Newsletter of the Weed Society of Victoria Inc.
volume 20 issue 1 2009

Weedscene

Reducing the threat of boneseed and bitou bush in Victoria by Hillary Cherry

Boneseed, *Chrysanthemoides monilifera* ssp. *monilifera*, is a Weed of National Significance (WoNS) that threatens native bushland throughout Victoria. Boneseed and the closely related bitou bush (*C. m.* ssp. *rotundata*) pose a major threat to Australia's biodiversity by reducing abundance and diversity of native species and adversely affect the structure and function of natural ecosystems. Over 200 plant species and ecological communities in Australia are negatively impacted by these weeds. Large areas of Victoria are still susceptible to invasion (see map), however actions are underway across the State to prevent further spread and reduce impact.

Biocontrol: Leaf buckle mite battles boneseed in the bush

The Department of Primary Industries (DPI) received AQIS approval to release the boneseed leaf buckle mite in August 2008. Since then, the community and land managers have assisted DPI in 42 field releases in boneseed infestations in South Australia, Tasmania and Victoria. Monitoring by DPI in December showed encouraging signs – the mites were persisting in half of the sites in South Australia and Victoria, with up to 10 erinea (a gall that indicates mite damage) found on some inoculated shoots. Dry conditions may be hampering mite establishment, however researchers are hopeful that recent rains will spur boneseed growth, thus providing better conditions for the mite.

The mite induces the formation of erinea on boneseed leaves and it is hoped that this will reduce plant vigour and flowering to aid with suppression in core infestations. The mite is currently being mass-reared for releases by community groups and land managers. Mite establishment, dispersal and impact assessment studies will continue into 2009. DPI and the Tasmanian Institute of Agricultural Research are implementing this national program with funding from the Australian, Victorian and Tasmanian Governments.

Work is also ongoing for another potentially important biocontrol agent, the boneseed rust. CSIRO researchers in Australia continue work and research is underway on plants in South Africa, however the long-term nature of the trials means they must continue for at least another year.

Protecting the Great Ocean Road from the threat of boneseed

Parks Victoria and ANGAIR Inc. (the local community group) continue to implement a successful boneseed control program along the Great Ocean Road. This program protects high value conservation assets while increasing community capacity to manage weeds. Community groups work

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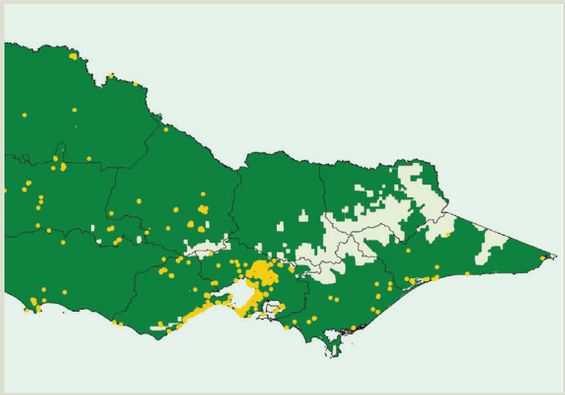

Current (●) and potential (●) distribution of boneseed in Victoria

Boneseed (left) and bitou bush (right): closeups of flowers, fruits and leaves (Photos: Hillary Cherry)

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WSV Membership Rates 2008

Concession*	$20.00
Ordinary	$50.00
Corporate	$120.00

* *Students and Pensioners*

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Contents

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

- Weedscene: quarterly newsletter packed full of information
- eWeedscene: regular electronic bulletin on weed news and events
- 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

One sixth page	56 mm wide × 128 mm high	$90.00
Quarter page	180 mm wide × 64 mm high	$135.00
Half page	180 mm wide × 128 mm high	$275.00
Whole page	180 mm wide × 257 mm high	$450.00

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hard to protect this rare coastal heathland from weed invasion but they have been unable to access boneseed on the steep cliffs, thus hampering efforts to prevent reinvasion. The Victorian Government is supporting community volunteers by funding contractors to remove boneseed on cliffs areas in the Great Otways National Park. The program coordinates on-ground work with the community groups and engages neighbouring private landholders in boneseed control. Parks Victoria is committed to the long-term containment of boneseed in the Great Otway National Park, which is protecting threatened species like the rufous bristlebird, and minimising the movement of boneseed across the public and private land interface.

Controlling boneseed to protect biodiversity in the Green Triangle

Boneseed and other WoNS are being controlled in the biodiversity-rich 'Green Triangle' region, which spans southwest Victoria and south-east South Australia. The project, which began in 2006, continues to encourage cross-border, integrated environmental weed management and is providing high biodiversity conservation benefits. Weed control resources are strategically targeted to protect high priority conservation areas, irrespective of tenure. Partners from the SE NRM Region in South Australia and the Glenelg Hopkins Region in Victoria have collated data and created maps to gauge progress towards goals. Project partners have also engaged private landholders in control and encouraged lasting cross-border partnerships.

Towards eradication of bitou bush from Victoria

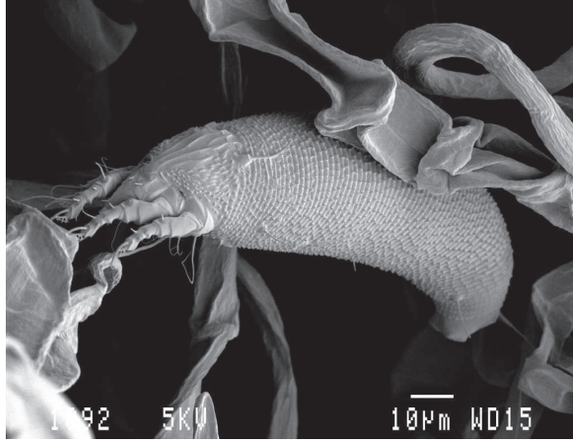
The Department of Sustainability and Environment (DSE) and DPI are currently undertaking a feasibility study to determine if bitou bush can be eradicated from Victoria. Only two small populations of bitou bush are known to exist in Victoria; one at Daveys Bay, near Frankston, and the other in Mallacoota. One other population, at Studley Park in Melbourne, was present but has possibly been eradicated. Bitou bush threatens the entire Victorian coastline and is subject to intensive control efforts in NSW. A southern containment line has been established at Sussex Inlet, NSW. The Victorian populations are outside the containment line and are therefore a priority for eradication. While eradication is believed to be possible, carefully designed control measures must be implemented as many plants occur on unstable coastal cliffs. The project will examine eradication potential and, if feasible, will recommend eradication procedures or a robust containment strategy.

Research is revealing the mechanisms behind invasion

Researchers from four major universities began seed longevity studies for boneseed and bitou bush in 2007. Over 200,000 seeds were buried in long-term trials at sites in Geelong, Wollongong and Brisbane. Seeds will be harvested each year for 11 years to determine seed longevity and seedbank dynamics, which is critical information for current eradication and management programs. In addition to this long-term burial study, researchers at University of Queensland performed a Controlled Ageing Test (CAT) on bitou bush and boneseed seeds. This new approach is a rapid test that artificially ages seeds and provides a relative estimate of seed longevity. Community members from around Australia sent in seed collections from all States. Unfortunately, the CAT reinforces anecdotal evidence that some boneseed seeds are likely to remain viable in the soil for over five years. But on a brighter note, the CAT results do seem to indicate that boneseed seeds may be shorter lived than previously suggested (i.e. < 10 years). Over the next 10 years, the long-term persistence (burial) studies will validate and expand on information gained in the CAT.

The National Bitou Bush and Boneseed Forum

In August 2007, a national bitou bush and boneseed forum was held in Geelong. Over 70 people from throughout southern Australia and New Zealand attended the forum, which summarised the latest research and management efforts. Participants included community members, agency staff, students, scientists, private contractors and non-government representatives. Nine talks, including a keynote by Dr Richard Groves, and 12



Microscopic image of the boneseed leaf buckle mite (Photo: Charnie Cramer and Alan Hall)

Damage caused by the boneseed leaf buckle mite (Photo: Tom Morley)

posters were presented, all of which were published in a dedicated edition of the journal *Plant Protection Quarterly* (Vol. 23, No. 1, 2008). Stakeholders participated in a facilitated session to determine future directions of the bitou bush and boneseed program. Nine priority actions were identified and are listed in the table on page 4, in order of importance.

Teaching kids about the impact of weeds – *Weeds Attack!*

Weeds Attack! is a web-based, multimedia resource with interactive learning activities that increase weed awareness through a series of challenges. It educates children about the impact of weeds on biodiversity and what they can do to help reduce those impacts. Students are engaged by exciting computer games and the opportunity to do 'hands-on' field work. *Weeds Attack!* also incorporates Weed Warriors, a national program that empowers students to act on weed issues using biocontrol agents. The *Weeds Attack!* resource, which focuses on bitou bush and other WoNS, was designed

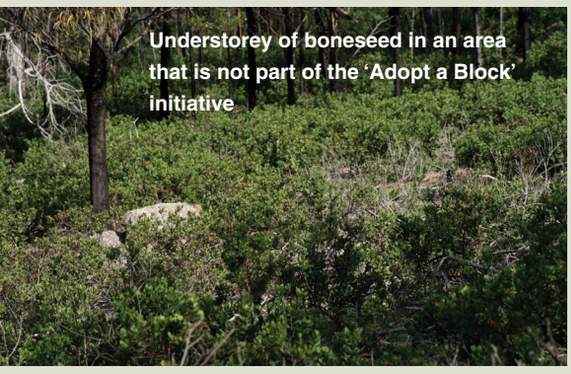
(continued on page 4/…)

Boneseed at the You Yangs Regional Park

by Merrilyn Serong

The most outstanding features of a visit to the You Yangs Regional Park, 55 km south-west of Melbourne, Victoria, are the spectacular views from the top of this isolated granite outcrop, the diverse wildlife, and the prolific infestation of boneseed *Chrysanthemoides monilifera* subsp. *monilifera*. In the worst affected areas, most of the understorey consists of boneseed, the presence of which prevents the re-establishment of native shrubs and ground-covers, as well as new canopy trees such as eucalypts and acacias.

A South African import, boneseed was grown as a garden plant in Victoria from as early as the mid 1800s. It was brought to the You Yangs in the 1950s to control erosion. Responding well to disturbance, it flourished after the devastating fire of 14 January 1985, when more than 80% of the park was burnt. Once well established in a park environment, it is extremely resistant to eradication attempts. As the name suggests, the large seeds are well protected by a hard seed coat and can remain viable in the soil for at least four or five years, possibly as many as ten. Boneseed is not such a problem on farmland, where it is subject to trampling or consumption by livestock.



Understorey of boneseed in an area that is not part of the 'Adopt a Block' initiative

White-winged choughs near the edge of a boneseed-infested area where there is space for the birds to forage

Efforts to control the spread of boneseed in the You Yangs have concentrated on mechanical destruction, application of chemicals, biological agents and manual pulling of the plants. The advantage of the manual pulling method is that it specifically targets boneseed plants with minimal effects on soil, native plants and wildlife. The main disadvantage is that it is labour intensive, so its success depends upon volunteers. If large numbers of enthusiastic boneseed pullers were paid to do the job, what an impact that would make on these invasive weeds. Realistically, *control* is the only possibility, not *eradication*, so a funded program would be long-term and therefore expensive.

Birds Australia (Royal Australasian Ornithologists Union) is one of the many organisations allocated an area of the You Yangs as part of the 'Adopt a Block' initiative. BA volunteers hold 'boneseeding' days four times a year to control the weeds. Depending on annual rainfall, it can be a case of three steps forward and two steps back. The You Yangs are particularly dry, being in a rain-shadow cast by the Brisbane Ranges. Very dry weather facilitates boneseed control as fewer seeds germinate, but native plants also suffer. In wetter years, native plants rejuvenate, but boneseed seedlings proliferate. Weeds at the tiny two- or four-leaf stage, can be pulled out at a rate of more than 1000 an hour. Even small bushes can be removed easily as the roots are often shallow. Large plants must be dug out. Removal facilitates the germination of numerous seeds and return visits are essential to pull out seedlings before they flower.

Surprisingly, four visits per year is sufficient to keep the BA patch free enough of boneseed for native plants to do as well as the dry weather conditions allow. Acacias abound and there are numerous eucalypts. Native ground-cover plants grow where once there were boneseed weeds. Ground-feeding wildlife such as the short-beaked echidna, white-winged chough and painted button-quail are free to forage without obstruction and birds of several species have bred there over the years. This is a real incentive to continue the work.

(…/continued from page 3)
by education experts at DET Centre for Learning Innovation to address the NSW science curriculum and be easily adapted to other States and Territories, thus giving it national relevance. In 2007 trials, uptake was excellent with teachers and students engaging enthusiastically and the resource is now being used at primary and secondary schools across NSW. *Weeds Attack!* is available free from www.dpi.nsw.gov.au/agriculture/pest-weeds/weeds/schools – so please check it out!

We are currently working to develop this resource for all jurisdictions and multiple weeds. We are seeking partners (educators, schools, land managers, community members, etc.) to participate, so if you would like to be involved in Victoria, please contact me. Educating our future gardeners and land managers is critical – and a necessary strategy in the long-term battle against weeds!

For more information contact the National Coordinator, Hillary Cherry, on (02) 9585 6587 or hillary.cherry@environment.nsw.gov.au or visit the webpage www.weeds.org.au/WoNS/bitoubush.

Nine priority actions

1. Continue the public education program and national coordination
2. Develop holistic approaches to weed management for bitou bush and boneseed (i.e. involving all weed species)
3. Secure and maintain long-term funding
4. Increase community participation and capacity building (especially with private landholders and agencies) as well as supporting 'champions'
5. Continue research into improving control techniques and integrating them into management (including biocontrol and fire) and research into ecology/biology
6. Establish better site management protocols post-control (including revegetation)
7. Identify assets at risk (e.g. habitats, sites, species; particularly from boneseed)
8. Development of best practice guidelines
9. Establish containment and exclusion zones at a range of scales

WSV News

WSV Travel Grants

Are you planning to attend a weeds conference, such as the Victorian Weeds Conference or the 10th International Conference on the Ecology and Management of Alien Plant Invasions to be held in South Africa? Perhaps you are a student with a focus on weeds? Or someone just starting out their career in weeds management or research? WSV provides travel grants annually, depending on the standard of the applications, to enable up to two of its members to attend a weeds conference. The maximum grant per recipient is $1500 and WSV members are encouraged to apply. Applications to attend Victorian, Australian or international conferences to be submitted by 1 April 2009.

Council of Australasian Weeds Societies (CAWS) Travel Grants

CAWS travel grants support students and early career scientists to attend national or international conferences, or to undertake specific overseas study tours of a short duration. The grants, awarded annually, depending on the standard of applications, are not restricted to WSV members, although they may be given preference. 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 are to be submitted by **1 April 2009.** You can download the travel grant guidelines and relevant application forms from our website: www. wsvic.org.au (look under the 'Grants' tab) or email Ros Shepherd, Secretary at secwssv@surf.net.au.

AGM Seminar: Modelling the potential distribution of weeds

Weed modelling can be a valuable tool for estimating and communicating:

- the impacts of weeds on agriculture and the environment;
- suitable habitats and hotspots for weed invasion, and informing surveillance for new weed incursions;
- cost-effective weed management methods; and
- the success of weed control, including eradication programs.

But the modelling world is a frightening place for the uninitiated, with a dizzying array of methods on offer that are often explained using terminology unfamiliar to those outside the modelling sphere. This seminar will introduce non-modellers to the types of modelling methods that are available and how they can be used in the field of weeds, including:

- how they can be used to model weed dispersal and distributions;
- the expertise required to operate the model;
- the types of data and the system requirements needed to run the model;
- the scale at which the model operates;
- ways to interpret and present the model outputs, and use these in research and communication.

The full day seminar will be held on Thursday 16 April 2009 at the Lecture Theatre, Department of Primary Industries, 475-485 Mickleham Road, Attwood (Melways ref Map 5, J2-K2). Registration from 8.30am. Further details are available on www.wsvic.org.au

WSV Annual General Meeting

The 43rd WSV Annual General Meeting will be held from 5.00 pm on Thursday 16 April 2009 at the Lecture Theatre, Department of Primary Industries, 475-485 Mickleham Road, Attwood (Melways ref Map 5, J2-K2) following the AGM Seminar *Modelling the potential distribution of weeds*. All members and prospective members are welcome to attend. If you are a member and are unable to attend the AGM, you are invited to complete the proxy form included on page 12 of this edition.

Executive Committee membership

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 two hours every four to 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 are to be sent to the secretary by **Friday 10 April 2009**. If you would like further information or require assistance with securing a nomination from WSV members contact the WSV Secretary.

Nominations for 2008 Outstanding Contribution to Weed Management

Nominations for the 2008 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 from the WSV website (see news under 'What's on?' tab) and must be sent to the WSV secretary by **Friday 13 March 2009**. Nominations will be considered by the WSV president and two members of the Executive Committee, and the winner will be presented with the award at the WSV *Modelling the potential distribution of weeds* seminar on Thursday 16 April 2009.

Fourth Victorian Conference: Plants behaving badly: in agriculture and the environment

The Fourth Victorian Weeds Conference will be held this year in Geelong at the Mercure Hotel from 7–8 October 2009. The conference theme: Plants behaving badly: in agriculture and the environment will include presentations from two keynote speakers. John Thorp from John Thorp Australia will speak on *Where are we going with weeds?* and Geoff Carr from Ecology Australia will give a presentation which provides a new look at environmental weeds in Victoria. If you would like to participate as a speaker or show a poster please complete the form available at www. wsvic.org.au by 21 February and return to the Secretary, Ros Shepherd. Presentations will probably be of 15 minute duration, with 5 minutes of that time for questions. The papers or posters will be published in the conference proceedings.

People

Weed IDentity: Rob Richardson, Publisher

In his first year of an Agriculture Science degree at Melbourne University, Rob Richardson was awarded a scholarship with the then Victorian Department of Crown Lands and Survey. The scholarship covered the costs of his university studies and living expenses for the remainder of the degree, and also provided opportunities for holiday work. In return, Rob was required to commit to working with the department for a period of at least five years after graduation. After finishing uni, the department gave him a choice of two fields: vermin or weeds. To the relief of rabbits and foxes everywhere, Rob chose to embark on what would become a lifelong career in weeds.

Under the guidance of Tom Donaldson (a former president of the Weed Society of Victoria), Rob's first project with the department was in plant physiology to understand the translocation (absorption and movement) and effectiveness of the herbicide 2,4,5-T in blackberry plants. Using radio-labelled tracers, he was able to see that whilst the herbicide was being absorbed by the leaves, the blackberry crown reduced the amount of herbicide reaching the roots, which explained why the herbicide was often ineffective as the blackberry plants were able to regenerate from their mostly unaffected roots.

At Keith Turnbull Research Institute (KTRI) in Frankston (now the Department of Primary Industries) Rob researched the ecology and dispersal of various weeds, including ragwort, and then later worked on herbicide application and formulation with Harry Combellack (also a former president of WSV). 'We had to construct the equipment and sprayers ourselves, work which I really enjoyed and in hindsight engineering may have been more my thing,' Rob reflected. 'The work meant understanding how sprayers function to give an even application of herbicides and looking at how much herbicide is retained on leaves and how much is absorbed.'

There was a time when weed researchers at KTRI were also expected to be involved in the WSV. Rob's view is that WSV should have a position on what is happening currently, including government priorities and the industry's activities. 'The Society can influence debate through the conferences it organises and in the topics it selects. Participating in the Society enables people to wear another hat and to pursue work-related interests. In arranging conferences there is the chance to bring out speakers you want to hear. In the good old days you could attend WSV meetings in work time.' Rob's involvement in the Society included an extended period on the committee, a stint as president and with an interest in publishing (more about that later) he took over the production and editorship of Weedscene for over 10 years, using his networks to bring diverse items of interest to members.

A career in weeds can take people down many different paths. Rob, discussing his transition from weed researcher to publisher, said '*Plant Protection Quarterly* started life as the journal *Australian Weeds* published by the Council of Australian Weed Societies. The overall production was found to be a big job and after three years Inkata Press took it on and broadened the scope to include plant pathology renaming it *Plant Protection Quarterly*. I was an assistant editor with the journal during this period. After a short while Inkata Press found that the journal was not commercially viable. This was during the time when desktop publishing software was in development and I decided I would take it on. I ran it as a hobby in the evenings whilst working at KTRI. It was a lot of extra work.'

With his ongoing involvement in the production of the journal and after nearly 30 years with KTRI, he and his wife Fiona, grasped the opportunity to develop a publishing business. One of their first major jobs was producing the proceedings of the 11th Australian Weeds Conference in 1996. Then, when Inkata Press was sold in the late 1990s, there was a market left open for the publishing of information on weeds. The *Biology of Australian Weeds Volume I* was their first foray into book publishing. The business name 'Weed Info' came about when considering names for a website. It stuck, reflecting both the publishing, the journal and website aspects to the business. With a growing list of contacts, book sales became a natural extension. Weed Info has become an important source of resources for a niche market.

Since moving into publishing full-time, Rob and Fiona bought a 100 acre property in Meredith, between Geelong and Ballarat. They have a small number of horses and sheep, one Suffolk ram, 'Sooty', who recognises his name, and two dogs, as well as kangaroos and koalas. Half of the property is vegetated with 30–40 year old regrowth forest including stringybarks and manna gums. It is in a bush-fire prone area, but they choose to live with the risks and are fire-ready. One of the reasons they were attracted to the property is that there are very few weeds. Onion weed started to spread as a result of the drought, which they have been successfully managing by reducing the stocking numbers.

Meredith has the twin advantages of being not far from Melbourne and also not far from the water, that latter of which is important because of Rob's love of sailing. In the last couple of weeks he has taken possession of a 29-foot Jeanneau keel boat, which can sleep six people. With regular travel from Meredith to the beach, one of Rob's ideas is to produce a book on identifying weeds at 100 km per hour! Rob reflected, 'It is amazing how much you notice when you are whizzing by in a car.'

Victorian Alert Weed: Hairy willow-herb (*Epilobium hirsutum*)

This is the fifth instalment in an ongoing series, highlighting a selection of the Victorian Alert Weeds, brought to you by the DPI Weed Alert program.

Why is this species a Victoria Alert Weed?

Hairy willow-herb was once a popular ornamental plant, used for its showy rose-like flowers. Plants produce seed prolifically in autumn and can cover the stems year round. The species will also readily re-shoot from underground runners that can easily reach 3-4 metres in length. Hairy willow-herb grows in wet or moist areas and is normally found growing on the edges of dams, swamps and river banks. Here it can have devastating impacts on sensitive riverine and wetland habitats. Hairy willow-herb has already escaped and naturalised in several areas of southern Victoria and is of particular concern around Geelong where it is invading wetlands and riverbanks.

Type of weed A potential garden escape and semi-aquatic herb.

What does it look like?

Stems are tall and erect (up to 2 metres) with branches covered in fine, woolly hairs (unlike native willow herbs). Leaves are long and narrow being similar in colour and shape to those of the tree willows. Flowers are pink to rosy-purple and larger than other willow-herbs (at 30 mm across), forming at the ends of the branches. Seeds are held in a fruit capsule, formed after flowering and have fluffy white tails which help them disperse in the wind. Stems are supported by a thick, fleshy, creeping rhizome (runner) which can grow above or below ground, giving rise to new plants.

Why is it a problem?

Hairy willow-herb is quick to colonise gaps when water returns to parched riverbeds. Plants readily overcrowd native species within semi-aquatic habitats. When the plants dieback over winter they drop foliage and nutrients into wetland systems, further damaging ecosystems already under threat from willow tree invasions.

Hairy willow-herb is able to reproduce both sexually, via seed and vegetatively, via root buds. An adult plant is capable of producing more than 1000 seeds, with each having a fluffy tuft of white hair that assists with wind and water dispersal.

Hairy willow-herb plants are fast growing and quickly out-compete native vegetation trying to occupy sensitive streamside pockets. Its popularity as a garden plant has lead to the invasions of wetlands hairy willow-herb around the Geelong area and at some sites around Melbourne and Gippsland. The tough underground root system makes eradication of this species very difficult.

Flowering in summer and autumn, the rosy pink flowers normally emerge at the end of January, so now is the ideal time to look out for hairy willow-herb.

If you suspect you have found hairy willow-herb, please report it to your local Weed Alert Contact Officer on 136 186. For a hairy willow-herb fact sheet, or more information on Victorian Alert Weeds, log on to the Weeds section of the DPI website www.dpi.vic.gov.au/weeds and click the Weed Spotters link.

Richard Plant, Department of Primary Industries

Weed profile

Hairy willow-herb flower with prominent white style (Photo: Steve Smithyman, DPI)

Hairy willow-herb infestation at Geelong (Photo: Steve Smithyman, DPI)

Hairy willow-herb stem and rhizome (Photo: Richard Plant, DPI)

On the ground

Macedon Ranges Shire's weed strategy – where success means nothing to see?

In the Macedon Ranges Shire, the lifecycle of weeds and their perceived impact in the community is marked by the intensity of the colour of their flowers and the time of their flowering. Right now we are in a 'White Cycle', with blackberry looking its best. Earlier it was yellow and purple with Paterson's curse and Capeweed drawing the ire of residents.

Yellow is a colour that can raise instinctive negative reactions in people, perhaps reflected in hundreds of complaints we receive about yellow flowering weeds. But since grasses are not obvious about their flowering we get very few complaints about Chilean needle grass or serrated tussock. In a more objective assessment of weed threat and impact should not the grassy weeds be shown more interest?

Community Groups, the Department of Primary Industries and Council have coordinated many events, media releases and direct mail-outs about grassy weeds. But grasses are hard for people to get their head around and at first glance they are bland and unappealing. serrated tussock has people's attention in Shires to the south, but mainly because the weed puts a big hole in their wallets.

Pest plant management is a profession that offers few rewards to its practitioners. If you are successful in control, there are no weeds and there is nothing for people to see. When trying to convince people to prevent weed problems, there is even less to see, because if weeds are prevented, nothing changes. People seem most motivated to control weeds by visual impacts or imposed costs. When there are large costs, it is a sign of lost opportunity and possibly an impossible problem. People can be inspired to rage at the site of a field of purple, but I we rarely hear a squeak about the bent grass that blankets most paddocks across the region.

The role that perceptions play in understanding weed problems is just one of the challenges faced when working to develop and implement pest plant policy. The problem that people are concerned about is often not the biggest threat. And it is not just a problem with landowners or the broader community. Try getting senior policy makers interested in the threat posed by radiata pine wildings to the Wombat Forest and Macedon Range.

Locals learn about serrated tussock
(Photo: Peter Clarke)

Macedon Ranges Shire's approach to weed management has been informed by State and Federal policy and science that emphasises the importance of taking an 'integrated' approach to weed management. Councils Weed Strategy 2005 sets out a range of actions to address help address the myriad weed problems in the shire.

Showing leadership in weed control on public land is a key objective of the council's Weed Strategy. It is familiar to hear a landowner make a legitimate complaint about poor management of public land. But by investing in weed control on Council managed land and road reserves the Council builds its credibility in the promotion of weed control messages to the broader community.

The actions include direct investment in weed control work including creation of a permanent Weed Control and Bushland Management Officer position with a dedicated vehicle and specialist equipment. Since 2005 Council has implemented a significant roadside weed control program to the value of approximately $70,000 per year. This funding is often supplemented by grants from other sources such as the State Government's Future Farming Initiative or good neighbour grants from the Department of Sustainability and Environment. This program is based on clear priorities, namely targeting high conservation value roadsides, weed fire risks, local new and emerging weeds and to support Landcare Group projects.

To date work has commenced on some 400 roadside weed sites across the shire with an area all up of about 80 hectares. This represents about a quarter of the roadside weed problem in the shire, so there is a long way to go. But from another perspective, if weeds on roadsides cover a total of 320 hectares of the 170,000 hectares of Macedon Ranges Shire, is the scale of the problem really so great? After all one of the good things about controlling roadside weeds is there is always a road to the problem. As ever money is the key issue. At $1500 per hectare and rising an annual budget of at least $250,000 per year is required to reduce weed problems to a maintenance level over about ten years. This is a big ask for most rural Councils.

Along with other Local Governments in Victoria, Macedon Ranges Shire has not wanted to accept a legal responsibility for weed control on roadsides without significant ongoing financial support from the State Government. But it is not in the interests of residents, the local environment or the economy for Council to do nothing and continue to watch weeds spread. Council's investment in weed control supports the local tourism economy, helps reduce fire risk and pest animal harbour. This investment also reduces threats to

biodiversity and agriculture and shows Council as a leader in weed control to private landowners and the broader community.
A key to managing so many sites has been Councils investment in a Geographic Information System (GIS) contract management system that helps track sites, evaluate tenders and ensure follow up works can be scheduled. There is no other practical way to track sites and allocate resources.

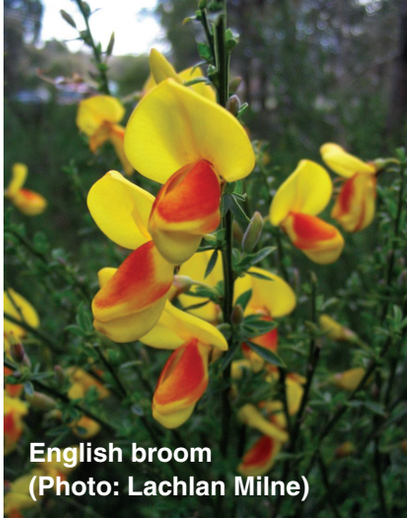
As part of the roadside weed control program a letter is sent to residents explaining the works and providing the contact details of the contractor doing the work. This allows the resident to get a better understanding of local weed problems and provides the opportunity for them to inform Council of special circumstances, such as the presence of grape vines or organic farming practices. A GIS is critical to being able to provide this kind of communication to residents. We get regular feedback from contractors that landowners engage them to control weeds within their properties at the time of doing the roadside weed control. Controlling weeds on roadsides motivates landowners to control weeds on their own land.

Communication, training and partnership are the other key elements of the Macedon Range Shire Weed Strategy. Key initiatives include publication of the Weeds of Central Victoria, Landcare Information Emails, Enviromark Roadside Signage (Grassy Weeds), Weed Vehicle Hygiene Training and development of Council's Voluntary Environmental Resource Inventory (VERI). These initiatives were part funded by the State Government's Tackling Weeds on Private Land Initiative and were developed in partnership with neighbour Councils and the Department of Primary Industries.

Council seeks to be a partner with Landcare and Friends Groups and provides small scale funding for projects. It also seeks to be a partner with Catchment Management Authorities and the Department of Primary Industries. A key project includes delivery of serrated tussock extension in the south eastern areas of the Shire. The Port Phillip and Western Port Catchment Management Authority recently supported a project to deliver weed management events and communications to residents.

A key innovative service Council has sought to establish is the facilitation of the Voluntary Environmental Resource Inventory. The VERI is designed as a checklist that land vendors or purchasers can use to facilitate a dialogue on land management issues in land sales negotiations. It is designed to help land vendors showcase their property improvements and to pass on key information about issues that need to be managed, including weeds. Land purchasers can use the VERI to help them evaluate the quality of land and to help build an understanding of issues they may need to address once they take ownership. Macedon Ranges Shire is located on the 'Peri-urban' fringe of Melbourne and is increasingly seen as a desirable area for rural residential living. Many new residents have little knowledge of land management and weeds and therefore they need tools to help them understand possible future management responsibilities.

This program is still in the early stage of development and evaluation. Two real estate agents have volunteered to actively promote the VERI and they report a very favourable response from land purchasers, but vendors have been more conservative in their approach. The VERI is available for download from the Macedon Ranges Shire website. It is not under copyright and is available for anyone to use or adapt.


English broom
(Photo: Lachlan Milne)

Macedon Ranges Shire remains a large rural shire with a small population and rate base, but with significant weed and other natural resource management problems to address. The challenges can only be met in partnership with the local community. By having a range of different programs and initiatives, weed and other natural resource management messages can be kept constantly before residents to help build knowledge and understanding. Maybe one day the phones will fall silent when the only yellow in the landscape comes from some of our lovely wattles and a measure of our success will be residents demanding more action on grassy weeds.

Fore more information please contact Lachlan Milne, Environment Resource Officer on 03 5421 9659 or visit the Macedon Ranges Shire website – www.macedon-ranges.vic.gov.au

Lachlan Milne

If you are interested in profiling the work of your local council or community group, please contact the Weedscene Editor.

Letter from the Editor

What is in a name? For anyone with a passion for weeds and travel, you may be interested to learn that there is a hotel in Sydney named the 3 Weeds Hotel. It is not just any old hotel, the 3 Weeds Hotel was established in 1881 and is one of the original inner west pubs. Its website proclaims that 'it has evolved through numerous changes to become one of the finest in Sydney, offering a quality pub or dining experience'. I was surprised to learn that a Friends of the Weeds membership is available: 'By joining the programme you become entitled to a range of member benefits and discounts both at the 3 Weeds and with our 18 local and national partners. An average person could save up to $2000 a year just by taking advantage of the many lifestyle, service and product specials on offer!' This kind of money could kill quite a few weeds.

I am often amazed at how often a person's name actually reflects what they do. A good friend of mine, Caroline Cook is a home economics teacher. A review of local wines was written by Jeni Port in the *Epicure* section of *The Age* this week. This first edition of Weedscene for 2009 includes an article by Richard Plant, a regular contributor to Weedscene, on Hairy Willow Herb, a weed alert species which flowers in January, while Giles Flower gives us an insight into the 'art' of photographing aquatic plants. Happy reading. Lisa Minchin

Photography

Cyperus difformis (Photo: Giles Flower)

Marsilea mutica, Lake Boga, Victoria (Photo: Giles Flower)

Hydrilla verticillata, Clearwater Lagoon, Mt Isa, Queensland (Photo: Giles Flower)

Nymphaea (left) (Photo: Giles Flower)
Water Plantain (right) (Photo: Lou Breewell)

Aquatic plants – the photographer's challenge

In the visual world in which we live, taking photographs of the plants that are the subjects of our studies and surveys has taken on an increasing importance. As well as illustrating reports and articles, we often now use photographs of plants to aid in identification, e-mailing them around the countryside to colleagues and friends with the 'any idea what this is?' e-mail subject.

And therein lies the technical challenge. I freely admit that I am a dreadful photographer. It's just not what I was trained in. And I fear that I have an additional challenge, because I am an aquatic botanist. Not for me the challenge of getting trees in focus and showing diagnostic features, my subjects are often nondescript to the layperson and occasionally completely submerged.

Large-leafed floating and emergent plants don't present a huge challenge. Catch a waterlily at the right time of year and capturing them is easy. They have large conspicuous flowers, large flat leaves, and they stick out of the water. And there are many plants that are similarly easy to photograph, such as *Marsilea*, *Ludwigia*, *Sagittaria* (well, the broad-leafed ones) and so on, so I probably shouldn't complain.

But some of the sedges, rushes and grasses are more of a challenge. I've tried putting them against an artificial background, close-ups, blown-up distance shots and framed against the sky. And the only secret I can reveal is that if you take twenty photos, you might get a good one. Like all plant ID activities, it helps if the species is in flower. But a trawl through my photo library reveals a plethora of out-of-focus, uninformative and uninspiring photographs of thin, upright seemingly nondescript aquatic macrophytes.

And submerged plant species add another challenge. A couple of years ago I was fortunate enough to do some work in Mount Isa with my colleague, Matthew Flower, at a water storage called Clearwater Lagoon. The name was apt, because the water was incredibly clear. Yet, I still struggled to take a good photograph of the submerged plants growing unfettered in the crystal waters. I may have achieved better results if I had a submergible camera with me, but that would probably not help me at some of the sites I visit in northern Victoria. Turbidity is the problem. Can't really take a good photo of a submerged plant in the dark.

So what is the answer? Sadly, I have to admit that I don't know. Submerged plants can be pulled out of the water and laid out for a portrait, but they tend to lose a bit of their life and it takes patient hands to lay them out on dry land in a fashion that can capture their features.

Those thin, tall sedges and rushes, I think, are best tackled from a low angle, using a blurry sky as the background. But I must admit to still having a low success rate with this method.

If you are looking for a firm conclusion to this article and some quick tips, I'm afraid I'll disappoint you. My answer, as above, remains the scattergun approach to photography – fifty photos yields three or four good ones. Suggestions gratefully accepted.

Giles Flower

Recent journal articles

A selection of recent scientific articles that may be of interest to members of the WSV, compiled by Chris Timewell.

Adams, L.G. *et al.* (2008). Revision of *Spergularia* (Caryophyllaceae) in Australia. *Aust. Systematic Botany* 21(4), 251-70.

Andrews, T.S. *et al.* (2008). Predicting *Avena* spp. control with clodinafop. *Weed Research* 48(4), 319-28.

Anon (2009). Weed- and herbicide-related technical abbreviations. *Weed Research* 49(1), 116.

Bastiaans, L. *et al.* (2008). Focus on ecological weed management: what is hindering adoption? *Weed Research* 48(6), 481-91.

Bressan, G.M. *et al.* (2008). A classification methodology for the risk of weed infestation using fuzzy logic. *Weed Research* 48(5), 470-9.

Browne, M. *et al.* (2009). The crucial role of information exchange and research for effective responses to biological invasions. *Weed Research* 49(1), 6-18.

Burgin, S. and Norris, A. (2008). Alligator weed (*Alternanthera philoxeroides*) in New South Wales, Australia: A status report. *Weed Biology and Management* 8(4), 284-90.

Cahill, D.M. *et al.* (2008). Turner Review No. 17. *Phytophthora cinnamomi* and Australia's biodiversity: impacts, predictions and progress towards control. *Aust. J. Bot.* 56(4), 279-310.

Cedergreen, N. (2008). Herbicides can stimulate plant growth. *Weed Research* 48(5), 429-38.

Chuah, T.S. *et al.* (2008). Antagonism of glufosinate ammonium activity caused by glyphosate in the tank mixtures used for control of goosegrass (*Eleusine indica* Gaertn.). *Plant Protection Quarterly* 23(3), 116-19.

Fernandez-Quintanilla, C. *et al.* (2008). Which future for weed science? *Weed Research* 48(4), 297-301.

Gillbank, L. (2007). Of weeds and other introduced species: Ferdinand Mueller and plant and animal acclimatisation in colonial Victoria. *Vic. Naturalist* 124(2), 69.

Hussner, A. *et al.* (2009). The influence of water level and nutrient availability on growth and root system development of *Myriophyllum aquaticum*. *Weed Research* 49(1), 73-80.

Hunt, L.J.R. *et al.* (2008). The biology of Australian weeds. 51. *Heliotropium europaeum* L. *Plant Protection Quarterly* 23(4), 146-52.

Johnson, S.B. (2008). The biology of Australian weeds. 50. *Lantana montevidensis* (Spreng.) Briq. *Plant Protection Quarterly* 23(3), 107-15.

Johnston, F. *et al.* (2007). Distribution, frequency and density of the weed *Achillea millefolium* Yarrow in the Snowy Mountains, Australia. *Vic. Naturalist* 124(1), 52.

Kyle, G. *et al.* (2008). Growth and survival of riparian plantings in relation to Weeping Willow canopy in the Upper Hunter River. *Ecological Management and Restoration* 9(2), 154-6.

Lambdon, P.W. (2008). Do non-native species invasions lead to biotic homogenization at small scales? The similarity and functional diversity of habitats compared for alien and native components of Mediterranean floras. *Diversity and Distribution* 14(5), 774-85.

Lefoe, G. and Longmore, S. (2007). Battling Bridal Creeper in coastal dunes: a community approach. *Vic. Naturalist* 124(2), 106.

Leth, V. *et al.* (2008). *Phomopsis cirsii*: a potential biocontrol agent of *Cirsium arvense*. *Weed Research* 48(6), 533-41.

Mallen-Cooper, J. and Pickering, C.M. (2008). Linear declines in exotic and native plant species richness along an increasing altitudinal gradient in the Snowy Mountains, Australia. *Aust. J. Ecol.* 33(5), 684-90.

Mason, T.J. and French, K. (2008). Impacts of a woody invader vary in different vegetation communities. *Diversity and Distribution* 14(5), 829-38.

Moeini, M.M. *et al.* (2008). Introducing an abundance index for assessing weed flora in survey studies. *Weed Biology and Management* 8(3), 172-80.

Moss, S.R. (2008). Weed research: is it delivering what it should? *Weed Research* 48(5), 389-93.

Nakamura, A. *et al.* (2008). Effects of glyphosate herbicide on soil and litter macro-arthropods in rainforest: Implications for forest restoration. *Ecological Management and Restoration* 9(2), 126-33.

Oram, R.N. (2009). The first century of *Phalaris aquatica* L. cultivation and genetic improvement: a review. *Crop and Pasture Science* 60(1), 1-15.

Owen, M.J. and Powles, S.B. (2009). Distribution and frequency of herbicide-resistant wild oat (*Avena* spp.) across the Western Australian grain belt. *Crop and Pasture Science* 60(1), 25-31.

Papageorgiou, A. *et al.* (2008). Tillage implement effects on herbicide efficacy and the yield of cotton grown under a sprinkler or drip irrigation system. *Weed Biology and Management* 8(3), 201-8.

Pisanu, P. and Mooney, T. (2008). Field trial to test methods for eradication of fennel (*Foeniculum vulgare* Miller) on roadsides of Kangaroo Island, South Australia. *Plant Protection Quarterly* 23(3), 127-30.

Pratley, J.E. *et al.* (2008). *Echinochloa* spp. in Australian rice fields – species distribution and resistance status. *Aust. J. Agric. Res.* 59(7), 639-45.

Proches, S. *et al.* (2008). Herbivores, but not other insects, are scarce on alien plants. *Aust. J. Ecol.* 33(5), 691-700.

Robinson, R.W. (2007). Hybridisation and invertebrate hosts: two neglected aspects of pest plants in south-eastern Australia. *Vic. Naturalist* 124(2), 117.

Scurr, G. *et al.* (2008). Biotic resistance to *Chrysanthemoides monilifera* ssp. *monilifera* in Tasmania. *Aust. J. Ecol.* 33(8), 941-50.

Stephens, C.J. *et al.* (2008). The impact of bridal creeper (*Asparagus asparagoides*) on native ground-cover plant diversity and habitat structure. *Plant Protection Quarterly* 23(3), 136-43.

Tozer, K.N. *et al.* (2008). Effect of grazing, gap dynamics, and inter-specific seedling competition on growth and survival of *Vulpia* spp. and *Hordeum murinum* ssp. *leporinum*. *Aust. J. Ag. Res.* 59(7), 646-55.

Tozer, K.N. *et al.* (2009). Integrated management of vulpia in dryland perennial pastures of southern Australia. *Crop and Pasture Science* 60(1), 32-42.

Turner, P.J. *et al.* (2008). The ecological barriers to the recovery of bridal creeper (*Asparagus asparagoides* (L.) Druce) infested sites: Impacts on vegetation and the potential increase in other exotic species. *Aust. J. Ecol.* 33(6), 713-22.

van Acker, R.C. (2009). Weed biology serves practical weed management. *Weed Research* 49(1), 1-5.

Virtue, J.G. *et al.* (2008). Australia's Botanic Gardens weed risk assessment procedure. *Plant Protection Quarterly* 23(4), 166-78.

White, E.M. *et al.* (2008). Diversity and abundance of arthropod floral visitor and herbivore assemblages on exotic and native *Senecio* species. *Plant Protection Quarterly* 23(2), 90-7.

White, E.M. *et al.* (2008) Plant-pollinator interactions in sympatric exotic and native *Senecio* species: is facilitation or competition for pollinators occurring? *Plant Protection Quarterly* 23(3), 120.

Weiss, J. (2007). Contingency planning and prioritising pest plants. *Vic. Naturalist* 124(2), 83.

Wu, H. *et al.* (2008). Chemical control of flaxleaf fleabane (*Conyza bonariensis* (L.) Cronquist) in winter fallows. *Plant Protection Quarterly* 23(4), 162-5.

Gardening

Backyard Bamblitz

Seven weeks ago I mowed the lawn. Somehow with visitors staying the weekend, commitments in Melbourne, a weekend away, our backyard had been taken over. In that time it had rained and it had been sunny – all enough for access to the clothes line to be made very difficult. My partner and I rent a property in down-town Castlemaine, a slightly-bigger-than-average suburban block, it suffers from rental syndrome (also known as holiday house syndrome): *Cotoneaster* sp., *Zantedeschia aethiopica*, *Olea europaea* ssp. *africana*, *Prunus cerasifera*, *Rosa rubiginosa*, *Acer negundo*, *Tradescantia fluminensis*, *Foeniculum vulgare*, *Fraxinus angustifolia* ssp. *angustifolia*, every variety of grassy and herbaceous weed… and bamboo (*Phyllostachys* spp). I had seen it coming and yet was half fascinated – did it really grow as fast as they say? In seven weeks it was taller than me in some parts. Even Red Cloud Bamboo, which identifies itself as a leading supplier of bamboo to Melbourne, states on their website (http://www.redcloudbamboo.com.au/bamboo_facts.html):

Melbourne has been cursed with the highly invasive golden bamboo for many decades now. If it is planted with no boundaries it will fulfil its duties to invade the whole area. However this is a goodlooking indestructible plant, fantastic for screening or even a stand alone specimen plant in just about any conditions.

Bamboo in the clothesline

The ground was damp, we were at home without visitors and the washing needed to be hung out. A quick google on the management of bamboo lead to the weed management plan of the Blue Mountains City Council (http://www.weedsbluemountains.org.au/Rhizomatus%20Bamboo%20-%20Class%204%20Weed%20Control%20Plan.pdf):

Manual control *Physically remove by hand or machine. Make sure every part of the rhizome (underground stem) system is removed including any fragments to a depth required. Rhizomes generally grow quite shallow, so this will usually be in the top 30 cm of soil. Dispose of all rhizomes in bags to avoid further spread… Monitor the site over the next few seasons to avoid further spread.*

Chemical control *Cut each stem with lopes within 150 mm from the ground. Within 15 seconds paint the cut stem with a registered herbicide. Apply the herbicide immediately so it is drawn down to the rhizome…*

After a morning of digging and painting, we were once again able to hang out the washing, but our removal efforts will have only been partially successful. The roots run underneath the cement paving and are entangled in the roots of a large adjacent tree. With the wonders of Google I was able to discover that our removal efforts had occurred during a three-day bamboo festival in Karala, India! Lisa Minchin

Do you have a story about managing weeds in your own backyard? Contributions on this (and other) topics welcomed. Editor.

Bamboo roots caught in roots of adjacent tree

Clear soup with bamboo

The traditional way to eat this soup is to drink it from a small cup-like bowl. All ingredients are available from Asian food stores or selected grocers.

Ingredients

2 (8 g) packets bonito dashi (stock) powder
140 g whole peeled bamboo shoot, thinly sliced, quartered
10 g dried wakame (seaweed)
120 g silken tofu, cut into 7 mm cubes
2 tbsp cooking sake
1 tsp soy sauce
Black sesame seeds, to serve

Method

Place 1.2 L water and dashi in a large saucepan and bring to the boil over medium heat. Add bamboo and wakame and cook for 4 minutes. Add tofu and simmer for 1 minute. Add sake, soy sauce and salt to taste. Serve in small bowls, scattered with sesame seeds.

Notes & tips

To serve this lovely soup as a meal in its own right, add a packet of cooked Japanese Udon noodles with the seaweed and 100 g thinly sliced snowpeas with the sake.

Recipe: Akiko Ganivet, www.taste.com.au

PROXY FORM

I, (a).....appoint

(b).....

as my proxy to represent me at the AGM on 16 April 2009 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.