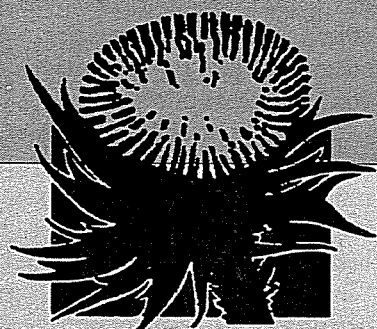


A Good Weed



the NEWSLETTER of
The Weed Society of New South Wales Inc
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10
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Herbicide Resistance - Serious Problem or New Opportunity?

There would be few land managers who have not now heard about herbicide resistance, particularly in Australia which is said to have the highest level of herbicide resistant weeds in the world. Since it was first identified in 1970, much has been claimed about the threat that it poses to weed control, particularly in agriculture. In this article, Dr Chris Preston evaluates this perceived threat and what can be done about it.

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... Herbicide Resistance - Serious Problem or New Opportunity?

By Chris Preston

Sometimes a herbicide application does not control weeds as well as was expected. There are several reasons why this might be so. Firstly, the environmental conditions may have been wrong (e.g. rainfall soon after application, excessively cold or dry conditions). Secondly, the herbicide may have been improperly applied (e.g. nozzles blocked, use of hard water, incorrect adjuvants). If such factors are excluded, the failure may be due to herbicide resistance. The difference between herbicide resistance and all other herbicide failures is that if you have resistance, the herbicide will not work in the future. Resistance is the inherited ability of weeds to survive herbicide application.

Where does resistance come from? Usually herbicide resistance is already present in the weeds in the paddock. In any population of weeds there are a few individuals that are different. These individuals can tolerate normally deadly herbicide applications and survive to produce seeds. Offspring from such plants are more likely to themselves carry the genes that confer resistance.

Repeated applications of herbicide select out the susceptible strains and favour the resistant ones so that, after a period of time, the whole local population of the weed may be resistant.

Think about the number of ryegrass plants that may be found in a cropping paddock. If there are ten plants per square metre, then every 10 hectares contains 1 million plants. On average, one plant in every 10,000 in this population is resistant to Group B sulfonylurea herbicides before any Group B herbicides are actually used.

How can you detect resistance? Because plants inherit resistance from their parents, the resistant individuals are first evident in patches in the paddock where the

seed of the parent plants has germinated. These patches may be elongated in the direction of harvesting or working the paddock.

The first clue for most farmers that they might have resistance is when they notice a large patch of weeds in the crop. If this patch consists of only one species, and other susceptible species have been controlled, you can be reasonably sure that you have a case of resistance.

It is useful to get a resistance test done, not so much to confirm that you have resistance, but to find out what herbicides might still be useful. This is important because many resistant populations have "cross-resistance"; that is, resistance to herbicides that have not previously been used. Many farmers now do their own cross-resistance spray tests.

Is resistance the end of agriculture as we know it? No, resistance is the start of a new way of controlling weeds. Instead of weed control decisions being based on "what herbicide at what rate", you now have to plan weed control more carefully. What can be done? The answer to this question falls into two categories: methods to delay resistance and methods to manage it. Resistance can be delayed by not relying on the same herbicide, or group of herbicides, every year.

When on a good thing, change it! One way of doing this is by rotating herbicides between the different modes of action. Adding other, non-chemical weed control tactics will also help extend the life of the individual herbicides. Managing resistance is little different to delaying resistance, except that you can no longer rely on your herbicide of choice, the one that no longer works.

There are really no prescriptions for managing herbicide resistance because each case is different. You should do whatever works for you and fits within your farm plan, but all strategies require the use of non-chemical techniques along with continued use of herbicides.

Techniques include increasing seeding rates, planting a more competitive crop cultivar or pasture species, changing rotations, changing planting dates, collecting or burning weed seed and strategic use of lower risk and non-selective herbicides. Whatever approaches you choose, your new integrated strategy for managing weeds should become a part of your overall farm plan.

Current state of resistance in Australia

Weed Species	Herbicide Group						
	A	B	C	D	F	L	M
• Annual ryegrass (<i>Lolium rigidum</i>)	X	X	X	X	X		X
• Wild oats (<i>Avena fatua</i> , <i>Avena sterilis</i>)	X						
• Barley grass (<i>Hordeum leporinum</i>)	X					X	
• Barley grass (<i>Hordeum glaucum</i>)						X	
• Large crabgrass (<i>Digitaria sanguinalis</i>)	X						
• Indian hedge mustard (<i>Sisymbrium orientale</i>)		X					
• African turnip weed (<i>Sisymbrium thellungii</i>)		X					
• London rocket (<i>Sisymbrium iro</i>)		X					
• Climbing buckwheat (<i>Fallopia convolvulus</i>)		X					
• Common sowthistle (<i>Sonchus oleraceus</i>)		X					
• Long-fruited turnip (<i>Brassica tournefortii</i>)		X					
• Short-fruited turnip (<i>Rapistrum rugosum</i>)		X					
• Wild radish (<i>Raphanus raphanistrum</i>)		X					
• Prickly lettuce (<i>Lactuca serriola</i>)		X					
• Dirty dora (<i>Cyperus difformis</i>)		X					
• Arrowhead (<i>Sagittaria motevidensis</i>)		X					
• Starfruit (<i>Damasonium minus</i>)		X					
• Liverseed grass (<i>Urochloa panicoides</i>)			X				
• Capeweed (<i>Arctotheca calendula</i>)						X	
• Silvergrass (<i>Vulpia bromoides</i>)						X	

Group A: Hoegrass, Verdic, Targa, Topik, Fusilade, Puma, Correct, Sertin, Achieve, Select, Fusion, etc.

Group B: Glean, Ally, Logran, Oust, Spinnaker, Arsenal, Eclipse, Broadstrike, etc.

Group C: Simazine, Atrazine, Diuron, Sencor, Bladex, Bromoxynil, etc.

Group D: Treflan, Rival, Stomp, Yield, etc.

Group F: Brodal, Amitrole, etc.

Group L: Reglone, Gramoxone, Spray Seed, etc.

Group M: Roundup, Touchdown, Pacer, etc. □

(Reprinted from *Under Control, Pest Plant and Animal Management News*, No. 2, May 1997, and the *Crop Science Society of South Australia Newsletter*, No. 153, February 1997. Dr. Christopher Preston is a Lecturer

in the Department of Crop Protection, University of Adelaide.)

Flea Beetles Jump into a Feed of Paterson's Curse

By Blair Grace

A new insect has just been released to attack Paterson's curse. The joint effort between the Keith Turnbull Research Institute and CSIRO Division of Entomology has succeeded in rearing the Paterson's curse taproot flea beetle, *Longitarsus echii*, in sufficient numbers to set up nursery sites for the first time in Australia.

This has been the fifth attempt to rear these beetles in quarantine. They have been difficult to breed in the laboratory, but new methods have led to better results and it is hoped that we will be able to rear larger numbers in the future.

The beetles have been released at two sites in Victoria, two sites in New South Wales and one site in the ACT. Beetles from these sites will be collected for release at new infestations in winter next year. Suitable sites need to be well drained and have a dense infestation of Paterson's curse with a low priority for control.

These small beetles (3 mm long) earn their nickname 'flea beetles' by using their powerful back legs to jump distances of up to one metre. The larvae (grubs) feed in the taproot of the plant, resulting in smaller plants which produce less seed. They remain in the soil as pupae over summer when Paterson's curse has died off. Adults emerge in winter when rosettes are present, and start laying eggs within a few weeks.

Two species of insects are currently established for biocontrol of Paterson's curse. A moth, *Dialectica scariella*, mines the leaves and causes occasional heavy damage. The crown weevil, *Mogulones larvatus*, is also beginning to have an impact. The root weevil *M. geographicus* is not yet well established.

These small beetles (3 mm long) earn their nickname 'flea beetles' by using their powerful back legs to jump distances of up to 1 metre.

Three more insect species are due to be released over the next few years. A small beetle, *Meligethes planiusculus*, will feed on the flowers, another larger beetle, *Phytoecia coerulescens*, will bore out the stems, and an even smaller flea beetle, *Longitarsus aeneus*, will feed on the root hairs. All these insects should combine to weaken the weed by attacking most parts of the plant throughout its growing season.

(Reprinted from *Biocontrol Services Victoria News*, No. 5, Nov 1996. NB. Blair Grace has recently moved from Victoria to NSW to begin a PhD at the University of

New England on the Ecology and Management of Saffron Thistle in Pastures.)

Don't let the Alligator (Weed) Loose

By Lalith Gunasekera

Alligator weed (*Alternanthera philoxeroides*), native to South America, has been described as one of the world's worst weeds because of its voracious growth habit, its ability to survive in both aquatic and terrestrial habitats (amphibious) and grow vegetatively from plant fragments. It was first found in Australia at Newcastle, NSW during the 1940s, growing in ballast heaps dumped by wartime shipping.

Alligator weed has a very similar appearance to another plant found in Australia, in the same family *Amaranthaceae*, named *Alternanthera sessilis*. This is a popular leafy vegetable in Sri Lanka called 'mukunuwenna' (or mukunawanna), but botanically it is completely different.

Recent investigations in Brisbane, NSW and Victoria have detected alligator weed in some home gardens where it is being grown as a leafy vegetable. There could be some confusion amongst the Sri Lankan community between the leafy vegetable grown in Sri Lanka and alligator weed growing in Australia. The flowers of alligator weed are large (10 mm across) and are carried at the ends of the leafy stems. Flowers of mukunuwenna are small (less than 5 mm across) and are borne in clusters in the leaf axils.

Alligator weed has the potential to do more damage to our rivers, irrigated agriculture and wetlands than any other water weed in Australia. Unlike other water weeds in Australia (e.g. *Salvinia*) it has the potential to spread over a very wide area and threaten our agricultural production, export incomes, major river systems and wetlands. □

(Reproduced in part from *Biocontrol Services Victoria News*, No. 5, November 1996.)

Weed Watch Warning

Common elder, *Sambucus nigra*

By Kate Blood

The recent report to the National Herbarium of Victoria of another introduced plant, common elder or elderberry, *Sambucus niger*, proliferating in Victoria highlights the need for an improved early warning system for weeds. Common elder originated in Europe. It is already naturalised in New Zealand, West Asia, North Africa and Tasmania and has now established on private property near Mansfield in north-east Victoria.

Sambucus is in the family Caprifoliaceae which includes other environmental weeds such as Japanese honeysuckle (*Lonicera japonica*), Himalayan honeysuckle (*Leycesteria formosa*) and laurestinus (*Viburnum tinus*). In New Zealand, other introduced members of the family which have become environmental weeds include snowberry bush and coral berry (*Symphoricarpos* spp.) while *Sambucus pubens*, a close relative of common elder, has become naturalised. There are at least seven introduced *Sambucus* species in cultivation in Australia. Victoria has two indigenous species, *Sambucus australiasica* and *S. gaudichaudiana*. Herbaria should be able to assist in correct identifications.

Common elder is a deciduous shrub or small tree to 10 m tall, often with a twisted form and arching branches. Its opposite leaves (to 12 cm long) usually have 5-7 leaflets with a rather unpleasant smell. Very young leaflets are dark purple but quickly turn to green as they mature. The shoots are grey-brown with corky warts (lenticels) and white pith. The fragrant flowers (November to January) are in a large flat-topped cluster, 10-20 cm in diameter, at the end of the branchlets. They have white or yellowish-white petals and are usually insect-pollinated. Flowers are followed by pendulant bunches of berries, each 5-8 mm across, in late summer and early autumn, at first red, but ripening to shiny black with the fruit stalks remaining red. The fruits are

eaten by birds, which assist in the distribution of the seed. In New Zealand, there is little variation in the wild except that some plants, variety *viridis*, have green flower branches and green ripe fruit.

Observations from England suggest that the plant establishes mainly on bared ground. It appears that seedlings are sensitive to competition from some perennial herbs and to grazing by stock. Once established, the plant is rarely grazed - elder contains cyanogenic glycosides and the unpleasant odour from crushed tissue makes it unattractive to eat. The leaves are toxic to mammals, however, the ripe fruits have been used for making elderberry wine and jelly.



Common elder may persist in shaded sites but few flowers and fruits are formed. In the United Kingdom, the species is heavily dependent on vegetation boundaries and clearings, where fruit and seeds can be formed, to aid its regeneration. Plants are resilient to coppicing and cuttings appear to root readily. Gardening books suggest that common elder is frost-resistant but drought-tender. Infestations can be treated by hand removal or cutting the bushes and painting the stumps with an appropriate herbicide. Encourage people with this plant in their gardens to replace it with something non-invasive. Also, urge nurseries to stop sale, promotion and distribution. If found in natural ecosystems, send a specimen immediately to your State or Territory Herbarium and notify the relevant agency to encourage its removal. Also, assist local volunteers caring for local vegetation in the identification and treatment of this new weed.

WeedWatch is a program being developed by the Cooperative Research Centre for Weed Management Systems in cooperation with all the States and Territories of Australia to improve prevention and early intervention activity with new and expanding weeds. By reporting and recording these weeds quickly, we can prevent them becoming widespread, help to conserve indigenous biodiversity, protect industries and save the Australia community millions of dollars.

(Reprinted from Under Control, Pest Plant and Animal Management News, Keith Turnbull Research Institute for Integrated Pest Management, No. 2, May 1997.)

Nurseries Help Out

By Kate Blood

Nurseries around Australia will soon be helping the environmental weed cause through the development of an environmentally-friendly nursery award scheme. Co-operating nurseries will be recognised for agreeing not to sell, promote or distribute plants on a specified list of environmental weeds. Although such programs are in their infancy in Australia, New Zealand has for some years operated a similar scheme, the Forest Friendly Awards, which has helped reduce the spread of environmental weeds.

Fewer existing or potential weeds will have the opportunity to escape from gardens into bushland if gardeners are educated about the plants they put into their gardens and the appropriate ways to dispose of garden refuse. Some States and Territories have already started working with their local nursery industries to address this important issue.

Kate Blood, Environmental Weed Education Coordinator with the Cooperative Research Centre for Weed Management Systems, is helping to coordinate a national nursery award scheme by liaising with New Zealand, State and Territory agencies and the nursery industry. If you would like to be involved, contact Kate on (03) 9785 0128.

(Reprinted from Under Control, Pest Plant and Animal Management News, Keith Turnbull Research Institute for Integrated Pest Management, No. 2, May 1997.)

In the News

'Herbicides to be banned'

Friday 27 June - According to the ABC daily National Rural News program, 84 registered brands of glyphosate herbicides are now banned from use around aquatic areas. The National Registration Authority (NRA) has put new guidelines in place, following a review that found the chemicals were killing frogs and tadpoles. Monsanto claimed that its 'Roundup Bioactive' will be the only glyphosate formulation registered for aquatic use.

The Registration Authority's Chemical Review Manager, Dr Joe Smith warned that companies will have to abide by the rules. He said that no aquatic uses will be registered or will be permitted unless the NRA has that data and is satisfied that it demonstrates the aquatic safety. For glyphosate products for which there are no claims, it must be clearly stated on the labels that that is the situation, that is, it is not to be used in or around aquatic situations.

'Government foreshadows pesticide clampdown'

Thursday 31 July - According to a report in The Land newspaper by Kellie Penfold, fines of up to \$60,000 could be imposed on people for damage to neighbouring properties, people or the native environment through incorrect use of pesticides if new legislation proposed by the Environmental Protection Authority (EPA) is accepted by State Government.

According to Dr Jane Mallen-Cooper, of the EPA, proposed amendments include giving greater powers to inspectors (such as on-the-spot fines), a definition of damage to people, animals and land by pesticides, and tough licensing laws for operators of commercial spraying businesses. The changes will also lead to an upgrading of chemical instruction labels and it may become illegal to disregard those instructions whatever the user's intention.



Weedbuster Week

information bulletin

- 12 - 19 October 1997 -

Weedbuster Week will be held throughout Australia from 12 to 19 October 1997 to raise awareness about weeds and the problems they cause.

In NSW, the Week will be coordinated by NSW Agriculture.

The aim of Weedbuster Week

The aim of Weedbuster Week is to give land care groups, bush care groups, local government, state government, schools, catchment groups and others the opportunity to promote their weed control activities and raise awareness in their local communities.

We would like to invite your organisation to take part in the activities.

We welcome feedback and suggestions. Please pass this bulletin on to others who you think may be interested in participating.

Publicity

We encourage any organisation involved to generate publicity about their own weed control projects.

If you are organising an event in your area, please fill in the form overleaf and return it to us, so we can include your event in the Australia-wide list of events which will be sent to the media.

State-wide media releases will be sent out from Orange prior to and during the Week.

Promotional material

We will be offering a promotional kit comprising of posters, Weedbuster badges, balloons, stickers and other promotional 'bumff'



NSW Agriculture

Type of activity

The type of activity could be a field day, a weed control demonstration, seminar, workshop, school activity, weed clean-up at a local creek or park, or any other weed control related activity.

Issues to consider if you are holding a weed clean-up event are:

- set targets which will be achievable and rewarding
- choose a site which will be publicly visible
- ensure safety of participants
- utilise best practice
- consider follow up treatment
- consistency with local programs.

Take the opportunity to consult with a local NSW Agriculture Officer. They will advise on appropriate best practice, necessary preparation, follow-up, and the possible involvement of other NSW Ag staff. Advice should also be sought on replanting or other



Further information

For further information, please contact :

Bob Trounce, Weeds Agronomist
NSW Agriculture
Locked Bag No 21
ORANGE NSW 2800

Phone (063) 91 3156 Fax (063) 91 3605

Email address : trouncb@agric.nsw.gov.au

To register an event or to receive a promotional kit, please fill out and return the form overleaf.





Weedbuster Week

12-19 October 1997

Register for list of events and promotional kit

Group/organisation	.....
Contact name/ Site representative	.....
Address	..........
Telephone number	..... Fax number
Local NSW Ag contact (for advice on best practice)	.....
Name of event or activity	.....
Date & time of activity	.....
Location of activity	.....
Telephone number for activity/event contact	.....
Description of activity (e.g. targeted weeds, duration , intended treatment/activity)	..... .....
Site prep assistance Before/after	.....
What should participants bring (if required)	.....
Cost to participate (if any)	.....
Proposed local media coverage	.....

I would like to receive a promotional kit (including list of events) (please tick box)

Please fill out this form and return it to the address below, before 29 August 1997.

Please return to:

Bob Trounce, Weeds Agronomist
NSW Agriculture
Locked Bag No 21
ORANGE NSW 2800

 NSW Agriculture



WEEDS Wet & Wild

Aquatic Weeds Workshop & Field Day

Wednesday, October 1, 1997

Morning Session
 Ryde College TAFE
 Parkes Street,
 Ryde

Afternoon Session
 Site Trip to
 Auburn Botanic Gardens
 & Carnarvon Golf Club

- ♦ practical, hands on identification of aquatic weeds
- ♦ guided field tours to inspect aquatic plants in their natural environment

Presented by



&



THE WEED SOCIETY
 OF NEW SOUTH WALES INC.

REGISTRATION FORM

WEEDS Wet & Wild
 Wednesday, October 1, 1997

☎ ATRI
 (02) 9736 1233

Fax ATRI
 (02) 9743 6348

✉
 ATRI, PO Box 190,
 Concord West, NSW, 2138

Registration Fees	PLEASE ✓	Standard	*Member Affiliate
FULL DAY		\$200	\$180
AFTERNOON SESSION ONLY		\$75	\$60

*Member of Weed Society of NSW Inc, Club ATRI members, RNSWBA and NSWGA affiliated clubs
 Registration Fee Includes: Tuition, copy of course notes and morning tea. Lunch is not provided.

1. Nominate registration category (please ✓) Standard Member/Affiliate
 2. Registration Details

1. Name: _____ Position: _____	2. Name: _____ Position: _____
-----------------------------------	-----------------------------------

Employer: _____
 Address: _____
 _____ P.C. _____
 Phone: (bus) _____ Fax: _____

3. Payment (please ✓)

- Please find enclosed our cheque for \$ _____
 Please invoice club/company.
 Order No. (if applicable) _____
 Please charge this purchase to my credit card. My full card number:
 Mastercard Bankcard Visa (please ✓)

Cancellations:
 Should you cancel within 5 working days of an event, documentation will be provided but no refund applies. Cancellations received prior to 5 working days are subject to a processing fee of 10%. ATRI and The Weed Society of New South Wales Inc reserve the right to cancel this event due to inadequate industry support.

Expiry Date: _____ Signature of cardholder: _____

Program

MORNING SESSION - Presenter: Dr Peter Michael
 Ryde TAFE (Numbers limited to 30)

- 8.00 Group 1 Registration
- 8.30 Introduction and Objectives
- 8.45 Use of Microscopes
- 9.00 Practical Session: Detailed Identification of key aquatic weeds, including the free-floating water hyacinth and salvinia, the floating attached alligator weed and the submerged and emergent parrot's feather, using Keys and Notes
- 10.15 Morning Tea
- 10.45 Practical Session: Examination of a Range of Important Aquatic Weeds
- 12.00 Lunch at Ryde TAFE

- Microscopes
- Keys & Notes
- Identification

AFTERNOON SESSION

Field Trip to Auburn Botanic Gardens, Auburn & Carnarvon Golf Club, Lidcombe

FIELD TRIP
to 2 SITES

- 1.00 Group 1 assemble to board bus and depart for Auburn Botanic Gardens site
- Group 2 Registration at Auburn Botanic Gardens site
- 1.30 Group 1 arrive Duck Creek and join Group 2
- Groups assemble for site information
- Site Manager:* Warren Lancett, Auburn Council
- Site Leader:* Gary Beehag, ATRI
- Technical:* Dan Austin, Manager, Eagle Environmental Services
- 2.30 Group 1 & 2 depart Auburn Botanic Gardens to travel to Carnarvon Golf Course
 (Please Note: Group 1 travel by bus provided, Group 2 provide their own transport)
- 2.45 Arrive at Carnarvon Golf Club where Afternoon Tea will be served on arrival
- 3.00 Assemble for site information
- Site Manager:* Craig Easton, Superintendent, Carnarvon Golf Club
- Site Leader:* Mike Boulton, Weeds Society of NSW Inc. (or Mike Barrett)
- Technical:* Melinda Ierace, Environmental Project Officer, Bankstown City Council
- 4.15 Close of session, Group 1 board bus to return to Ryde TAFE
- 4.45 Arrive Ryde TAFE

COURSE DESCRIPTION

The full day program will consist of two sessions.

The morning session will be a practical identification session at the Ryde TAFE, Parkes Street, Ryde, in a workshop environment.

Number of participants will be restricted to 30. The identification and basic biology of common aquatic weeds (including the free-floating water hyacinth and salvinia, the floating attached alligator weed and the submerged and emergent parrot's feather) will be covered using microscopes.

The presenter is Dr Peter Michael. Detailed notes and keys will be provided.

The afternoon session will consist of guided field tours at two locations to inspect aquatic plants in their natural environments and other plants along water-courses and dams.

The two locations are Auburn Botanic Gardens, Auburn and the Carnarvon Golf Club, Lidcombe. Management strategies at each location will be discussed by the relevant park managers and other experts.

This Workshop and Field Day offers two types of registration - please see details below.

Book NOW!

Numbers limited to
30 for FULL DAY
registration

REGISTRATION DETAILS

Group 1 - FULL DAY registration
 Numbers limited to 30

Includes:

- morning workshop with microscopes and tuition by Dr Peter Michael
- afternoon field trip to two sites Auburn Botanic Gardens and Carnarvon Golf Course
- bus travel to field sites from Ryde TAFE and return
- lunch, morning and afternoon teas
- notes and keys

Group 2 - HALF DAY registration
 No limit on numbers.

Registration is for the afternoon session only, you join Group 1 for the field tours to the Auburn Botanic Gardens and Carnarvon Golf Club.

Includes:

- introductory talks at each site
- site maps and history
- afternoon tea

PLEASE NOTE: Group 2 attendees provide their own transport.

SEE OVER FOR REGISTRATION FORM

Members Matter

We welcome the following new members to the Society and ask that if you have any news or views which might be helpful if printed in *A Good Weed*, then please send them to the Editor (address page 2). All contributions and suggestions are most welcome.

Balranald Shire Council, Balranald;
Margarita Clayton, St Ives;
David Costello, East Albury;
Peter Cregan, Charles Sturt University, Wagga Wagga;
Tom Dunlop, Engadine;
DP Elliot, Wagga Wagga;
Giles Flower, Charles Sturt University, Wagga Wagga;
John Francis, Wagga Wagga;
Andrew Hodge, Parkes;
Susan Horner, Bilgola Plateau;
JD Horsburgh, Culcairn;
Melinda Ierace, Woollich;
David Kemp, NSW Agriculture, Orange;
Loryk Korzeniowski, Baulkham Hills Shire Council, Castle Hill;
Anna Larsson, Cronulla;
Marita Macrae, Avalon Beach;
Kevin Mathers, Middle Cove;
Peter Matthews, NSW Agriculture, Temora;
Kate Mazenauer, Blaxland;
John Owens, Wagga Wagga;
Joan Parnell, Warriewood;
Pat Pike, Mt Colah;
Karen Rahbone, Gunnedah;
Lyn Rees, Port Macquarie;
Grant Roberts, Australian Cotton Research Institute, Narrabri;
Jennifer Roxborough, Northbridge;
Roger Shead, Maclean;
Kirrily Smith, NSW Agriculture, Cootamundra;
Marilyn Smith, Carlingford;
Steve Sutherland, Wagga Wagga;
Neal Thorpe, Mortdale;
Peter Valensise, Hosking Landscapes Pty Ltd, Terrey Hills;
Birgitte Verbeek, NSW Agriculture, Wagga Wagga;
Kyla Watts, Yowie Bay;
Garth Wickson, Wagga Wagga;
Jann Williams, Charles Sturt University, Albury; and
Mark Williams, Blue Mountains City Council, Katoomba.

If you require membership forms for the Society to give to friends or colleagues then please contact the Secretary. Newly designed forms are now available.

Are you interested in a membership scroll (for framing etc.)? The idea has been mooted and the Executive of the Society are keen to get your views on it. One idea would be to charge a small fee for those members wanting one. Contact the Secretary with your views.

Riverina Branch of the Weed Society Formed

A meeting was held at the Wagga Wagga Winery on 15 May 1997 to form a Riverina branch of the Society. A total of 40 people attended the meeting with 38 further apologies. A talk was given by our guest speaker Professor Alistair Robertson - Charles Sturt University on 'Weeds in the Real World'.

President of the Weed Society, John Cameron, and Vice-President, Dan Austin, travelled from Sydney to attend the meeting. The following branch committee was elected.

President:

Richard Graham, Charles Sturt University (Wagga Wagga). Phone: 069 -332138 Fax: 069 - 332812

Vice-President:

Jann Williams, Charles Sturt University (Albury). Phone: 060 - 529622 Fax: 060 - 519897

Secretary:

Birgitte Verbeek, NSW Agriculture. Phone: 069 - 381911 Fax: 069 - 381809

Treasurer:

Mark Gardiner, Wagga Wagga City Council. Phone: 069 - 235257 Fax: 069 - 235396

Publicity Officer:

Toni Commens, CRC for Weed Management Systems. Phone: 069 - 332178 Fax: 069 - 332924

Committee Members:

Steve Sutherland, NSW Agriculture. Phone: 069 - 230424 Fax: 069 - 230429

Andrew Hodge, Farrer Centre for Conservation Farming. Phone: 069 - 381941 Fax: 069 - 381809

Peter Matthews, NSW Agriculture. Phone: 069 - 771277 Fax: 069 - 772333

Garth Wickson, Cyanamid Agriculture Pty Ltd. Phone: 069 - 256038 Fax: 069 - 256039

John Francis, H. Francis & Co. Phone: 069 - 26366 Fax: 069 - 216493

Neil Hibberson, Holbrook Shire Council. Phone: 060 - 362155 Fax: 060 - 362683

Doug Elliott, North Wagga Rural Skills Centre. Phone: 069 - 395000 Fax: 069 - 395025

Cheryl Paton, Murrumbidgee Landcare Facilitator. Phone: 069 - 230528 Fax: 069 - 230672

A farmer representative is also to be elected to the committee.

Our first committee meeting was held on 19 June at the Charles Sturt University, Thurgoona Campus at Albury. It was decided at this meeting that we would run a field day at the Agricultural Research Institute, at Wagga Wagga on Wednesday 15 October 1997. The field day will be run in conjunction with NSW Agriculture, the CRC for Weed Management Systems and Charles Sturt University.

Static displays, field demonstrations and talks will be given on the day covering the areas of weed identification, weeds in remnant vegetation, weeds in perennial pastures and forage legumes, herbicide tolerance in crops, competitive wheat crops, herbicide residues in stubble, bioherbicides for thistles, herbicide resistance screening, fumitory, wild radish and wild oats.

A field walk at Wagga Wagga's Willan's Hill looking at environmental weeds and remnant vegetation is also to be held later in the year.

There is much enthusiasm and excitement surrounding the formation of this branch of the Weed Society. Keep your eyes and ears open for future information about what we are doing.

We are working to raise community awareness and education about weeds, their costs and how to manage the problems that weeds present to our community. We want people to come along and participate in events, talk to the experts in the field and learn from their experiences.

If anyone requires further information about what the Riverina Branch is doing, please contact Toni Commens on telephone (069) 332178 or facsimile (069) 332924.

AGM and Dinner

The Annual General Meeting and Dinner of The Weed Society of New South Wales Inc. is to be held on Thursday, October 23, 1997 in the Wentworth Room at the Parramatta Leagues Club, Parramatta.

The AGM will be held at 6pm and will be followed by the Annual Dinner - 7 for 7.30pm. Dr Jim Cullen, Deputy Chief of the CSIRO Division of Entomology, Canberra, will be the guest speaker at the dinner. He will give an illustrated talk about 'Recent Advances in Biological Control of Weeds'.

The cost will be approximately \$30 per head. Last year a most interesting address was given by Dr Jim Kells from Michigan State University about 'Developments in Weed Management in the USA' and this year's address will be just as stimulating.

Contact the Secretary for further details.



Other 'Good Reads'

World Weeds: Natural Histories and Distribution

LeRoy Holm, Jerry Doll, Eric Holm, Juan Pancho and Hames Herberger.

John Wiley & Sons, New York, 1997, hardback, 1129 pages, ISBN 0-471-04701-5, Available in Australia through Jacaranda Wiley, Brisbane, for Australian \$350.00.

LeRoy Holm and his co-workers have become well known and respected among weed scientists throughout the world over the last twenty years for two very

important books - *The World's Worst Weeds* in 1977 and *A Geographical Atlas of World Weeds* in 1979. The former reviewed the biology, world distribution and impact of 88 of the world's most important weeds, whilst the latter provided information on the world distribution and country-by-country importance of about 8,000 weeds. The same authors have now provided us with yet another major reference book, this time reviewing a further 126 major weeds of the world. The series is unlikely to be bettered or even equalled for its scope and detail, and all three books will continue to be consulted and referred to for many years to come by those fortunate enough to have access to them.

The introduction to *World Weeds: Natural Histories and Distribution* suggests that the authors set out to identify and review the most important weeds of the world and that, after reviewing 212 of these, they feel that their joint endeavour is largely accomplished. The selection of species included in *The World's Worst Weeds* and *World Weeds: Natural Histories and Distribution* reflects the authors' overview of the world's weeds in their *Geographical Atlas of World Weeds* and the species that they have selected are those that have the most adverse impacts on agricultural cropping, including rice and other wetland crops and tropical plantations.

World Weeds: Natural Histories and Distribution is modelled on *The World's Worst Weeds* but goes much further, reviewing the biology, agricultural impact and global distribution of 126 major weeds not included in *The World's Worst Weeds*. Nearly all of the species in the latest book are significant weeds somewhere in Australia, and many of them occur as weeds in most of our States. The majority are annual grassy and broadleaved herbs of agriculture, including Australian weedy species of *Alopecurus*, *Amaranthus*, *Brassica*, *Carduus*, *Chenopodium*, *Cirsium*, *Coronopus*, *Cuscuta*, *Cyperus*, *Datura*, *Digitaria*, *Euphorbia*, *Hordeum*, *Lamium*, *Nicandra*, *Orobanche*, *Oryza*, *Papaver*, *Physalis*, *Poa*, *Polygonum*, *Raphanus*, *Setaria*, *Silybum*, *Sonchus*, *Trianthema* and *Urtica*. Important perennial weeds of Australian cropping and pastures include *Alternanthera philoxeroides*, *Cardaria draba*, *Chondrilla juncea*, *Eleocharis* spp., *Pteridium (aquilinum)*, *Stachytarpheta jamaicensis* and *Taraxacum officinale*.

Aquatic weeds include *Azolla pinnata*, *Elodea canadensis*, *Hydrilla verticillata*, *Lemna minor*, three species of *Ludwigia*, three of *Potamogeton*, *Spirodela polyrhiza*, two of our *Typha* species and *Vallisneria spiralis*. Australian woody weeds include *Cassia (Senna) tora* and *occidentalis* and *Ulex europaeus*.

Each of the reviews is drawn from very extensive literature searches and surveys, together with personal contact with researchers in the field, and the global distribution maps are drawn from the same sources. The maps record those countries and states for which each species has been recorded as a weed, inevitably leading to some questions as to the value of the map references (e.g. are *Senecio vulgaris* and *Chrysanthemum leucanthemum* really weeds in Queensland?) but, as the authors point out, the maps are indicative of global rather than local distribution.

The review of each species follows a fairly standard layout, starting with a statement of its origin and global importance, a description of the plant and its variations, its habitat/s and global distribution, and a generally very detailed description of its biology and ecology including reproduction, germination, growth, flowering and pollination, fruit formation, dispersal and dormancy, physiology, uses (if any) and other relevant information. Population dynamics are considered where known, as are the plant's competitive abilities and impacts, the effects of various control methods (but not details of its chemical control) and, where appropriate, the development and types of resistance to herbicides. The agricultural importance of each weed is fully considered and additional sections are provided where appropriate, e.g. for nitrogen fixation in *Azolla*, haustorial anatomy in *Cuscuta*, pharmacology of *Datura* and toxicity of *Heliotropium* and *Pteridium*. Each review is accompanied by a detailed line drawing of the plant and a map of its global distribution as a weed (by States for Australia).

The reviews are followed by a comprehensive bibliography listing over 3,300 references, including those of many Australian weed scientists. An extensive list is provided of common scientific names of the weeds included in the text and the book is completed by a comprehensive index.

World Weeds: Natural Histories and Distribution is and will remain for many

years an essential reference for Australian weed scientists. It should be available in the library of every relevant research station, university and technical college and on the shelves of more isolated weed scientists working in the agrochemical, agricultural, horticultural, plantation and aquatic industries. Although it will never become out of date, it will, unfortunately, become out of print. Despite its price, I strongly recommend access to *World Weeds: Natural Histories and Distribution* to all Australian weed scientists.

J.T. Swarbrick

CSIRO Handbook of Australian Weeds

M. Lazarides, K. Cowley and P. Hohnen

Weeds are everywhere. They plague our crops and pastures, threaten the viability of many plant communities, reduce our enjoyment of natural areas, and provide a never-ending source of work in our gardens.

Compilation of the Handbook has been achieved through a comprehensive search of recent scientific publications, including taxonomic monographs and revisions, Australian, State and regional flora treatments, and regional or specialised studies on specific plant groups of economic significance.

This book is essentially an updated subset of the data contained in the CSIRO Handbook of Economic Plants of Australia. It lists names of Australian weeds with a small amount of other relevant information.

The scientific name, together with the preferred common name, is annotated with additional information on economic uses, life form and characteristic features of habit, geographic distribution and, in many species, comments on noteworthy features.

The distribution of each weed within Australia is indicated at the State level on shaded, computer-generated maps.

Features include an easy to use cross-referenced index of common and scientific names; an up-to-date authoritative listing of correct scientific and preferred common names of over 2750 weed species; a broad interpretation of weed to include deliberate and accidental introductions and indigenous invasive weeds; plant distribution data at a State level available at a glance; and a quick reference source for a

range of information, including uses, life form and distribution.

1997, 272 pp, illust, paperback, 0 643 05981 4. Available from CSIRO Publishing Australia, PO Box 1139, Collingwood, Victoria 3066, phone (03) 9662 7666, fax (03) 9662 7555. Cost is \$49.95 plus \$8 for handling and postage.

Upcoming Events

The Sixteenth Asian-Pacific Weed Science Society Conference

Hilton Hotel in Kuala Lumpur, Malaysia, from 8-12 September, 1997.

The Asian-Pacific Weed Science Society is our regional weed science group, covering the largest area of any regional weed science society (from Iran to the west costs of North and South America) and more people than any other regional weed science society. Conferences are held in a different country every two years (the next will be in the Philippines in 1999) and are the most important regional forums for meeting and exchanging news, techniques and ideas among weed scientists throughout the region.

The theme of the conference is Integrated Weed Management Towards Sustainable Agriculture. Half-day sessions will cover Weed Biology and Ecology, Progress in Herbicide Research and Development, Advances in the Biochemistry, Physiology and Performance of Herbicides, Herbicide Resistance and its Management, Weed Management in Food Production Systems, Weed Management in Permanent Agro-ecosystems, Integrated Weed Management with Biological Control Approaches, and Education, Training and Decision-making. Each half-day session will start with a plenary lecture before dividing into three concurrent sessions relating to the topic. There will also be four different full day excursions, each combining business with pleasure. Lower cost accommodation is available through the organisers.

For further information on the conference, the Secretariat can be contacted through the Internet via <http://www.cc.um.edu.my/conf.html>, by fax on 60-3-759-4178 (BH Baker), or email: baki@botany.um.edu.my. The Editor also has a copy of the full program.

**Landcare: Changing Australia, Adelaide
16-19 September 1997**

Contact: Andrew Curtis, State Landcare Coordinator, GPO Box 1671, Adelaide SA 5001, fax: 08 8303 9339, email: landcare@pi.sa.gov.au

ABC Landline to Feature Weeds

12th-19th of October

To coincide with Weedbuster Week, the ABC Landline television program is to feature a story on weeds. Much of the filming has been done in NSW so put it in your diary to watch Landline around the 12th-19th of October. The program is normally screened on Sunday at 12pm and then repeated on Monday at 1pm.

Progress in Spraying Safely and Efficiently

Mildura Country Club - Monday 27 - Thursday 30 October 1997

The aim of this course is to provide training which alerts participants to advances in how to apply agrochemicals more safely and efficiently with particular emphasis on vineyard spraying. The value of GPS in reducing inputs will also be explored.

Specific objectives of the course will be to update delegates on formulations, nozzles types and droplet size distribution; improved spray retention; minimising spray drift; ground positioning systems (GPS) as an aid in pest management and reducing pesticide inputs; and best practices for vineyard spraying.

Further details available from the Secretary, Leon Smith.

**Brighton Crop Protection Conference
1997, UK**

17-20 November 1997


Contact: DV Alford, ADAS, Brooklands Ave, Cambridge CB2 2BL, fax: 44-1223-455624

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