A Good Weed

The Newsletter of the Weed Society of New South Wales Inc.
ISSN 1325-3689

#37 January 2006

In This Issue

Alligator weed (DPIWE Tas)

A Good Weed is Published by the
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Office Bearers for 2005/06

President	Warwick Felton [Tamworth]
IPP	Bob Trounce [Orange]
Vice President	Stephen Johnson [Narrabri]
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Newsletter Editor	Mike Hood [Sydney]
Assistant NE	Lawrie Greenup [Sydney]
CAWS Delegates	Rex Stanton Stephen Johnson
Committee	Peter Harper [Ingleburn], Peter Dowling [Orange], Rex Stanton [Wagga], Bertie Hennecke [Richmond], Jim Dellow [Orange], Alec McLennan [Sydney], Luke Streit [Sydney].

Committee meeting dates have been set as follows:

February 17, 2006	Katoomba	August 18, 2006	Katoomba
April 21, 2006	Forestry, West Pennant Hills	October 20, 2006	Forestry, West Pennant Hills
June 16, 2006	UWS, Richmond	December 15, 2006	UWS, Richmond

All members are welcome at meetings; check with the Secretary for the final date, time and place as changes can be made to these arrangements.

President's Report for 2005

Warwick Felton

The Weed Society of New South Wales has enjoyed another successful year.

In July we held a joint seminar and luncheon with the Australian Institute of Agricultural Science and Technology (AIAST). It provided a forum for representatives from three government departments responsible for the administration of land and water management to address:

"The ever changing face of land and water management in New South Wales"

The chairman for the seminar was Neil Inall (formerly the presenter of Countrywide) and the speakers were:

- Mr Peter Sutherland - NSW Department of Infrastructure, Planning and Natural Resources (DIPNR)
- Dr Mike Curll - NSW Department of Primary Industries (DPI)
- Mr Jim Booth – NSW Department of Environment and Conservation (DEC)

Each organisation has a role in developing more ecologically sustainable landscapes and to provide policies and RD&E to counter pressures from development, natural processes, consumer demands, and landholder management.

A pleasing message at the seminar was the desire for these organisations to undertake closer cooperation and collaboration into the policies for each. There appears to be better agency agreement than has existed in the past and conflict is now less likely.

Each speaker provided a summary of the responsibilities of their department which was a good platform for questions and discussion from the audience. This continued during an excellent lunch at the CTA dining room and feedback to the organising committee was very positive.

A questionnaire given to all who attended indicated that the function was seen as very informative and a range of topics were suggested for future seminars.

I thank Jim Swain and Alan Murphy for their efforts in organising the day.

A Spring seminar on "The future of our rivers – living with and managing aquatic weeds, Salvinia and Alligator Weed" was held at the University of Western Sydney Richmond on 3 November.

The speakers, Andrew Petroeschevsky, Nimal Chandrasena, Andrew Storrie, Mic Julien, Geoff Sainty, and keynote speaker David Mitchell, gave excellent presentations that provided a wide range of information and recommendations.

Committee members Bertie Hennecke and Peter Harper organised a well balanced program and I thank them for the time and effort they put into making it such a successful day.

The final activity for the year was the visit to Wagga Wagga to inspect some of the field research, the Annual General Meeting, and annual dinner. I thank Rex Stanton for coordinating the day and to Eric Koetz, DPI, for conducting the field tour.

The Executive Committee was very committed to the Society in 2005 with all meetings being well attended either in person, or by teleconference. Jim Swain and Alan Murphy provided efficient secretarial support, Mike Hood and Lawrie Greenup have produced excellent Newsletters, and Stephen Johnson and John Cameron have been the Societies representatives to CAWS.

After many years of dedicated service to the Society Alex McLennan is going to retire from his role as Treasurer but will continue to participate as a committee member.

I extend my thanks to all members of the committee for their efforts in 2005 and look forward to continued support in 2006 when we celebrate 40 years since the Society was formed.

I hope we can continue to attract new members to the Society, and to the executive committee.

Warwick Felton, President
17 November 2005

Ecology and Management of Alien Plant Invasions (EMAPI) 8th International Conference
University of Silesia, Katowice Poland
5-12 September 2005

Report by Emilie-Jane Ens, Department of Biological Sciences, University of Wollongong; the recipient of the Weed Society of NSW Travel Award for 2005.

The 8th EMAPI conference was launched with a choice of three field trips to weedy places of interest in the local Katowice vicinity. I attended the Jurassic Upland excursion which included a tour of three of the 14th Century "Eagles nests" which is the local name for the 11 mountain-top castle ruins in the region. The area is steeped in history and hosts unique geobotanical and physiographical features including limestone outcrops scattered with amazingly diverse xerothermic and thermophilic flora. Much of the area is consequently protected and the castle ruins being restored to their former glory. We were also introduced to some of the local exotic invaders including *Solidago canadensis*, *Fallopia japonica*, and various *Impatiens* species.

Following the pre-conference social and orientation day the crux of the conference was initiated with a session on invasive species ecology case studies chaired by David Richardson (South Africa). Curtis Daehler (Hawaii) began with food for thought regarding the human dimension of the invasive species phenomenon which he highlighted as interesting focus of many abstracts submitted for the conference. Subsequent talks were based on ecology studies of European weeds including *Heracleum mantegazzianum* (Horehound), *Lupinus polyphyllus* and our own *Acacia longifolia* which was planted in Portugal to stabilize sand dunes and funnily enough is now a major pest!

Petr Pysek (Czech Republic) hosted the next session on invasion patterns, where Portuguese exotic *Acacia longifolia* again took centre stage based on its increased invasion following fire. Bruce Osborne (Ireland) also presented some interesting findings on the *Gunnera* invasions and their history using pollen cores. Macro studies on plant invasion based on herbarium records in Chile also featured as did broader studies on general invasive traits (Germany).

The Australian contingent followed opened by my own talk on the impact of bitou bush on the sustainability and evolution of indigenous flora of the NSW coast. Paul Downey (NSW DEC) proceeded with an emphasis on the importance of long-term studies in the management and ecology of alien plants based on his work on scotch broom. Aussie ex-pat Andy Sheppard (CSIRO France) then gave an overview of the European floral invasion of Australia and the success of Australian biocontrol and invasive plant research.

Polish Castle

After a successful day of proceedings we were treated to a dinner in a contemporary Polish hotel where conversation flourished, networks were forged and partnerships cemented! Discussions carried on long into the night with much sharing of knowledge topped off by an A-Z of global weeds!

The next day was initiated with presentations and ponderings on the invasability of habitats from Islands (Phillip Hulme, UK) to global patterns (Petr Pysek, Czech Republic). Quantification and observation of a range of species specific impacts were also publicized including on the seed bank (Margherita Gioria, Ireland), soil properties (Joao Ferreira and Elizabete Marchante, Portugal), and on forest succession (Lindsay Norgrove, Cameroon). These were followed by a session chaired by Lois Child (UK) on issues associated with the Japanese knotweed complex (*Fallopia* spp) which are top invaders of Western European countries including Switzerland, the UK and Belgium.

Legal aspects, control and risk assessment were next up on the agenda headed by David Richardson's talk on the practical aspects of invasion ecology related to management and legislation. The Polish exotic pest and biodiversity protection legal framework was presented and debated, well as much as possible in 15 minutes!! Problems with the Polish public failure to accept the invasive plant problem was also discussed which was later assisted by Paul Downey's presentation on the Australian approach and workshop deliberations. Complex issues arising from economic wealth, education, and community, media and government involvement attracted heated debate at times. Such incongruencies will remain ongoing challenges to the acceptance and management of such environmental issues globally.

I thought some of the most interesting talks and discussion we instigated by these topics which are at the coal face of invasive species management. A pair of researchers from the UK, Alisia Prowse and Kerry Morrison, introduced a novel way to tackle community awareness by holding unique art exhibitions which challenge the idea of invasive plants as a problem and why we should be concerned. By integrating this environmental dilemma with a "choice" and anthropocentric "health" philosophy the decision making is brought back to the individual and likely evoke more thought and understanding of the subject. An increase in such "interdisciplinary" approaches is likely to deliver favourable outcomes to the invasive species predicament. Another example of the broadening scope of invasive plant work relates to the economic rationalism of the problem which was delved into by Jacques Haury (France).

Emilie Jane and Paul Downy [NSW DEC] at the Conference Dinner

Concluding presentations of the 8th EMAPI conference included presentations on databases such as the global invasive species database www.invasive.org by Keith Douce (USA) and the DAISIE (Delivering Alien Invasive Species Inventory Europe) network www.daisie.ceh.ac.uk by Phil Hulme (UK). To top off the proceedings, speakers from interesting locations wowed us with talks on facilitation of weed corridors by roads in the Galapagos Islands (Heike Jager) and integrative weed management in Kruger National Park (Llewellyn Foxcroft, South Africa).

Minutes after the final talks we were hurried off by chartered trams to our final social event of the conference at a nearby reconstructed Polish medieval village. Lovely Polish food and beer were served and we swayed the night away to traditional Polish dancers and musicians. I must thank the organizers from the University of Silesia, Katowice, for hosting such a fantastic, successful conference and for their very warm hospitality. On the same note, I would also like to graciously thank the Weed Society of New South Wales for awarding me a student conference travel grant and making it possible for me to be part of such a supportive International weed science community!

A fabulous time was had by all! I look forward to catching up with all delegates (and more!) at the 9th EMAPI conference to be held in Perth, Australia 2007!

Who's Who on the Committee

Continuing our regular series, this month we have Peter Harper and Peter Dowling.

Peter Harper

Peter Harper

Peter Harper has been operating in weed and pest control for the last 21 years.
Peter is the principal contractor for Sydney Water Corporation, managing aquatic and general weeds within the Botany Wetlands where he has been from inception of the Rehabilitation Plan in 1996. Peter commenced his weed spraying career in 1987 contracting for Campbelltown City Council. He purchased a small Aquatic Weed Harvester and several contracts later ended up demonstrating for Sydney Water in the wetlands cutting out Mexican Water Lilly.

With his experience in weed control he was asked to do more work, eventually spraying out *Ludwigia Peruviona* in all lower ponds, approximately 12 hectares in size. He has successfully contracted for several councils in the Sydney Basin dealing mainly with the Aquatic Weeds Salvinia, Water Hyacinth, Alligator Weed, Ludwigia and Cabomba. Peter is currently assisting in biological control programs for Salvinia, Alligator Weed and Water Hyacinth and investigating new control techniques for Cabomba and Hornwort which have invaded the open water of the wetlands.

Peter received his Diploma in Conservation in Land Management (Weeds) through Skills Recognition and has attended the weeds conferences in the past 4 years in Perth, Taree, Wagga (as a Sponsor) and the one day Conference at Parramatta . Peter is President of the Ingleburn Toastmasters 2005-06
Contact peter@bettersafe.com.au

Peter Dowling

Peter has been a member of the Weed Society of NSW for over 10 years, and a committee member for the last 5 years. He was a co-editor of this newsletter immediately preceeding the current editors. He recently retired from NSW Agriculture where he worked as a pasture agronomist, being based at Orange for 26 years.

Peter is a graduate of Sydney University [B.Sc.Agr.] and Cornell University [USA] [Ph.D.]

In his early years as a researcher, he worked on general weed control prior to establishing new pasture species by broadcasting or sod-seeding. These species were commonly considered at the time to be superior to the native perennial grasses that were already in place. Over time, the true value of the native species began to be realised, and research changed from removing such species, to gaining a better understanding of the management required to retain or increase their presence in pastures.

In later years, he developed a more specific interest in the management of vulpia, an annual grass that became dominant under marginal conditions that hindered the growth of more desirable species in the pasture. Most 'weeds' of pastures have an annual life-cycle, and the principles for managing vulpia were found to be appropriate for managing other pasture weeds.

This generic approach to managing weeds in pastures is outlined in a recent publication *Pasture Management for Weed Control – o*

grazier's guide to controlling annual weeds in southern Australian improved pastures by Jeff Burton and Peter Dowling.

Peter Dowling

Coming Events

- 15th Australian Weeds Conference. Adelaide Convention Centre, Adelaide, South Australia. 24-28 September 2006. Contact Plevin & Associates Pty. Ltd. 08 8379 8222.
- 9th International Conference on the Ecology and Management of Alien Plant Invasions. Hyatt Regency Hotel, Perth, WA. 17-21 September 2007. Organised by the Weeds Society of WA [WSWA]. www.congresswest.com.au/emapi9/.
- International Weed Science Society Conference. Vancouver, Canada, 2008.
- 30 Jan to 2 Feb 2006. 5th Australian Sorghum Conference; Radison Palm Meadows, Gold Coast Qld. Contact: Andrew Borrell andrew.borrell@dpi.qld.gov.au
- 21-23 February 2006. 6th Australian Maize Triennial Conference, Griffith, NSW. Contact: Nick Hutchins, Tanya Cowell, 02 6968 4280, hutchag@bigpond.com http://www.maizeaustralia.com
- 4th Workshop/Seminar – Plantation Pest Control Convener: Dr Barry Tomkins Tuesday 28th February to Thursday 2nd March, 2006: Commodore on the Park Motel, Mt Gambier, South Australia. Contact 0353 452 008 or 0412 253 153.

Personal Notes

Weeds are not the only things that excite many of our members. Mike Barrett is a good example. He is currently mountain climbing in Uganda, which is pretty good for a boy let alone a mature man in or near his eighth decade.

Immediate Past-President **Bob Trounce**, celebrating his recent retirement from NSW DPI, has just returned from a lengthy holiday trip to Europe.

As reported elsewhere in this newsletter our long standing treasurer **Alex McLennan** resigned at the November Annual General Meeting. Alex has held down this position for over 20 years and our collective thanks must go to him for this unpaid service to the society over such a time. He has of course held other positions within the society including that of President. Alex spent a large part of his professional life as an agronomist with NSW Railways, managing vegetation control along the tracks. In recent years he has operated as a consultant.

Letter to the Editor – A Response on Organic Farming

Dear Mike,

I read with interest your article in A Good Weed regarding organic production. I got involved with an organic research project along with Viv Burnett from the Rutherglen research institute.

The project was to investigate weed control in broad acre organic cereal production. So, I have had a bit of an update on what is possible and not in organic systems. The aim of the experiment was to test a range of paddock treatments in terms of their ability to reduce weeds (ryegrass the main one but also pato, brome grass and wire weed.) prior to sowing wheat.

In the year before the wheat crop, oat and oat plus vetch were compared with a range of treatments imposed (silage, green manure grazing etc) Prior to the forage crop year, the blocks were treated with such things as grazing and slashing for up to a couple of seasons to begin the seedbank decline process.

The bottom line was that the better treatments when sown to wheat yielded around 4 tonnes per hectare which is a pretty useful yield,especially given the nice premium it was attracting (as organic). The snag is that its only one crop in four years (leaving aside the income from the forages)

In a well planned out IWM approach, a non organic producer might have a forage year to start with, followed by a canola crop, then a cereal crop, then a pulse crop.

So, along with the other downsides (especially cultivation and dodgy fertiliser options and cannot grow pulses) an organic producer is going to produce about a third of the amount of grain in any four year period, meaning that for organics to get anywhere near this total, they would need about 3 times the land mass.

This seems to be quietly ignored by the people who on the one hand are extolling the virtues of organics and on the other bellyaching about how much of our vegetation is being ripped up for cropping purposes (world wide).

All this of course comes on top of other groovey aspects of organics such as getting the energy balance correct and ensuring the fungal-bacterial ratio is within the accepted levels (whatever they happen to be).

Steve Sutherland
Regional Director (DPI Relations) South West
Yanco Agricultural Institute
YANCO NSW 2703

Green Invaders: Arrows Strike Australia's Heartland

From the Cooperative Research Centre for Australian Weed Management

Some ornamental North American water plants are poised to emerge from irrigation areas to become a major threat to Australia's waterways. Species of Sagittaria are already rampant in some parts of southern NSW and northern Victoria.

According to Regional Weed Control Coordinator Birgitte Verbeek of the NSW Department of Primary Industries, one species was first found naturalised in Victoria in 1962. It established itself slowly to start with but in the late 1980s began to expand its territory. Now Sagittaria (the name means an arrow) are poised to strike rivers, billabongs, irrigation channels and dams across the Murray Darling Basin.

"When they become established in a waterway, they can halve the flow of water and trap silt," says Ms Verbeek. "They form dense infestations which physically block channels; there are corms (bulbs) in the ground that remain viable for many years and they produce prolific numbers of seeds."

Eradication of these invasive water-weeds is particularly difficult as chemical sprays cannot be freely used in waterways and mechanical removal is also seldom possible except to a limited degree in irrigation channels. Isolated plants can be physically removed and destroyed.

Ms Verbeek says that researchers from the Victorian Department of Primary Industries in Frankston (Victoria) are currently looking for biological control agents for Sagittaria.

Mr Jean-Louis Sagliocco of the DPI returned recently from the United States, where he worked with researchers from the US Department of Agriculture in Mississippi. "A number of weevils, moths and fungi are known to be associated with Sagittaria. Some of these organisms have potential to control Sagittaria in Australia, but require detailed evaluation," he says.

"We will need to conduct thorough surveys in the USA to establish which of them will be selected for host-specificity testing. "Biological control is probably the only long-term solution to Sagittaria invasion, but it will not be a quick process," says Mr Sagliocco.

According to Ms Verbeek Sagittaria are still on sale as an ornamental water plants in NSW and Victoria. "Member Councils of Eastern and Western Riverina Noxious Weeds Advisory Groups are proposing to have Sagittaria declared as noxious weeds, which will make it illegal to buy or sell," she says. "We understand that the Victorian Department of Sustainability and Environment (DSE) is currently considering the declaration of Sagittaria species which will result in a ban from sale."

DSE is also supporting research into decision support models to determine risks posed by aquatic weeds and is in communication with

water authorities regarding a control strategy.

Ms Verbeek says that the good news about Sagittaria is that they have not yet reached their full potential as invasive plants, and there is still time to limit their further spread.
She says that study on the biology and ecology of Sagittaria is ongoing and critical to help determine the best methods to manage this growing weed menace.

It is also a problem in that one Sagittaria species can display variation in the shape of its leaves. "It can grow wholly under water," says Ms Verbeek, "it has short strap-like leaves in a rosette arrangement flat against the soil making control of this type difficult."
Ms Verbeek says that Sagittaria generally grow in water that is less than a metre deep, along river and creek banks.

Anyone who suspects that they have an infestation of Sagittaria should immediately make efforts to get it identified. In areas where Sagittaria is not widely established early intervention is critical says Ms Verbeek.

A Sagittaria Taskforce is being formed involving authorities from Victoria, New South Wales and South Australia.

More information from:
Birgitte Verbeek, Regional Weed Control Coordinator,
NSW Department of Primary Industries, 02 6938 1911 or 0427 013 469
Peter Martin, Weed CRC, 08 8303 6693 or 0429 830 366

Ed. Footnote: Lawrie Greenup notes that Saggittaria is sold in some Sydney markets as a fresh vegetable.
According to her website a well known author is planting Saggitaria in her 'eco-friendly' garden on the southern tablelands.

Happy Birthday to the Weed Society of NSW

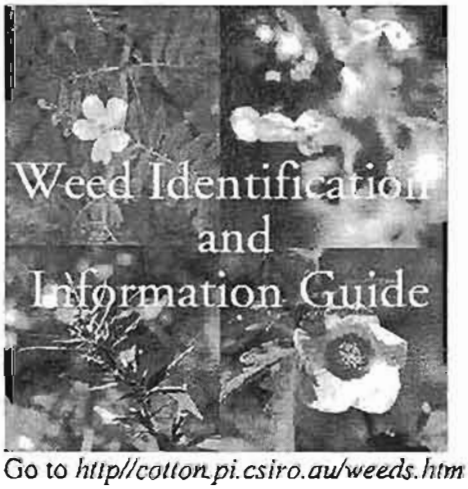
40 years old on 4th March 2006

Founded 4th March 1966.

A special event to celebrate this milestone is being organised by the committee. Full details later.

CAWS TRAVEL AWARDS

The May CAWS executive meeting outlined protocols for two new awards, these being the Annual Student Travel award ($3,000) and the Annual Early Career Weed Scientist Travel Award ($2,000). To be eligible for the early career award, a person must have completed their tertiary degree in the last five years from the date of application.



Go to *http//cotton.pi.csiro.au/weeds.htm*
A well illustrated guide for identifying the weeds of cotton

THE WEED SOCIETY OF NEW SOUTH WALES INC.

Minutes of the 40th Annual General Meeting held on Thursday 17th November 2005 at the Pavilion Motor Inn, Kincaid Street, Wagga Wagga commencing at 4.00 pm.

1. **Present:** In person – W. Felton - President, J Swain - Secretary, A. Murphy, P.Dowling and R. Stanton. Attending by telephone: S. Johnson and L. Greenup

2. **Apologies:** : M. Barrett, M. Hood, A. McLennan, L. Greenup, J. Cameron, J. Dellow, , P. Scott, B. Hennecke, P. Harper, D. Murdoc, M. Campbell, E. Swane, R. Carter, M. Danelon, D. Lemerle, R. Trounce and M. Michelmore

3. **Minutes of the last meeting held on 12th November 2004 :**
They were accepted on the motion of A.R. Murphy and L. Greenup. Carried

4. **Business arising**

The 2009 Asian Pacific Weeds Conference.
The Weeds Society of NSW Inc was not prepared to run the 2009 Asian Pacific Weeds Conference due to the number of conferences planned for the future. The society proposed to CAWS that the Queensland society combine the 8th Australian Weeds Conference with the 9th Asian Pacific or that the planned new NT branch sponsor the event. Both proposals were rejected by CAWS. CAWS have now decided not to bid for the 9th Asian Pacific Weeds Conference. The president considered that the reluctance to bid for this conference is a consequence of the number and frequency of conferences now being held in Australia.

5. **2004/05 Annual Report.**
The report for 2004/5 was presented by the president Mr. Warwick Felton. The report is attached. It was moved that the report as presented be accepted on the motion of J. M. Swain and A. R. Murphy. Carried.

6. **Financial Report.**
The unaudited financial report for 2004/5 was presented by Jim Swain on behalf of the treasurer A. McLennan. The meeting asked that the auditor clarify the figures for the honorarium – the society does not provide for honorariums. Why there is no reference to the travel awards and no figures for postage. It was moved on the motion of Jim Swain and Rex Stanton that the unaudited financial report as presented and attached be accepted with the above comments. Carried.

7. **Election of Office Bearers for 2005/06.**
The president declared all positions vacant and the Mr. Rex Stanton conducted the election of office bearers for 2006. The following were elected:

Position/Nominee	Proposer	Seconder
President – W. Felton	J.M Swain	A. R. Murphy
Vice President – S. Johnson	W. Felton	L.Greenup
Secretary – A.R. Murphy	J.M. Swain	S. Johnson
Treasurer – J.M. Swain	A.R. Murphy	W. Felton
Assistant Secretary – M. Barrett (subject to his agreement)	L. Greenup	S. Johnson
Newsletter Editor – M.J. Hood	W. Felton	P.Dowling
Assistant Newsletter Editor – L. Greenup	P. Dowling	A. R. Murphy
Public Officer – M. Barrett	-	-
Publicity Officer – J. Cameron	S. Johnson	L. Greenup
Committee Members – P. Dowling, R. Stanton, Bertie Hennecke, Peter Harper, J.Dellow, A. McLennan, L.Streit	J.M. Swain	W. Felton
CAWS Delegates – S. Johnson, R. Stanton	L. Greenup	A. R. Murphy
Immediate Past President – R. Trounce	-	-

8. CAWS Report.
The report was presented by S. Johnson. W. Felton proposed that there should be a 3rd travel award and S. Johnson will submit this for consideration at the next CAWS meeting. It was moved by S. Johnson and R. Stanton that the CAWSS report as attached be accepted. Carried.

9. Report of the 14th AWC.
A précis of the final report was presented by Rex Stanton. The conference was considered to be very successful with 347 delegates attending. The number of students attending was very gratifying and indicated the interest in weeds for the future. There was good sponsorship for the conference which ensured it was a financial success. It was moved/seconded by R. Stanton/L. Greenup that the report be accepted. Carried.
In regards to future conferences, the meeting suggested that CAWS should review and monitor ongoing costs and numbers attending future conferences to ensure their financial viability. This suggestion is made because the CRC for Weeds may not continue to a third round and as a result the timing and frequency of future conferences may need to be reviewed.

10. Other Business.
Review of the Weeds Society.
The report prepared by Mitch Michelmore was tabled. Peter Dowling assisted by Stephen Johnson, agreed to coordinate this programme and will conduct a review of the report and questionnaire prior to it being included in the next newsletter and with member subscription renewals where members will be asked to respond. The response to the questionnaire will be considered by the executive committee.

40 Year Celebrations
The meeting passed to the new committee the responsibility for organising a suitable activity to celebrate this event. The secretary will circulate to members the initial proposals from Peter Dowling.

Outgoing Treasurer.
As A McLennan did not continue as the treasurer after many years service the secretary was asked to write to him to thank him for carrying out this role so diligently over this period .

As there was no further business the meeting closed at 5.40 pm.

J.M. Swain
Hon. Secretary
25th November 2005

Reviewing the Role of the Weed Society of New South Wales Inc

Michael Michelmore

The Weed Society of New South Wales would like to review its role. To create thought and discussion, a number of propositions about weeds and the role of the society are posed. Members are encouraged to forward their thoughts and comments on the questionnaire that follows to help us chart the future course of the Weed Society.

Context of Weed Society

Proposition: *Weeds are a threat to achieving a higher land use goal.*
Weeds are a threat to land use: weed management is a secondary function to achieve protection of the primary function of land use. This is normally the key for weed control – to keep in mind what we are trying to protect. For example, a grazier controls weeds to protect the key land uses of pasture and stock, a ranger controls weeds to protect the scrub integrity near a rare orchid.

Proposition: *There are many land use organisations that may include some role to support*

members with weed issues.
For any discipline (eg. crops, pastures) that relies upon plant growth, there must be some expectation of an impact from weeds. The discipline may have its own support organisation that help members to meet goals, and for each discipline, their peak organisation will provide some service to members on key issues. The Grasslands Society, for example, may have a weed workshop to meet the needs of their members and their organisation, and to increase productivity. So, a grazier is more likely to join the Grassland Society. But a grazier might join the Weed Society if they had particular weed problems.

Proposition: *Weeds are a recurring key issue and there may be a need to provide some linkage between disciplines.*
The need for cooperation and coordination may be greater, when, for example,

- There is a recurring high impact from a weed
- A weed issue is hard to manage and needs cooperation between organisations for resolution

Proposition: *There are many organisations that provide coordination and have similar aims and objectives for weeds.*
This linkage between disciplines for weeds occurs through a variety of formal avenues, particularly:

- Weeds CRC
- NSW Department of Primary Industries
- Local government
- Regional weeds advisory committees
- Catchment management authorities, Landcare and other landscape managers
- Weed Society
- If a particular weed is of concern across several disciplines, then a 'taskforce' is a useful process to link activities. (e.g. the Lantana taskforce)

Proposition: *Has the role of the Weed Society been mostly taken over by land use organisations and by weed organisations with paid staff. If there was no Weed Society, would other organisations provide the need and purpose of the Weed Society?*

A Role for the Weed Society

There may be some weed management roles that are not being addressed:

- The Weed Society can make some politically sensitive statements.
- The Weed Society might coordinate weed programs of land use societies.
- The Weed Society might involve itself in a pro-educative role through stronger links with tertiary organisations, and encouraging a greater interest in weed science by providing:
  - occasional guest lecturers
  - more student awards for excellence in weed studies
  - more awards for post graduate studies/tours
- The Weed Society focuses the enthusiasm and spare energy of its members to achieve its activities.

There are many alternative organisations that could lead on these roles — NSW Farmers Assoc might take the challenge of political statements; the Weeds CRC can co-ordinate weed programs of other societies; CAWS has initiated student and post graduate awards, and there are many other organisations wanting to use the spare energy of members.

What are your thoughts? Your completion of the questionnaire appearing below would be greatly appreciated

Review of Weed Society of New South Wales Inc - Response to Discussion Paper.

(Suggest you photocopy this page rather than ripping the newsletter apart or just send in your comments on a separate page).

Send to: Alan Murphy, Secretary, PO Box 438, Wahroonga NSW 2076 Email: murphy@tech2u.com.au
Please reply by 28 February 2006. A sub-committee will examine responses and present a report to the Weed Society in April 2006.

1] Has the role of the Weed Society been mostly taken over by land use organisations and by weed organisations with paid staff.
Yes / No — Comment: ...

2] If there was no Weed Society, would other organisations provide the need and purpose of the Weed Society?
Yes / No — Comment: ...

3] What is the role of the Weed Society?
Your initial answer: ...

4] Check the Aims and the Objectives of the Weed Society of NSW (see http://nswweedsoc.org.au/Society.html).
What are the key roles of the Weed Society? Your reconsidered answer: ...

5] If the Weed Society folded, what would you miss the most?
Answer: ...

6] Why are you a member of the Weed Society?
Answer: ...

7] If you had some spare time, how could you help the Weed Society?
[ ] I have no spare time, but I'm interested in weeds.
[ ] I have spare time and here's how I'd like to help: ...

Your name and contact details:
Name: ...

Abstracts of Papers Given at the Weed Society of NSW Spring Seminar on Aquatic Weeds held November 2005 at Richmond.

Principal organisers of the day were Committee members Bernie Hennecke and Peter Harper. Thanks to you both and to all the other helpers.

(1) Federal and State Government coordination of aquatic weeds

Title: National coordination and management of aquatic weeds in Australia

Andrew Petreoschevsky, WONS [Weeds of National Significance] – Aquatic Weed Coordinator:

National aquatic weeds management priorities include the Weeds of National Significance (WONS) and Alert list species. In 1999 alligator weed (*Alternanthera philoxeroides*), salvinia (*Salvinia molesta*) and cabomba (*Cabomba caroliniana*) were included in the list of 20 WONS species and subsequently national management strategies for each were developed. Coordinating and overseeing the management of the aquatic WONS strategies are the National Aquatic Weeds Management Group (NAWMG). Formed in 2003 group membership comprises of key stakeholder groups and is

supported by a full time coordinator. Since its formation the NAWMG have identified and helped implement range of research, on-ground and education priorities, some of which are discussed below. This presentation focuses on the processes, achievements and future directions of the national management of the aquatic WONS.

ANDREW PETREOSCHEVSKY: BIODATA

As National Aquatic Weeds Coordinator, Andrew's role for the last 2 years has been to coordinate the implementation of national management strategies for the Aquatic Weeds of National Significance, which includes Alligator Weed, Cabomba and Salvinia. Andrew's project is supported by the NHT and the Australian governments Department of Environment and Heritage. Andrew is employed by NSW Department of Primary Industries and is based at Grafton in the states northern rivers.

(2) Strategic Management of Aquatic Weeds

Nimal Chandrasena, Senior Team Leader, Sydney Water Corporation, Sydney Water.

Sydney Water manages a large number of wetlands and creek systems in the Sydney basin. Managing aquatic weeds, particularly those declared 'noxious' in such assets is a challenge and is seen an integral part of a natural asset management function. This presentation aims to discuss some key issues involved, and illustrate the strategic approach taken. The main aquatic weeds challenging Sydney Water include floating, submerged, emergent and shoreline species. These include the three WoNS aquatics-Alligator Weed (*Alternanthera philoxeroides*), Salvinia (*Salvinia molesta*) and Cabomba (*Cabomba caroliniana*). and others- Water Hyacinth (*Eichhornia crassipes*), Primrose Willow (*Ludwigia peruviana*), Milfoil (*Myriophyllum aquaticum*), Hornwort (*Ceratophyllum demersum*) and Mexican Water Lily (*Nymphaea mexicana*). Collectively, these aquatic weeds have significant 'triple bottom line' impacts, which are environmental (invasive species displacing native species, reducing biodiversity), economic (annual, recurrent costs of control), and social (reduced recreational value of water bodies and waterways).

Key principles, which underpin aquatic weed management include:

• Being strategic in approach, integrating concordant control methods (manual, mechanical, physical, chemical and biological control),

• Acting locally ('site-specific') while thinking globally ('catchment-context'), and

•Understanding connectivity between ecosystem components (water quality, water clarity, relationship between nutrients, grazing fish and aquatic plants), and

• Enabling tolerable ecological manipulations (such as weed replacement by non-weedy natives).

Successful management of aquatic weeds requires ***direct action***, as well as ***indirect action***. These comprise:

• A commitment to long-term ecosystem management,

• Coordination of actions across catchments (inter-agency co-operation),

• Preventative action (early detection and elimination of small infestations),

• Community, industry (aquarium and nursery trade) and stakeholder education, and

• Training (weed contractors).

The major *challenges* of strategic aquatic weed management are:

- Cost-effective control, integrating the limited number of effective methods available
- (key component bio-control agents);
- More effective and safe methods of control, minimising potential adverse
- environmental impacts of recurrent control action on waterways (such as reducing reliance on herbicides);
- Balancing the beneficial role of aquatic weeds (plants) vs. control; and
- Global spread of non-indigenous plants and problematic native species.

NIMAL CHANDRASENA: BIODATA

Nimal Chandrasena was Associate Professor of Botany (Weed Science) (1990-93) at University of Colombo, Sri Lanka. Nimal has over 20 years of experience in weed management, functioning both as an Academic and a Consultant. He has detailed knowledge of terrestrial and aquatic weeds and their management. Nimal has extensive experience in herbicides - mode of action and impacts on environment and application technologies.

Nimal is also widely experienced in overseeing large-scale integrated weed management programmes. He is a Senior Team Leader in Sydney Water, and has worked for the Corporation since 1994, managing a weed, vegetation and land management portfolio.

Andrew Storrie and Andrew Petroeschevsky at question time

(3) The use of herbicides against aquatic weeds

Andrew Storrie, Weeds Agronomist, Tamworth Agricultural Institute, NSW Department of Primary Industries.

Aquatic weeds pose huge threats to our aquatic environments, threatening the existence of native species of plants and animals, interfering with agricultural production through the blocking of pumps and irrigation channels, affecting potable water supplies and upsetting recreational users. Often the first reaction is to go for the herbicide drum, however there are considerable constraints to the use of herbicides in and near waterways within Australia.

The first constraint is the perception of many people within the general public and within government that all pesticides are toxic to everyone and everything and should be banned. The next constraint is legislation. The use of pesticides near water is governed by the Pesticides Act 1999 and the Protection of the Environment – Operations Act 1997. Both these Acts set often poorly defined restrictions upon the use of herbicides near water, with the potential for all involved to receive huge fines if something is seen to "go amiss".

Obviously there are real risks to the environment if pesticides are used incorrectly in the management of aquatic or riparian weeds. However, the point that aquatic weeds are reeking havoc upon the environment are often conveniently ignored. NSW DPI conducted trials funded by the CRC for Australian Weed management investigating better herbicides and herbicide use on alligator weed (*Alternantheraphiloxeroides*). Glyphosate is the only herbicide currently registered in NSW for aquatic alligator weed control. Metsulfuron methyl and triclopyr amine were also tested alone and in mixes with glyphosate and each other. Aquatic alligator weed is easier to control than terrestrial

infestations. Timing of herbicide application to maximise the effects of biocontrol agents needs to be investigated.

Salvinia (*Salvinia molesta*) is an important floating weed (aquatic fern) that is not adequately controlled by biocontrol agents in cooler areas. The importance of implementing an integrated management plan is discussed.

ANDREW STORRIE: BIODATA

Andrew is a NSW DPI Weeds Agronomist based at Tamworth for 10 years, covering weed management issues across northern NSW. Half of his time is currently with the CRC for Australian Weed Management. Prior to that Andrew was a District Agronomist in the northern Riverina for 15 years. A large part of his time is taken up with herbicide resistance management. Other current projects include Project Leader for CRC Integrated Weed Management in Australian cropping systems manual and training course; weed management in pulses; better control of Alligator weed with herbicides; and various other projects.

(4) Biological control of aquatic weeds. Aquatic weed management. How useful is biological control?

Mic Julien, CSIRO Entomology

Biological control is one of an array of tools for weed management. Similar to other tools it has advantages and disadvantages, works in some situations and not in others. Biological control has helped enormously in the management of aquatic weeds particularly salvinia, floating alligator weed, water hyacinth and water lettuce. However, activity by biological control agents is limited by habitat, temperature, host plant quality, and host plant stability (which is affected by hydrology and other management methods).

Where biological control can contribute to management of a weed, but does not provide adequate control on its own, the challenge is to integrate it with other strategies.

Current projects, discussed here; 1) aim to determine how useful salvinia weevil is in the management of salvinia in temperate areas in Australia, 2) seek suitable agents for alligator weed growing in terrestrial habitats and that are suitable for cooler climates, and 3) seek potential agents for the submerged weed Cabomba.

MIC JULIEN: BIODATA

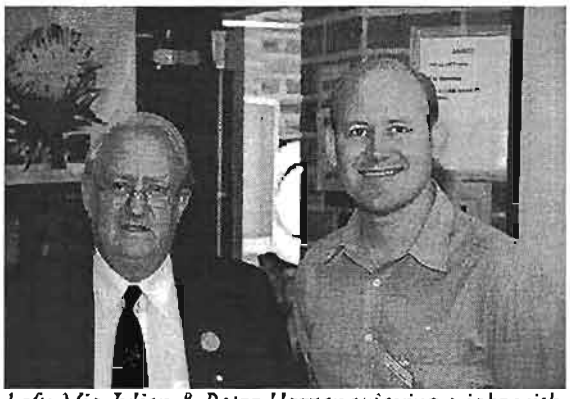
Mic is a Principal Research Scientist at CSIRO Entomology, Brisbane, Australia. He has researched biological control of aquatic and terrestrial weeds for 30 years including the aquatic weeds alligator weed, salvinia and water hyacinth. His research includes integrated weed management and biological control. He has conducted consultancies in Asia, Pacific and Africa particularly on water-weeds. He is the leader of CSIRO's Tropical Weeds Ecology and Management Team with a field station in Mexico and contract staff in Argentina. The team's current research includes; management of mesquite (*Prosopis* spp), management of Parkinsonia (*Parkinsonia aculeata*), biological control of mimosa (*Mimosa pigra*), biological control of alligator weed (*Alternanthera philoxeroides*) and biological control of cabomba (*Cabomba caroliniana*).He serves on the National Aquatic Weed Management Group and is a member of the technical advisory committee for Salvinia in the Hawkesbury Nepean.

(5) Major aquatic weeds of rivers and wetlands in Australia

Geoff Sainty, Sainty and Associate.

Summary

Australia has most of the worlds' worst aquatic weeds. However, putting aside those accepted as Weeds of National Significance (WONS)—notably Water Hyacinth, Salvinia, Alligatorweed and Cabomba—there is another group that is becoming equally troublesome. This group includes Glush Weed *Hygrophila costata*, Torpedo Grass *Panicum repens*, Leafy Elodea *Egeria densa* and Olive Hymenachne *Hymenachne amplexicaulis* to name a few. Exotic species have invaded many streams and continue to have an adverse impact on the diversity and 'health' of the stream.



Left: Mic Julien & Peter Harper enjoying a joke with our photographer Right: David Mitchell & Stephen Johnson

These riparian weeds include Willows, Pond Apple, Honey Locust, Camphor, Box Elder, Athel Pine and Cats Claw Creeper. Other 'plants' becoming increasingly problematic are filamentous algae and cyanobacteria. Greater awareness and capacity to take action is needed if streams and wetlands are to be protected. This needs to be coupled with on-going research.

Introduction

Much has been said about the major aquatic weeds—Salvinia, Alligatorweed and Cabomba—but equally important as these three notorious weeds are number of other plants. Nearest to Sydney is Torpedo Grass *Panicum repens* although it has been frequently collected in south-east Qld. My first encounter with it was in Florida in the 1970s. At that stage it had not attracted a lot of attention although it was listed as an invasive exotic species in Florida in 1973. Since then it has 'taken off' and Hanlon and Brady (2005) have described its weedy status when they focused on a 6700 ha infestation in Lake Okeechobee.

Torpedo Grass is a native to Europe Asia and Africa. It is a perennial grass that spreads by robust rhizomes and seed. Its common name may have been derived from its sturdy rhizome that has an apex sheathed in hard scales and capable of penetrating plastic and stronger materials. It is a weed of wetlands and crops and will withstand long dry periods or form floating mats. It grows to about 1.2 m tall and its rhizomes will penetrate deeply giving it drought resistance. Torpedo appears to be going substantially unnoticed in Australia. Hanlon and Brady describe its competitiveness in Lake Okeechobee where it forms a monoculture on damp land, dry land and shallow water. At Grahamstown Reservoir, near Raymond Terrace the infestation has spread to the extent that it has formed a monoculture of the entire Reservoir shore that extends for approximately 40 km. As water in this Reservoir rises and falls so Torpedo Grass moves. Near the bridge crossing the inflow into the Reservoir Torpedo Grass extends to high ground that is never inundated. In Lake Okeechobee a major herbicide control program has been implemented as it was seen that Torpedo Grass would eventually cover the shoreline of this important 40,000 ha wetland excluding most of the native vegetation. Essentially they are attempting to prevent repeating what has happened at Grahamstown. The sobering fact is that herbicides cannot be safely used in Grahamstown Reservoir and this source of seed and pieces will remain a continual threat to wetlands and agriculture of the region.

The same situation exists at Lake McDonald in Queensland with Glush Weed *Hygrophila costata*. This plant has formed monospecific stands in shallow water and the margin of the Lake McDonald (Sainty and Jacobs 2003). There is an embargo on the use of herbicides as water from this Lake is used for human consumption and it too has become an ongoing source of pieces and seeds to spread elsewhere.

Another aquatic weed of significance is Olive Hymenachne *Hymenachne amplexicaulis*. It is an introduced coarse vigorous perennial plant introduced as fodder in ponded pastures and now rapidly spreading to wetlands and streams. In the Burdekin area of Queensland and wetlands of the NT "Top End" it is already a serous weed and potentially capable of overtaking the Kakadu Floodplain and together with Para Grass *Urochloa mutica* essentially dominating wetlands less than 2 metres deep (Sainty and Jacobs 2003). A very serious problem!

So where do we stand with the above major weeds. It is game set and match in many areas where the use of herbicides is precluded. Elsewhere it is a case of preventing spread and targeting small infestations especially at the headwaters of catchments.

Another group of plants that is continually problematic is filamentous algae. There are many species of algae that cause problems in irrigation systems by blocking flows and tainting water Entwistle et al (1997). In the Burdekin and Emerald Irrigation Districts of Queensland and the Ord River Project in WA managing algae is becoming increasingly difficult with copper sulphate no longer permitted and acrolein use restricted.

GEOFF SAINTY: BIODATA

Geoff Sainty has had the fortune of being involved with wetlands and waterplants since 1961. He worked initially for NSW Department of Agriculture and then for 20 years with the then Water Conservation and Irrigation Commision of NSW. He is currently caught up in a range of projects extending from the Burdekin Irrigation District in Qld, the Snowy River Benchmark Study and the rehabilitation of the 6000 ha Lake Brewster that draws water from the Lachlan River.

L-R: Geoff Sainty & Warwick Felton; Bertie Hennecke; David Mitchell; all at the water weeds seminar

(6) The Future of aquatic weeds in Australia

David Mitchell, Adjunct Professor, School of Environmental and Information Sciences; Principal Researcher, Institute for Land Water and Society; ThurgoonaCampus, Charles Sturt University, Albury

The plants: Friends or Foes! Illegal Immigrants or Welcome Contributors? How do we decide? What criteria form the basis of our judgements? Do we need to apply a "triple bottom line" approach? The Environment: Conservation or Exploitation!

Where do we draw the line at adverse environmental impacts of control measures? How do we distinguish between potential value and potential harm? Should aquatic systems be treated differently to terrestrial systems? Socio-economic systems: Present comfort or Future Security?

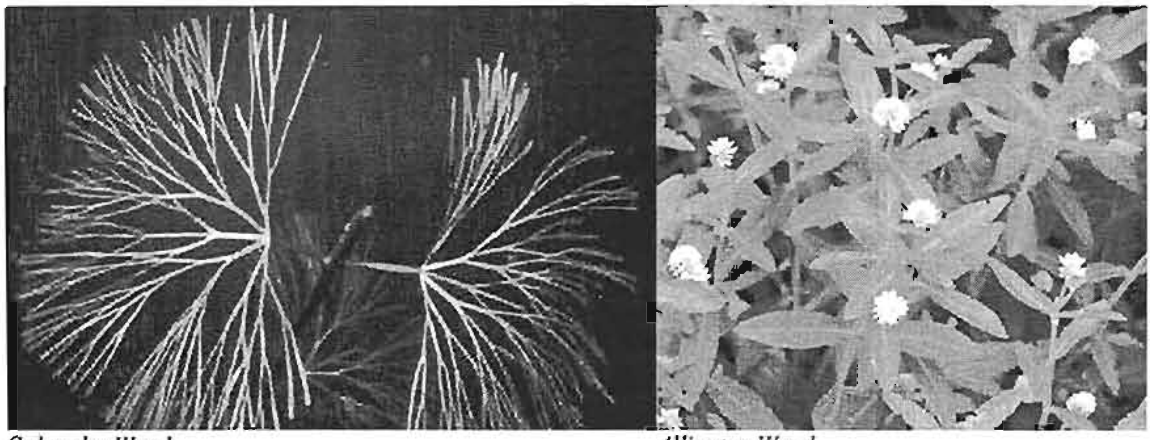
What have we learned from the past 50 years? What are the goals for 2050? What must we do now to meet those goals? The dilemmas which these issues expose will be discussed and explored in the light of past experiences but with a clear focus on future challenges. Is it too fanciful to

believe that such a discussion could generate advances in understanding which could lead, eventually, to improved management of water resources and the plants associated with them derived from the collective wisdom and experiences of those present?

DAVID S MITCHELL: BIODATA

Previous Positions: Reader in Hydrobiology, University of Zimbabwe; Chief, CSIRO Centre for Irrigation and Freshwater Research; Director, Murray-Darling Freshwater Research Centre.

Current Interests and Activities: The sustainable management of water in Australian landscapes including the application of Natural Sequence Farming procedures, the wise use of natural ecosystems and processes to maintain water quality, and the development of holistic concepts for sustainable interrelationships between ecological systems, economic management and human societies, through research, development and consulting activities.



Cabomba Weed *Alligator Weed*

Seminar Customer Satisfaction Survey

Compiled by Mike Barrett and Lawrie Greenup

The Spring 2005 Seminar Weeds Woe to Go 3 "The future of our rivers- living with and managing aquatic weeds, Salvinia and Alligator Weed" was held at the University of Western Sydney, Hawkesbury Campus on 3rd November 2006. Well done, Bertie Hennecke and Peter Harper. It was extremely well-run and informative seminar, a fact supported by the comments from the audience.

Participants were asked to fill in a questionnaire asking about their views of the seminar, as well as any suggestions for further seminars. Mike Barrett collected the completed questionnaires and his summary is presented below.

What did you think about: -	Responses (Average)*	Range
Program content	4.5	3-5
Theme	4.7	3-5
Presentations	4.5	3-5
Keynote Address	4.5	3-5
Panel session	4.3	3-5
Venue	4.4	3-5
Morning tea and lunch	3.9	3-5
Value	4.4	2-5

* Poor (1) Below Average (2) Average (3) Above Average/Good (4) Very Good (5)

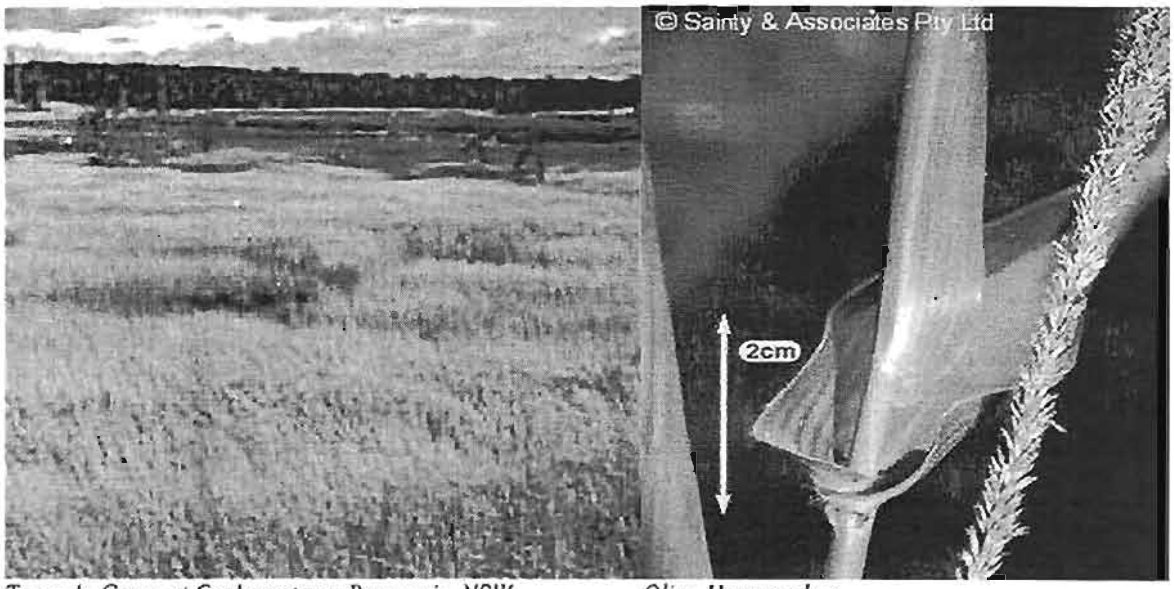
Future topics suggested by seminar participants included:

(1) Aquatic themes:

- Use of aquatic weeds for beneficial use e.g. fertiliser, compost, etc.
- Aquatic weed identification, ecology and control.
- Alternative nutrient control systems.
- Water and fish ecologies.

(2) General themes:

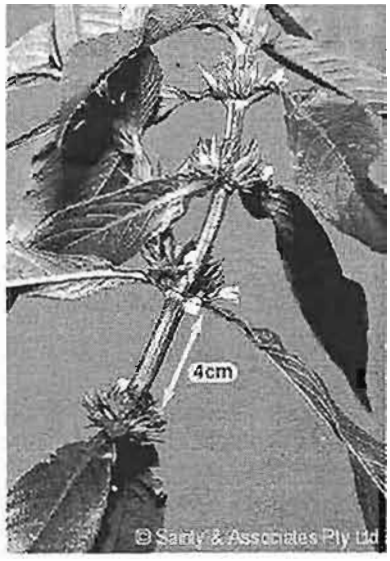
- Mechanisms for replacing/substituting weeds with native species following initial weed control.
- Integrated control of environmental weeds.
- Case studies of well managed weed control strategies.
- Further developments of biocontrol in temperate environments.
- Weeds and their impact on being used in composting and recycled organics.
- Weed grasses, including new problem grasses, management options and alternatives to herbicides in bushland.
- How to undertake small scale trials for permit application.
- New invaders – an update of WONS.
- Integrated pest/weed management.
- Current legislative requirements for noxious weeds in NSW.
- New weed incursions in NSW, including identification.
- Range weeds.
- Training days on application techniques.
- Co-operative management and control techniques with agencies and volunteers.



Torpedo Grass at Grahamstown Reservoir, NSW *Olive Hymenachne*

Both photographs – Sainty & Associates

Above - Salvinia



Right – Glush Weed

Council of Australian Weed Societies [CAWS] Report

Delegates Report - October 2004-November 2005

Executive and management committee.

The current CAWS executive is Mr Andrew Bishop (President), Dr John Virtue (Vice President) and Mrs Helen Sims (Secretary/Treasurer). Andrew and Helen represent the Tasmanian Weed Science Society while John represents the Weed Management Society of South Australia. John Cameron and Stephen Johnson have represented the society as delegates, ably assisted by NSW society President Warwick Felton on the occasions of John's absence.

Finances

1. On August 25 2005 (the most recent meeting), CAWS held $123.283.36. The organisers of the 14th Australian weeds conference have repaid CAWS the $15,000 interest free loan and a 50% share of the profits from the conference. In addition, the $5,000 interest free loan to the publishers of "Pretty but poisonous" has now been repaid from book sale profits.
2. CAWS has two outstanding commitments, these being a $15,000 interest free loan to the organisers of the 15th Australian weeds conference (hosted by the Weed Management Society of South Australia) and funding of $30,000 to Geoff Sainty and Associates for the Sainty weed publication (expected to be printed during the next two years).
3. CAWS provided funding for various activities including the 4th International Allelopathy Congress in Wagga and sponsorship of the Tasmanian Weed Society conference.
4. Policies on the "Use of CAWS funds" were revised after consultation with state members.
5. Policies were formalised on the payment of an honorarium to the CAWS Secretary/Treasurer. Payment was made to the new Secretary/Treasurer and the immediate past Secretary.

Constitutional matters

Likely constitutional changes which may be required so that the New Zealand Plant Protection Society can join CAWS have been examined by the management committee of CAWS and referred to state societies for comment.

General business

1. Since the CAWS strategic plan is due for updating, consultation has been requested from state society members.
2. The New Zealand Plant Protection Society has been invited to join CAWS as an affiliate member and that society has

accepted this offer. There are still a small number of logistical and constitutional aspects that need to be addressed before the NZ society becomes a full member.

3. Planning for the 15th Australian weeds conference in Adelaide in 2006 is well underway. John Virtue has replaced Neville Crossman as the chair of the organising committee. The call for abstracts closes at the end of November 2005.
4. CAWS has encouraged those interested in weed science in Northern Australia and the Northern Territory to form a society. Planning for an inaugural gathering of interested people to consider the formation of a society is ongoing.
5. The policy on "Hosting the CAWS conference was amended to reflect recent changes in the "Use of CAWS funds" policy.
6. The student award subcommittee revised the policy on, and awards for, the student travel awards. Two new awards were recommended to replace the current award, these being the "Annual Student Travel Award" and the "Annual Early Career Weed Scientist Travel Award".
7. Two applications for student awards were received from Graeme Doole and Catherine Borger, both from WA. Both were funded after assessment.
8. The CAWS management committee has submitted two columns into the external Weeds CRC newsletter during 2005, explaining what CAWS is and some of its activities.
9. No member society wished to host the 2009 Asia Pacific Weeds Conference.

14 November 2005
Dr Stephen Johnson, NSW DPI, Orange.
NSW Delegate to CAWS
(Submitted on behalf of John Cameron and Warwick Felton)

Asthma Weed Project – Information Wanted on This Weed

Sue Stevens

Asthma Weed *Parietaria judaica* is also known as Pellitory, Sticky Weed and Kurnell Curse. It has been spreading rapidly over the past few years, particularly in the older sandstone suburbs of Sydney, and is also a weed in Newcastle, Wollongong, Melbourne, Adelaide, Brisbane and Perth.

An initiative of the Sydney Weeds Committees, the Asthma Weed Project has begun! Several Councils in the Sydney Metropolitan area have joined together for this project, which is administered by the Sydney Metropolitan Catchment Management Authority and supported by funding from the National Heritage Trust. The project aims to encourage a regionally strategic and co-ordinated approach between private and public landowners to limit the spread of this weed.

This year-long project aims to deliver information and incentives to private land holders to enable them to identify Asthma Weed, raise awareness of its health and environmental impacts, and address control of Asthma Weed on private properties in conjunction with Council-based on-ground control on public land.

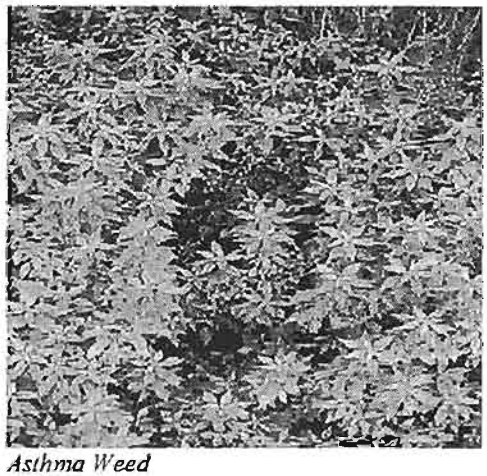
We wish to ensure that we give good advice to people regarding the disposal of plants that they might remove. Specifically, is it possible to place seeding Asthma Weed in green waste collection containers? Or should we be advising people to bag all Asthma Weed and place in domestic rubbish?

If anyone with any experience of the viability of *Parietaria judaica* seeds after composting could comment on whether it would be wise to advise people to compost the plant, or if we should tell them to bin it, would be much appreciated. We would also be interested to find out if anyone has information about seed viability and seed longevity, both in and out of the soil seed bank.

Contact details are as follows:
Sue Stevens
Asthma Weed Project Officer
C/- Randwick City Council
30 Frances Street Randwick NSW 2031

Phone: 9399 0925 Fax: 9662 2658
email: sue.stevens@randwick.nsw.gov.au

Asthma Weed



Asthma Weed

Use of Geographic Information Systems for Noxious Weed Management

Reece Luxton, Chief Weeds Officer & Chris Clausen, Senior Weeds Inspector, Clarence Valley Council - Noxious Weeds Office, Locked Bag 23 Grafton NSW 2460
Paper submitted to *13th NSW Biennial Noxious Weeds Conference – 20-22 September 2005, Orange*

Mapping is a term used in most weeds strategies, from National to Local level, pointing out that it provides objective information. This can be used for decision making in identifying new and priority weed species, and monitor the success of weed programs. Hence mapping is a critical component of effective weed management. Mapping provides a means of monitoring and evaluating programs. It is also becoming more affordable for Noxious Weed Officers to have access to this technology.

Background. In NSW noxious weed control is administered by NSW Department of Primary Industries (DPI) and delivered by Local Control Authorities (LCA's). There is a requirement of LCA's to carry out routine inspections of private properties and Council's lands under the *Noxious Weed Act 1993*. NSW DPI provides matching funding for these inspections and enforcement activities on the proviso that annual reports are submitted. This requirement, and the availability of new technology in weed mapping, has prompted many LCA's to acquire desktop mapping software and GIS as a management tool for weed control (Maguire 1999). Weed mapping standards from NSW DPI were produced in 1999 following a workshop of stakeholders.

The power of a GIS comes from viewing your data spatially, which means that different pieces of information on a computer can be directly related to their real location on the land. GIS is an extremely valuable tool for the management of weeds. The application of data overlays of land use, road and waterway locations, along with topographical data enables weed management strategies to be designed (Bishop 1995).

MapInfo Professional ® was the desktop GIS purchased through the Regional Mapping funding through NSW Agriculture in 1998.

However for Clarence Valley Council - Noxious Weeds staff, the GIS was under utilised, as there was little understanding of the concepts and no set procedures. Mapping was always seen as a desirable outcome for property inspections, but was always dropped off the list of priorities when Weed Inspectors went back to the office - hence mapping didn't get done.

This is where the benefits of the PocketPC came to the fore - you could visually see where you have been over a property and could better determine the size of weed infestations by using your GPS to mark around infestations - it takes the guess work out of it.

Use of Database with Property Inspection data. To further enhance the process, the data is manipulated in MapInfo and uploaded to a Microsoft Access database through a series of *workspaces*, or set commands. From here further data can be added in the office and the database is used to facilitate the production of reports and letters. Weed Inspectors have now cut down office time manually producing letters with these systems, allowing the database to automate the process. It saves a lot of time using the PocketPC instead of re-entering handwritten records into a Microsoft Access database. It effectively eliminates paper forms needed in the field.

Statistical data can also be retrieved, including *total hectare area* of an inspection region, *total area* inspected within a financial year, specific *dates* of property inspection, and *frequency of weeds* in an inspection region.

This new technology of mobile mapping has improved efficiency in property inspections for Council by 55% in one year of operation through staff having more time in the field and less time in the office. There is also the tangible benefit of digital data, which can be used for improved decision-making.

Table 1. Total property inspections for noxious weeds undertaken by Clarence Valley Council.

Year	No. of inspections	Notes
2001/2002	1485	Prior to useage of GIS
2002/2003	1930	Use of GIS & Garmin GPS
2003/2004	2149	Initial useage of PocketPC in field
2004/2005	3323	Advanced useage PocketPC linked to Database

Mapping of Roadsides and Reserves - assists operational programs. Further to the use of PocketPC's, we enhanced the use of GIS in Operational programs. In this instance the staff plot any treated sites with Garmin GPS and manually record other important data, including weed species and chemical/s used to control. Data is uploaded to a GIS and stored for future reference. Council can now provide information to landholders as to dates of application and what chemicals were used, in circumstances where long withholding periods may interfere with roadsides grazing.

Maps are produced and staff can easily see where they have been, what species and the frequency of weeds were found along roadsides. Furthermore, it can identify which chemicals have been used to treat the weeds on these roads in any period of time. Using GIS, we can simply identify gaps in areas, not treated prior to flowering and ensure they become priority for works.

The collected data is spatially described as point data in the GIS, however, is easily translated into poly-lines or regions. It was difficult to get the Spray Operators to do it at first, but once they saw the results of the GIS they were hooked!

GPS are also useful during helicopter surveys, where raw data can be loaded onto a GIS for further manipulation to ensure follow up control works and prioritize ground inspections in the required areas.

Mapping outputs. The level of outputs in regards to mapping weeds has increased as a result of having the data in digital form. Data is easily transferred to other organisations such as the NSW North Coast Weeds Advisory Committee when they were mapping the region. The data was transferred electronically with ease. Maps with meaningful data could also be produced for landholders following property inspections. Weed mapping in general using GIS has assisted in identifying areas of concern and prioritising work programs on respective weed species.

Past procedures and problems. Inspections areas in the past were decided by looking at topographic maps, drawing a rough circle around an area of concern, issuing Section 45 Notification of Entry and inspecting all properties within that region.

Garmin GPS units were originally used for recording data for property inspections but it was found to be too cumbersome and still required information to be entered manually in the office. Information collected in the field was recorded on paper. Once in the office, it was transposed onto inspection reports, of which a copy was kept by council. The same information was then inserted into a Section 18 or similar notice. Although it captured the position of weed infestations, it was difficult to match the data with property ownership details.

A similar process of manual entering and later mail-merging, being a slight improvement, had to be undertaken when issuing Section 45 Notices to enter properties. Property information including the recipients name, postal address, Lot and DP, and property addresses had to be queried out of a larger database and entered into the fields of the correspondence. This became an arduous task for weed inspectors who then had to moonlight as typists and filing clerks.

At this time, a tally of inspections and reports issued were the only statistics kept by the three Weed Inspectors of Clarence Valley Council. It did not reflect trends or changes in weed infestations. Spray Operators only had Pesticide Distribution books to show what weeds were controlled.

What was proposed? It was proposed that the Noxious Weeds Office make better use of our Geographic Information System (GIS) to help understand where weed infestations were located through mapping technology, and assessing the effectiveness of our inspection and control programs through appropriate monitoring systems.

A standard mapping procedure was needed to allow for consistent, reliable information that can be compared from year to year through use of GIS and other technologies. Information systems are only as good as the design and data entered.

A workshop with staff determined that we should look to how other Councils and organisations addressed their weed mapping tasks, to get the data into a format that will produce appropriate letter. Along with fulfilling NSW DPI requirements, it had to be affordable, staff needed to be trained, and understand concepts and terminology of GIS. There needed to be a functional program that will enable effective manipulation and reporting of the data following property inspections.

Following the investigation of a number of programs throughout the year, particularly Civic View, WeedMap and PestInfo, it was found that none suited the Council's requirements. All were found to be lacking in some area or another in relation to what was needed by the Council for the end goal of property inspection data for use in reporting and issuing of letters Principally they did not fit our existing procedures.

SELECTION OF WEED MAPPING PROGRAMS

After evaluating potential options the Council opted for the PocketPC hardware and MOST software systems, which are described below. With the software and hardware provided, GIS mapping and Inspection Notes could be collected electronically. Altogether the cost was in the vicinity of $3750 for the software and $4000 for the four handheld computers.

PocketPC's. These handheld computers have provided a quantum leap for viewing property information in a geographical sense. The use of PocketPC's allows for mapping of inspections against a property cadastre as a background.

The advantages were quite simple. They are small in size; conveniently fits in your pocket and can run all day on a rechargeable battery. They have other added benefits of onboard programs such as Microsoft Excel spreadsheets, which is used to calculate quotes in the field for operational works and calibrating spray equipment.

Data can be synchronized automatically or manually with a desktop computer where the data is then uploaded for producing letters and reports. It was encouraging to see the Weed Inspectors jump at the opportunity to use them, when the technology of mobile mapping through PocketPC's became available. It was the attractant to get the Weed Inspectors to collect the mapping data.

Mobile Open Spatial Technology (MOST). MOST can enable seamless transition between desktop and mobile GIS applications. Field staff can use it to draw basic map objects (points, lines and polygons) and to capture new data or update existing data with a map background.

Data entry in the field is via pull down lists to minimise capture time and operator errors. The customised entry forms are developed from a desktop computer via a dialog box which allows users to specify required columns. The application automatically populates the entry forms pull down lists from existing entry types for each column (OST 2003).

It is designed specifically for field officers with limited computer skills. Training was minimal and staff were underway in 10 minutes

DISCUSSION

With all the systems in place we set forward in trying to utilise this equipment. Adaptive management or 'learning by doing' is the best way to describe what was achieved, as we were unsure what to expect with the technology. We had particular perceptions of what the technology could do, but it was a matter of trying to fit with the capabilities of the technology

It is thought that the Weed Inspectors had more commitment because they helped develop the mapping procedure right from the start. They have assisted with continuous improvement of the system over time.

Mapping of Property Inspection - improves productivity. Now with the use of PocketPC's and MOST, it has proven effective particularly for the collection of data from property inspections. Staff were mapping more, although it was limited to learning by doing. A lot of trial and error occurred before we got the process right.

It is a handy tool on properties where no fenced boundaries exist. This alone has saved a lot of angst for the Weed Inspectors in the field - sending information to the wrong person and delaying the process of effective weed management.

The PocketPC's also have the capability of running GPS, where the Weeds Inspector can confidently navigate the property to all land types that may exist on the parcel of land. This is beneficial to enable staff to revisit the exact same spot, to determine if the infestation has decreased in size, or possible radiated out from the initial source giving real time location of the weed infestations on a property.

Problems. With any computer programs there are always traps. The matter of ongoing maintenance of the data is of concern, and it is best to keep the layers simple and make sure they are updated regularly. Also, to an extent the data layers are not survey accurate - if property inspections are close to boundaries then GPS may be too accurate in rural residential areas. There was also the difficulty of trying to fit in with other requirements of Council - namely filing/records management, out of date cadastre information. Constant monitoring is required to ensure staff don't take short cuts or miss steps in procedures.

CONCLUSIONS

For years Weed Officers have relied on keeping information on weed locations, infestation levels and treatments in their heads and not putting it down on paper for prosperity. The Clarence Valley Council has now demonstrated the importance of getting the information down using mapping technology, and utilising it for more improved property inspections.

The GIS tools used can demonstrate the increase in efficiencies in property inspections, and hence help to see the 'big picture". While the benefits of these systems are undeniable, the information derived from them is only as good as the data entered. (Maguire 1999). It should be noted that it would be advantageous of NSW DPI to follow up their Weed Recording Standards document and identify a suitable standardised computer program that Local Control Authorities can use.

Noxious weeds officers need to develop and enhance skills, keeping up to date with new technologies like GIS and PocketPC's. The case study attempted to demonstrate how it could be possible for those with little experience in the field of GIS can understand the concepts and benefits of using such a system. Therefore I challenge other Weed Officers and managers to seek out these Information Systems and utilise them more.

The discovery of Mexican Feather Grass (*Nassella tenuissima*) in Tamworth, New South Wales, Australia.

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Paper submitted to *13th NSW Biennial Noxious Weeds Conference – 20-22 September 2005. Orange*

The confirmed existence of Mexican feather grass in the northwest slopes and plains region of NSW is cause for concern and continued vigilance. The ability of this plant to infiltrate suburban backyards has been underestimated, and has occurred through the avenue of a landscaping business.

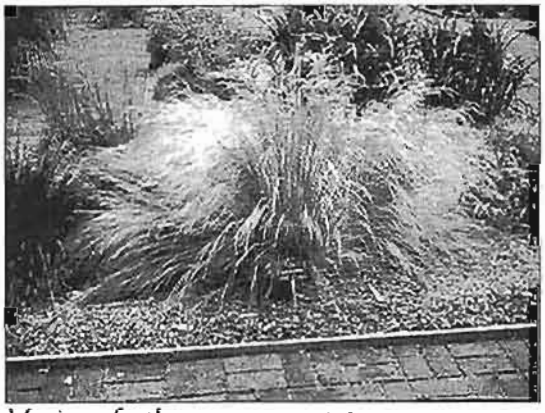
The eradication of this weed is possible in areas like Tamworth, where isolated cases have been discovered.

Introduction. Mexican feather grass has been sold in gardens and nurseries throughout Victoria and New South Wales since the 1990s (McLaren *et al.* 2003, Jacobs *et al.* 1998). This plant has been sold under a variety of names, some of which are; *Stipa tenuissima*, elegant spear grass, white tussock, ponytail grass, *Stipa tenaccissima* and Texas tussock grass (Maguire, DPI factsheet). This plant is a native of Argentina, Chile, New Mexico and Texas, where it has been catalogued as a non-preferred species that can become dominant in environments under continual heavy grazing (McLaren *et al.* 2003).

Mexican feather grass is very similar to the already established serrated tussock, the primary difference being noticed when it is in seed. Mexican feather grass seeds have a long bristle like awn extending from the end of the seed for approximately 4.5-9 cm, which is much larger than the seed of serrated tussock (Maguire, DPI factsheet). The principle danger in the appearance of Mexican feather grass is that it seeds freely, so that any established

plants have the capacity to develop into future infestations.

Method. In the incident occurring at Tamworth, New South Wales, an unusual species of grass was found to be growing at a local pre-school. A sample of the plant was taken in August 2004, by one of Council's Noxious Weeds Officers, Tony Lawler, and delivered to the local branch of NSW Agriculture. Dr John Hosking delivered the specimen to the National Herbarium in Sydney, where it was positively identified as being Mexican feather grass, *Nassella tenuissima*.



Mexican feather grass [DPI Vic]

Contact was made with the Director of the pre-school, and it was confirmed that the pre-school had been landscaped approximately 9 years previously. The Director of the pre-school was questioned as to whether she knew of anyone who may have taken cuttings or sections of the plant. The Director stated that she had some of the plants growing in her own private residence, and also supplied the name of the landscaping company that the pre-school had employed.

Contact was made with the landscaping company, it was confirmed that they had landscaped the pre-school about 7 or 8 years previously. Information as to where the plants were sourced was not forthcoming.

The plants at the pre-school were inspected again, it was confirmed that there were numerous plants in the gardens. Photos were taken of the plants in situ, and 7 plants in varying stages of maturity were removed and transported to the Calala branch of NSW Agriculture under the care of Alan Maguire.

All of the remaining Mexican feather grass plants were removed from the pre-school grounds and an inspection was made on the Director's private residence and the surrounding lands of the pre-school and home. No other evidence of the plant was found in these localities, however, one further property in Tamworth was found to have a number of the plants growing. These specimens were also removed.

The Noxious Weeds Officers examined the plants to ensure that they could identify it in the future. A media campaign was initiated in the local press to raise awareness with the public, as well as a display with a live specimen being located in the foyer of the main Council building.

The three sites of where Mexican feather grass was located are being monitored on a monthly basis, and future weeds will be removed and reported on as required.

Discussion. It has been established that Mexican feather grass is not native to Australia and that it is considered to be undesirable in its original environments, following will be a discussion as to why this plant could be so dangerous if allowed to become established.

In a study undertaken by Groves, Austin and Kaye (2003) using 7 species of grasses representing the ecological groups of annuals and perennials in differing soil nutrient levels. It was found that the majority of the grass species did not flourish with extremely high nutrient levels, however, the introduced types showed different response patterns to the native grasses with varied nutrient levels. The results obtained suggest that Australian perennial grasses are not as competitive as introduced species in environments indicative of 'improved' grasslands. Landscapes having little or no history of sheep grazing maintain a dominance of native grasses. Serrated tussock has the potential to invade more the 32 million hectares of Australia, in areas including native grasslands, grassy woodlands, drier forests and rocky scrubland (Casonato *et al.* 2002). With

Mexican feather grass being closely related to serrated tussock this ability to colonise and out-compete other species is further enhanced (Morfe *et al.* 2002). Morfe, Weiss and McLaren (2002) simulated the spread of serrated tussock and Mexican feather grass over a 30 year period to gauge the influence of high/low yields and high/low prices in regards to farm initiated responses. It was found that Mexican feather grass was a more adaptable species than serrated tussock, and would be a more prevalent colonizer over a greater area.

To further emphasise the danger that Mexican feather grass could pose to the environment, McLaren, Whattam, Blood, Stajsic and Hore (2003) climate matched the plant to discover potential distributions in Australia. The results revealed that as this plant has a broader climatic profile than serrated tussock, it could potentially invade an area six times greater than *Nassella trichotoma* currently does. Serrated tussock is currently thought to inhabit 32 million hectares of land (Morfe *et al.* 2002), with a projected estimate of 192 million hectares for Mexican feather grass.

Weed management is a major issue, affecting many sectors of the community, environment and economy. A study by the Queensland Local Government Association has demonstrated that for every dollar invested in weed management initiatives, the public receives up to $3.70 in benefits. The majority of these benefits are of a non-production type, which flows predominantly to the wider community. (AEC Group 2002). This study also showed that eradication was the most desirable form of control, although not possible in all circumstances. Prevention methods provided the greatest return on investments, various methods need to be applied as not all situations can be eradicated, prevented or stereotyped. Biological control methods, when successful, were believed to generate higher returns on investment than manual means. Preliminary surveys are being conducted in Argentina, as to the potential for biological control successes on serrated tussock (Anderson *et al.* 2002). Perhaps in the future this may extend to species such as Mexican feather grass, in regions where it cannot be eradicated or prevented.

Privet – A Success Story

Roger Smith, Orange City Council

Privet has been causing health problems for Orange residents for years. In 1999 Orange City Council decided to meet the problem head on. The runs are now on the board.

Privet, both broadleaf and small leaf was declared a noxious weed within Orange City Council in 1999 after many calls from the general community to have it declared noxious. The basis for the declaration was purely health reasons.

The flowers of privet are pungent, heavily scented and extremely overpowering. They may cause hay fever, asthma and breathing difficulties with up to 15% of the community.

People who are affected suffer terribly from wheezes and sneezes which can have an adverse effect on their sleeping habits, social life and general well being. The allergy season for privet starts in September, (small leaf privet) and goes through until January, (large leaf privet).

Orange City Councils application for declaration followed the successful application from the Upper Macquarie County Council the previous year and unanimous support from all stakeholders. Privet was declared a W4b noxious weed within Orange City Council. This categorisation means it is not allowed to flower or fruit and cannot be sold or propagated.

Privet was a common garden plant in Orange used as a quick growing hedge in many of the more established residential areas. Privet was also planted in the grounds of schools, nursing homes, hospitals and golf courses. The declaration application sought a W4b category that states the plant is not allowed to flower or fruit and cannot be sold or propagated. The categorisation allows residents to keep established privet hedges if they are kept trimmed.

The declaration of privet was widely accepted as a positive move by Orange City Council and

had the support of all stakeholders, the general community and the local media.

Advertising and promotion through the media was used to inform the community of their obligations regarding privet control. Word of mouth also proved very successful.

The introduction of a free pickup service for residents by Council proved very popular and alleviated the task for residents of disposing of privet once they had cut it down.

Privet on high profile Council owned land was targeted early after the declaration to illustrate that Council was serious about removing privet.

It was explained to people control of privet was reasonably easy. Once the tree/shrub was cut down at ground level the stump had to be painted with a straight glyphosate based chemical within 30 seconds of the cut being made. This was a "tried and true" method used on Council land with a 100% success rate. Some residential privet was not painted with chemical quickly enough which resulted in regrowth. All privet was disposed of at Orange City Council's waste depot. There is no charge on green waste at the depot. Privet, which was heavy in fruit, was buried deep under the general waste at the depot whilst non fruiting privet was chipped.

Large leaf privet (Blue Mountains Council)

When Section 18 notices started being issued feedback from the community, particularly elderly residents, was negative. They felt intimidated by the notices commenting that they were "too hard and fast" and contained a lot of legal jargon. These residents had been living in the community for decades then all of a sudden they receive a Section 18 Notice in the mail demanding the removal of a tree, which perhaps had been growing in their back yard for 40 years. This was a fair comment.

Council reacted immediately by introducing a Preliminary Privet Notice and softening the Section 18 Notices. The Preliminary Privet Notice is not a legal document but rather an information letter explaining to residents the negative health affects caused by privet flowers and what their responsibilities are in regard to controlling privet. The Preliminary Privet Notice still had a date by which Council would like to see the privet controlled and states if it is not controlled by that date a Section 18 Notice would be issued. The response from residents to the Preliminary Privet Notice was very positive.

Small leaf privet (Blue Mountains Council)

Several residents who had privet infestations never had the physical or financial resources to remove privet. The majority of people usually had no local family support, were pensioners or were too elderly to take any action themselves. Council was empathetic towards these residents and did the utmost to assist them. Several home care/residential assistance organisations were approached for support. Financial assistance was provided to remove the privet at no cost to the residents. Occasionally, if the privet infestation was relatively minor, Council inspectors would enter the property, with the owner's permission, and remove the privet at no cost. This saved a lot of paper work!

Numerous complaints regarding privet were found to be look-a-likes. The plant often mistaken for privet is photinia. Photinia does mildly resemble privet in its leaf but the main factor is the strong smell of its flowers. To alleviate this problem a privet brochure was developed. The brochure was sent out with notices and also made available at the Orange Civic Centre. To assist in identification a specimen plant was placed in the Customer Service area of the Civic Centre. It was not a good idea to display a flowering specimen as staff were affected by the smell of the flowers

The campaign to rid the City of Orange of privet has been a true success story. The support of the local media, larger stakeholders and the community overall was paramount in achieving the results of the campaign. The free pickup service provided by Orange City Council took a lot of the hassle out of removing privet for residents. It's one thing to cut the privet down but the real work is in its disposal. Privet is now at very manageable levels in Orange. Minor infestations still exist but in general the community of Orange can breath a lot easier.

(This is an edited version of the original paper)

A Good Weed

the NEWSLETTER of
The Weed Society of New South Wales
PO Box 438
WAHROONGA NSW 2076

Print Post Approved
PP247134/00010

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The Weed Society of New South Wales acknowledges the generous support of the above organisations for their sponsorship of the Society and this Newsletter.