 63 | 55 | 49 | 44 | 40 | 37 | 34 | 32 | 29 | 28 |
| | 200 | 1095 | 164 | 131 | 110 | 94 | 82 | 73 | 66 | 60 | 55 | 51 | 47 | 44 | 41 |
| | 300 | 1385 | 208 | 166 | 139 | 119 | 104 | 92 | 83 | 76 | 69 | 64 | 59 | 55 | 52 |
| | 400 | 1635 | 245 | 196 | 164 | 140 | 123 | 109 | 98 | 89 | 82 | 75 | 70 | 65 | 61 |
| | 500 | 1860 | 279 | 223 | 186 | 159 | 140 | 124 | 112 | 101 | 93 | 86 | 80 | 74 | 70 |
| | 600 | 2065 | 310 | 248 | 207 | 177 | 155 | 138 | 124 | 113 | 103 | 95 | 89 | 83 | 77 |
| 200 | 100 | 640 | 96 | 77 | 64 | 55 | 48 | 43 | 38 | 35 | 32 | 30 | 27 | 26 | 24 |
| | 200 | 1000 | 150 | 120 | 100 | 86 | 75 | 67 | 60 | 55 | 50 | 46 | 43 | 40 | 38 |
| | 300 | 1300 | 195 | 156 | 130 | 111 | 98 | 87 | 78 | 71 | 65 | 60 | 56 | 52 | 49 |
| | 400 | 1560 | 234 | 187 | 156 | 134 | 117 | 104 | 94 | 85 | 78 | 72 | 67 | 62 | 59 |
| | 500 | 1800 | 270 | 216 | 180 | 154 | 135 | 120 | 108 | 98 | 90 | 83 | 77 | 72 | 68 |
| | 600 | 2025 | 304 | 243 | 203 | 174 | 152 | 135 | 122 | 110 | 101 | 93 | 87 | 81 | 76 |
| 400 | 100 | 393 | 59 | 47 | 39 | 34 | 29 | 26 | 24 | 21 | 20 | 18 | 17 | 16 | 15 |
| | 200 | 801 | 120 | 96 | 80 | 69 | 60 | 53 | 48 | 44 | 40 | 37 | 34 | 32 | 30 |
| | 300 | 1140 | 171 | 137 | 114 | 98 | 86 | 76 | 68 | 62 | 57 | 53 | 49 | 46 | 43 |
| | 400 | 1420 | 213 | 170 | 142 | 122 | 107 | 95 | 85 | 77 | 71 | 66 | 61 | 57 | 53 |
| | 500 | 1653 | 248 | 198 | 165 | 142 | 124 | 110 | 99 | 90 | 83 | 76 | 71 | 66 | 62 |
| | 600 | 1847 | 277 | 222 | 185 | 158 | 139 | 123 | 111 | 101 | 92 | 85 | 79 | 74 | 69 |
| 600 | 100 | 241 | 36 | 29 | 24 | 21 | 18 | 16 | 14 | 13 | 12 | 11 | 10 | 10 | 9 |
| | 200 | 610 | 92 | 73 | 61 | 52 | 46 | 41 | 37 | 33 | 31 | 28 | 26 | 24 | 23 |
| | 300 | 938 | 141 | 113 | 94 | 80 | 70 | 63 | 56 | 51 | 47 | 43 | 40 | 38 | 35 |
| | 400 | 1229 | 184 | 147 | 123 | 105 | 92 | 82 | 74 | 67 | 61 | 57 | 53 | 49 | 46 |
| | 500 | 1488 | 223 | 179 | 149 | 128 | 112 | 99 | 89 | 81 | 74 | 69 | 64 | 60 | 56 |
| | 600 | 1718 | 258 | 206 | 172 | 147 | 129 | 115 | 103 | 94 | 86 | 79 | 74 | 69 | 64 |

**Legend**

| | | | |
|---|---|---|---|
| White | Extra coarse [345–414 µm] | Blue | Coarse [206–241 µm] |
| Dark green | Border extra/very coarse | Yellow | Medium [152–205 µm] |
| Pale green | Very coarse [242–344 µm] | Pink | Fine [113–151µm] |
| | | Red | Border fine/very fine [<113 µm] |

On the ground… continued from page 8

Continued monitoring of weeds is necessary to identify areas which require weed control works and to gauge the success of previous work undertaken. Priority weeds within the main body of the park have recently been mapped and Chilean Needle Grass, was identified as being the weed species infesting the largest portion of the park followed by Artichoke Thistle, Serrated Tussock and Fennel.
To assist with future monitoring of weed populations within the park, the Hume Sustainable Environment Department has recently purchased a GIS tablet, which enables officers to map weed infestations accurately whilst in the field. Once back in the office, officers will be able to download captured field information directly onto Councils GIS server. This information can then be used by other departments across Council, such as planners and engineers. This information will also assist with follow up site assessments which are conducted to determine if the control works undertaken have been successful in reducing the area of weed infestations.

Hume City Council is starting to win the war on weeds in BVP. This victory is being achieved through the use of a variety of both short and long term weed control methods. Short term methods include slashing, knapsack spraying, cutting and painting, hand weeding (within conservation zones) and ecological burns. Slashing has been utilised on most of the accessible areas of little conservation value which keeps prominent areas relatively weed free, but has also contributed to the dispersal of invasive species such as Chilean Needle Grass.

For long term weed management, areas within the park are regularly being revegetated through community plantings such as Council's Greening Program, offset plantings required by State Government legislation and plantings funded by Melbourne Water and other Council programs. The extensive revegetation which has been performed within the park has been done with the assistance of community groups such as the Moonee Ponds Creek Coordination Committee, Landcare and local school students. Future areas of large scale revegetation have been outlined in the Broadmeadow's Valley Park Management Plan, which was completed in 2007.
Sowing trials of various native grasses are planned in 2008 as a long term replacement for Chilean Needle Grass infestations.

For further information call the Sustainable Environment Department on 9205 2200.

A.Dawson and T.Prowd
Hume City Council