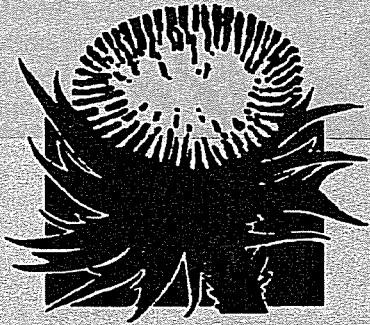


A Good Weed

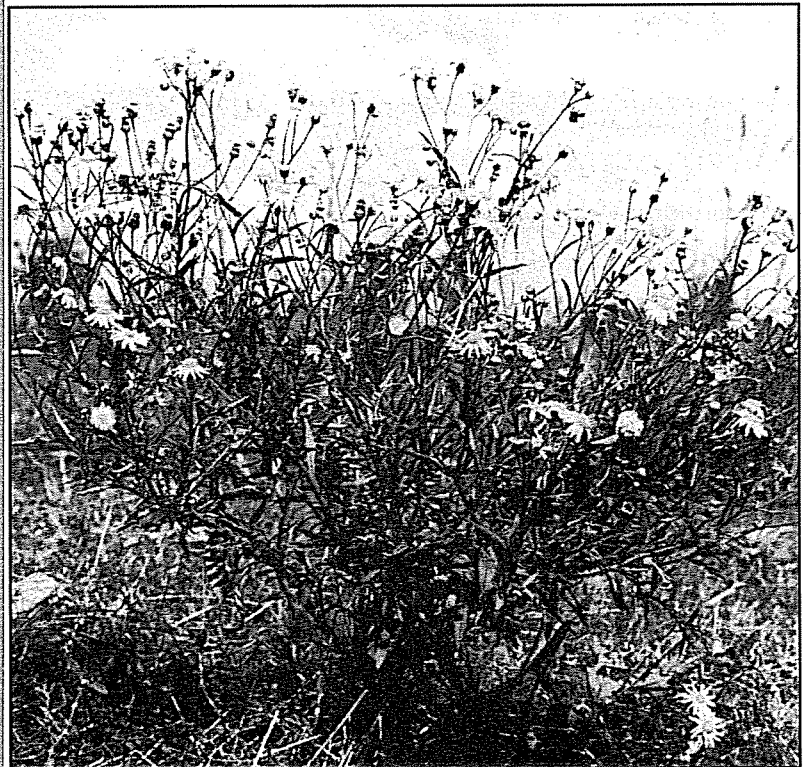


the NEWSLETTER of
The Weed Society of New South Wales Inc
ISSN 1325-3689

14
July 1998

THIS ISSUE

Fireweed - a hot topic	2
Weed navigator coming soon	6
Himalayan honeysuckle (<i>Leycesteria formosa</i>)	6
National competency standards for weed control staff	7
Invading plants pose a threat to the U.S.	8
Travel study grants available	9
Members matter and money matter\$	9



Fireweed
Senecio madagascariensis
Whole flowering plant

**WEED SOCIETY
EXECUTIVE**

Dan Austin
(President)

Robert Plumbe
(Vice President)

Leon Smith
(Secretary)

Alex McLennan
(Treasurer)

Brian Sindel
(Newsletter Editor)

Mike Barrett
Gary Beehag
Mike Boulton
Louise Brodie
John Cameron
Jim Dellow
Richard Graham
Lawrie Greenup
Graham Harding
Mike Hood
Jane Mallen-Cooper
Peter Michael
Allan Murphy
Val Stubbs
Jim Swain
Gordon Tink
John Toth
Bob Trounce
Birgitte Verbeek

Editor: Brian Sindel
Division of Agronomy and
Soil Science, University of
New England, Armidale
2351

Ph: (02) 6773 3747
Fax: (02) 6773 3238
bsindel@metz.une.edu.au

Secretary: Leon Smith
8 Darwin Drive,
Lapstone 2773
Ph/fax: (02) 4739 3564
nswweedsoc@bigpond.com.au

A Good Weed is published
four times per year by the
Weed Society of New
South Wales, PO Box 438
Wahroonga 2076.

Printed by the University
of New England

Packaged by the Challenge
Foundation in recycled
plastic

Fireweed

A Hot Topic

Fireweed, the predominant yellow-flowering weed of pastures along the coast of NSW is a hot topic in southeastern Queensland where it is now spreading rapidly. Having come back from a Brisbane workshop to address the problem, Brian Sindel, in this article, overviews the way forward with this troublesome weed.

The plant was introduced into Australia to the Hunter Valley region around 1918 (most probably through shipping) from its native range in southern Africa and/or Madagascar. From there it has spread north and south throughout coastal New South Wales and into southern Queensland where it is causing particular concern. It is also especially abundant in the Richmond, Manning and Hunter Valleys, in the County of Cumberland and between Wollongong and Berry on the south coast of NSW.

But interestingly, for almost all of the time from its introduction until 1980, fireweed was thought to be part of one of our similar, and yet quite variable native Australian species *Senecio lautus*, known commonly as variable groundsel. Unlike fireweed, variable groundsel is widespread in all but northern tropical areas of Australia.

It was only following taxonomic work being done on this genus in Natal in southern Africa in the late 1970s and the fact that Peter Michael from Sydney University sent specimens of fireweed over to South Africa, that we realised that we were in fact dealing with the southern African plant *S. madagascariensis*.

Like other weedy species, although assuming little significance in its place of origin, fireweed has invaded and causes serious problems in agricultural areas elsewhere in the world, including Australia and Argentina.

Recognition

Correct identification of fireweed and its differentiation from *S. lautus*, with which it is most easily confused, has been critical for implementing weed management strategies, particularly biological control. Such differentiation has also been important because members of the native variable groundsel complex are essentially non-weedy and occur in areas where fireweed is unlikely to grow.

Several features such as leaf shape and morphology of the seeds have been important, but probably the key distinguishing characteristic of fireweed is its 20 to 21 involucre bracts.

There have been some people who were sceptical of the differences between *madagascariensis* and *lautus*, but recent studies at the Universities of Sydney and Queensland have shown clear genetic differences between the two species and provide further evidence that Australian fireweed is *S. madagascariensis*.

Ecology

Well why is this plant so successful in Australia? One of the main reasons is that it is an opportunistic species, able to invade a wide range of habitats. Data from an extensive farmer survey indicate that no one situation on farms seems to favour the growth of fireweed over any other. It occurs equally in improved pastures as it does in native pastures and almost equally on low fertility soils as it does on high fertility soils. We know from other experiments that fireweed responds vigorously to increasing soil nutrient status but can also tolerate low fertility conditions. As these data would suggest, fireweed is also well adapted to both overgrazed and disturbed pastures.

Crops grown along the coast often show the stimulatory effect of cultivation on the germination of fireweed.

Fireweed seedlings are able to establish at almost any time of the year (at least around the County of Cumberland), although there are distinct peaks in

germination in autumn and spring. This staggered pattern of emergence ensures that some seedlings will survive even if many are killed by adverse conditions during establishment. The plant behaves mostly as an annual but under more favourable undisturbed conditions some plants are able to survive over summer into a second year of growth.

Impact

In Australia, fireweed has had considerable impact on agriculture due to its invasiveness, because of its competitiveness with useful pasture species, and because of its toxicity to livestock. For the dairy industry in New South Wales, it was estimated back in 1985 that control costs alone amounted to some 100,000 man hours and \$250,000 annually.

Since introduction, the number of farms infested with fireweed has increased exponentially so that in 1985 fireweed occurred on 90% of farms surveyed from eight regions along the coast of NSW. In the Gloucester area, the rate of spread had levelled off while in the Taree area, fireweed colonised all farms in a period of just 20 years.

...fireweed has had considerable impact on agriculture due to its invasiveness, because of its competitiveness with useful pasture species, and because of its toxicity to livestock.

You find fireweed predominantly in poorly grassed, neglected and heavily grazed pastures as well as on cultivated land during the autumn to spring period. In most of these areas it has the competitive advantage of active winter growth when production from the summer-active pastures is low.

The avoidance of the weed by cattle, not only favours the plant's growth, and competitiveness, but can also lead to a considerable reduction in the effective grazing area.

Hence, in an experimental crop of grazing oats, fireweed at a density of 40

plants m² reduced pasture yield by over 70% and reduced the available grazing area by over half. However, experiments by Ian Radford from Sydney University designed to quantify actual production losses in existing pastures due to fireweed have proven inconclusive, mainly due to drought conditions during the study period.

Like many *Senecio* species fireweed contains a pyrrolizidine alkaloid, in this case senecionine, which when ingested by livestock accumulates and damages the liver so as to reduce growth and in severe cases cause death.

Conflicting opinions as to the risk to livestock grazing infested pastures arise from the fact that fireweed is generally unpalatable to cattle and horses, possibly due to a bitter flavour of its alkaloids. Where its ingestion cannot be avoided, such as in pastures heavily infested with young plants, poor quality pastures and in contaminated hay and silage, poisoning is more likely to occur.

...a vigorous competitive pasture forming a closed canopy in the autumn to spring period is likely to offer the best long term control.

Poisoning from prepared feeds is of particular concern given that 24% of all graziers in my 1985 survey found fireweed in pasture or crops used for hay or silage. Nevertheless, despite its toxic potential, the level of *acute* stock poisoning from fireweed is apparently low.

Potential distribution

In some areas with a long history of infestation, the spread of fireweed from one farm to another has ceased, whereas over its range as a whole, it is still spreading rapidly. Bioclimatic analysis of the current distribution of fireweed in Australia and latitudinal limits in Africa and South America suggest that there is opportunity for further movement of the weed in Australia beyond its current boundaries but that it will remain restricted to south-eastern Australia (in its broadest sense).

From that study and based on the established localities, the predicted distribution closely followed the actual

distribution along the coastal fringe of south-eastern Australia, with a few minor additional areas.

With the addition of outliers from the highlands and western slopes and plains of New South Wales in the definition of the climate profile, a much greater potential distribution was predicted. At present the only outlier which shows appreciable colonising ability is at Dubbo where the climate is much drier compared to coastal areas of south-eastern Australia.

Here the weed has been introduced in livestock feed from the coast and is thriving in a micro environmental niche around water holes and irrigated areas in the confines of the Western Plains zoo. So the spread of fireweed to other inland irrigated areas remains a strong possibility.

On the other hand, distribution data from southern Madagascar indicates that fireweed may be climatically suited to vast areas across northern Australia receiving at least 400 mm of rainfall annually. However, DNA sequencing and isoenzyme analysis show that Australian populations are genetically closer to plants from South Africa (Natal) than from Madagascar. *S. madagascariensis* is also non-weedy in the semi-arid environment of south-western Madagascar and differs in form to the predominant invasive ecotype in Australia. For these reasons, it is suggested that the use of data from Madagascar for predicting the potential distribution of fireweed in Australia is unlikely to be as reliable as the conservative use of current Australian distribution data.

Is this weed still a major problem?

The answer to this question would have to be yes, though it is probable that the longer the weed is present on farmers' properties, the more they learn to live with it to some extent. So while perceptions may have changed over the last 10 years since the initial survey data on fireweed, the problem does not seem to have declined in significance.

Has enough been done and if not, what needs to be done?

While there has been some very productive research over the last few years, principally on the genetic make-up of fireweed (this will be most valuable for biological control), little has been done to successfully fill the

knowledge gaps that were identified at the conclusion of my PhD thesis in 1989.

Ecology

For instance, gaps in our understanding of the ecology of fireweed still remain. This is particularly the case in terms of seed bank dynamics in the soil/pasture system. Experiments designed to determine the longevity of fireweed seed in the field under a range of pasture/crop conditions and at different depths in the soil, and to find out where seeds occur in the profile, will provide valuable information for control purposes.

For example, if seed all occurs on the soil surface and loses viability after a couple of years then several years of control may reduce seedbanks to virtually zero. However, an examination of wind dispersal of seed needs to be linked to this study because this sort of strategy would obviously not work if seed could be blown in from neighbouring properties several kilometres away every year.

Impact

As to the impact of fireweed on agriculture, research needs to focus on two areas. One area is the grazing habits of livestock. Trials designed to estimate the reduction in the availability of pasture to livestock due to fireweed need to be undertaken. Likewise, the amount of fireweed consumed by cattle in the field and in prepared feeds needs to be measured. The influence of this consumption on animal performance should also be ascertained.

The second area for research is pasture/weed competition. The size of productivity losses that result from fireweed competition in the field (and hence possible economic losses) need to be determined for a range of pasture types. Included in such studies should be measurements of population dynamics both with and without control measures.

Control

Despite the importance of fireweed, very little work has been done on its management, and that has been mostly confined to work with herbicides, the elucidation of the principles of control, and preliminary studies on biological control. Dairying and other grazing industries in coastal eastern Australia stand to benefit

markedly in the long term from fireweed control.

Grazing with sheep and goats, and slashing, have both shown promise as methods of control, but more research is still required to determine the effect of such defoliation on the growth, life cycle and seed production of fireweed.

Although fireweed responds vigorously to increased soil fertility, fertiliser applications may be of substantial benefit if timed to promote pasture growth and reduce fireweed establishment at high germination periods. Studies on the timing of fertiliser applications and long term control work with competitive pastures and grazing management to promote such competitive pastures during peak weed germination periods are yet to be carried out and should be a high priority for research.

Although the herbicide bromoxynil has proved to be effective in killing fireweed, it is a short term and expensive solution. On the other hand, a vigorous competitive pasture forming a closed canopy in the autumn to spring period is likely to offer the best long term control.

Biological control methods have yet to be fully investigated and I believe that CSIRO currently has an application in for funding for further agent collection and testing from southern Africa. If successful this could prove to be highly beneficial in an integrated approach to fireweed control.

✍

Typical fireweed infestation from coastal New South Wales. . ①





Weed Navigator

coming soon



Finding the right person or information to solve that agricultural or environmental weed problem will now be easier with the launch of the Weed Navigator in August this year.

This new publication by the Weed CRC is the first point of call to find your way around the weed world in Australia and New Zealand. With more than 2800 entries, the Weed Navigator is the most comprehensive weed contact and information guide currently available.

The first part of the Weed Navigator, the Contact Directory, lists over 970 weed contacts including names, addresses, email, phone, fax, web sites, and newsletters. The second part, the Resource Guide, lists and describes over 1800 publications including brochures, web sites, CD ROMS, legislation, posters and training opportunities.

Kate Blood, from the Weed CRC and one of the authors, says, "the Weed Navigator will become one of the most used tools in the library of people managing weeds in agricultural and natural areas".

"The Weed Navigator is user friendly and will save people lots of time when searching for information and contacts. Already we have had a good deal of interest from farmers, Landcare groups, bush regenerators, Rangers, Conservation and Weed Officers, scientists and teachers."

Andrew Bishop, a senior weed officer for the Department of Primary Industries in Tasmania is impressed by the publication. "What a mammoth undertaking! The Weed Navigator will be one of the most useful weed resources produced".

Copies of the Weed Navigator will be available from the Weed CRC for Aus \$30 in August 1998. Phone: (08) 8303 6590, fax (08) 8303 7125 or email: crcweeds@waite.adelaide.edu.au Or post order and payment (cheque made payable to CRCWMS or VISA, Mastercard, Bankcard details) to: CRCWMS, University of Adelaide, PMB 1 Glen Osmond, SA 5064. ✍

Himalayan Honeysuckle (*Leycesteria formosa*)

By Kate Blood

Himalayan Honeysuckle, or Elisha's Tears, is one of the serious environmental weeds invading Australia. It has been recorded in several States and threatens other higher

rainfall areas of Australia. It particularly likes sheltered locations in gullies and on protected hillsides. New South Wales has occurrences in the water courses of the Blue Mountains.

Originating in Himalaya, lots can be learnt about this plant in New Zealand where it is a widespread environmental weed threatening natural vegetation and causing problems in forestry production areas.

About the plant and how it spreads. This deciduous multi- and hollow-stemmed

shrub (up to 4m) is used in gardens for its lush green leaves and drooping crimson and white flowers. The leaves occur in opposite pairs, are ovate in shape and taper to a narrow point. It is frost-resistant and drought-tender.

The purple to pink-white funnel-shaped flowers (2cm in length) occur in pendant leafy chains which sprout from the axils of the uppermost leaves. Two to eight rings of radiating floral leaves (or bracts) resembling the foliage and tinged with a deep purple-red colour occur at the base of the flowers. These are followed by the fruit which are dark crimson berries (sometimes ranging from green to purplish black). Birds, foxes and deer eat the fruit and spread the seed (each fruit can contain more than 100 small seeds) in their droppings. The seeds can also be spread by water, machinery, vehicles and in soil. The fruit may be poisonous.

Flowering occurs in late spring to summer with berry fruit ripening until autumn.

It shares other weedy relatives within the Caprifoliaceae family such as Japanese honeysuckle (*Lonicera japonica*), common elder (*Sambucus nigra*) and laurestinus (*Viburnum tinus*).

Control of Himalayan Honeysuckle. Ensure treatment occurs before berries form. Mulch and/or revegetate the treated site with indigenous plants to prevent other weeds establishing themselves.

Himalayan honeysuckle is capable of withstanding repeated fuel reduction burning, and can rapidly colonise undisturbed bushland. Disturbance, such as fire, of areas near a contained infestation can allow the plant to establish beyond the containment area.

What can I do next? Remove the plant from gardens and replace with a non-invasive species or, better still, an indigenous plant from your local area. Always dispose of your garden prunings responsibly and consider helping local volunteers eliminate this plant and other environment weeds from local bushland. Encourage your local nursery to sell environmentally friendly

plants. ✍

Note this information →

National Competency Standards for Weed Control Staff

A Steering Committee was formed to develop national competencies for weed control staff. The lead agency is NSW Agriculture who have employed David Hislop to put together the competencies.

The states are represented by Richard Carter (NSW), John Cross (Qld), John Pitt (NT), David McKenzie (Vic), Andrew Bishop (Tas), Paul Jupp (SA) with ACT and WA to be announced. Other representation will include a nominee of the Rural Industries Training Council of Australia, the ACTU, the Australian Local Government Association and Judy McMaugh representing vocational training providers.

The proposal is for each state to establish a consultative group involving key stakeholders. After initial compilation of appropriate, currently available, national standards, David will use standards developed by local councils and other employers to prepare the framework for consultation with state groups in September and October 1998. The State consultative groups will have the opportunity to comment further after the first draft is developed late in 1998.

Currently the process is funded by NSW Agriculture, however, other funds are being sought to complete the project.

David would appreciate receiving any competency standards which cover weed control activities, especially any used by weed control contractors.

For more information contact Richard Carter (02) 6391 3771 fax (02) 6391 3740 email carterr@agric.nsw.gov.au or David Hislop (02) 4939 8911 fax (02) 4938 5549.

New email address for the Secretary of the Weed Society (Leon Smith) is :
nswweedsoc@bigpond.com.au

Invading Plants Pose an Expensive Threat to U.S.

Lest anyone think that we are alone in NSW in our battle against weeds, read on for an American commentator's dramatic view of the weed issues in the United States, courtesy of IPMnet News on the Web and based on information from the U.S. Department of the Interior.

The results of a study conducted by a high-level, multi-agency U.S. government committee concluded that the invasion and build-up over time of non-native noxious plants now poses a major threat to the nation's landscape, biodiversity, and economy.

"The invasion of noxious weeds has created a level of destruction to America's environment and economy that is matched only by the damage caused by floods, earthquakes, wildfire, hurricanes, and mudslides," B. Babbitt, U.S. Secretary of the Interior, said. "This is truly an explosion in slow motion by opportunistic alien species with few if any natural enemies."

The committee's report, to be published soon as the fact book, *Invasive Plants: Changing The Landscape Of America*, found a staggering increase in weed-caused losses and costs, estimated at US\$20 billion in the 1990s, a 300 percent increase over four decades. The march of non-native plants across the U.S. landscape is so pervasive that the unique differences of regional plant communities are blurring, according to the report, which is characterised as a systematic attempt, involving 17 partner agencies, to define the seriousness of the problem.

Over the past decade, the report notes devastating impacts from invasive species have been reported on every continent except Antarctica. In the U.S., introduced invasive plants comprise from 8 to 47% of the total flora of most states, a figure especially alarming considering a recent report from the International Union for the Conservation of Nature documenting that one in eight plant species is globally threatened with extinction.


Invasive plants are those that have been introduced into an environment in which they did not evolve. The invaders usually have no natural enemies to keep them in check, thus allowing them to flourish and spread. Aggressive non-native species often have a serious impact on native species; about two-thirds of all endangered species are threatened by non-native species, and as native plant species decline, fauna dependent on them for food and habitat also may be jeopardised.

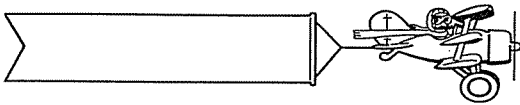
The report's authors blame the increase and spread of invasive plants on increasing human population leading to greater disturbance of the land, increased demand for food and fibre, overuse of public land for recreation and commercial purposes, increased international travel, and globalization of world trade. The problem is compounded, the report adds, because "many introduced plants appear innocuous when first introduced; these plants then adapt, and, in the absence of their co-evolved predators, explode in their new environment."

The report calls the threat of invasive weeds "biological pollution" and "a silent green invasion." The head of a cooperating agency explained that, on a plant-by-plant scale, the effects of these plant invaders are often subtle. "It's like metastatic cancer," he said. "It starts with a single individual or seed and then is carried to other places by people or nature where nodes get established and proliferate, eventually affecting entire ecosystems."

The report (and publication) were developed by many of the federal agencies (and others) with weed management responsibilities in the U.S. as part of the Federal Interagency Committee for the Management of Noxious and Exotic Weeds. In 1994, in response to the economic and biological threats posed by invasive plants, these agencies began collaborating to develop biologically sound techniques for managing invasive plants on both federal and private lands. After noting the lack of adequate surveys and reliable monitoring data for many of these invaders, the interagency committee cooperated with more than 100 outside authorities to publish a national strategy on the management of invasive plants.

"This fact book will help readers understand the scope and magnitude of the problem," Babbitt observed. "We hope it

will encourage them to act, to help us control the invaders that are already here and prevent future invasions. People are carrying plants or their seeds from the far reaches of the globe into every corner of our nation to compete with and often to destroy the wonderful variety that nature once gave us." 



Travel Study Grants Available

Travel Study Grants, funded by the Weed Society, are now available to financially assist individuals to attend conferences or to travel on specific interstate or overseas study tours. Grants are normally for the period from 1 July to 30 June each financial year and must be taken up during the stated period. This time the period of the grants will be extended to 30 September, 1999 to cover attendance at the Australian Weeds Conference in Hobart. The grant is open to persons over 18 years of age who are involved with weed research, extension, regulation or practice. Studies of limited interest to the Society will not be considered.

Applications will only be considered from persons who reside in NSW or the ACT. Members of the Society may be given preference. Rarely will the grant meet the full expenses of travel so applicants must arrange additional funds from other sources. Applicants attending conferences are expected to contribute to the conference.

Grantees are expected to return to service within NSW. They will be required to submit a succinct written report for publication in this newsletter soon after returning to duty and/or pass on results of the assignment to other workers in an appropriate manner, e.g. seminar or meeting.

Applications are to be forwarded as soon as possible, but no later than 31 March 1999 to: The Secretary, The Weed Society

of New South Wales Inc., PO Box 438, Wahroonga 2076.

Application forms are available from the Secretary at the above address or by telephoning Leon Smith (02) 4739 3564.

Members Matter and Money Matter\$

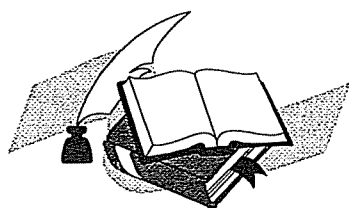
Some members have not yet paid their annual subscription. A reminder notice was sent out some time ago. Please dig this out and send a cheque to the Treasurer today!!

We welcome the following new members and hope that you will get involved in the Society for the benefit of all members. We particularly look forward to contributions to this newsletter and your attendance at the AGM and Annual Dinner if you can make it.

*A.J. Gresser, Cowra
David Hehir, Wagga Wagga
Stephen Johnson, University of New England, Armidale
David Neave, Andersons Hill
Ian Parr, Forbes
Colin Young, Orange*

Membership List

You will have already noticed that the first edition of The Weed Society Membership List has been mailed out with this edition of the newsletter. The details in such a list are likely to be continually changing and will therefore need updating and correcting. Enclosed with the membership list is a sheet which you should complete and return to the Society with any corrections and additions to be included in the second edition which will be published in the near future.



Other 'Good Reads'

Plant Invasions: Studies From North America And Europe

Edited by J.H. Brock, *et al.*, 223 pp., 1997, is available from: Backhuys Publishers, PO Box 321, 2300 AH Leiden, THE NETHERLANDS.



Upcoming Events

1998

10-12 August INTERNATIONAL SYMPOSIUM ON WILD AND WEED RICES IN THE AGRO-ECOSYSTEM, Ho Chi Min City, VIETNAM. Contact: D.V. Chin, Cuulong Delta Rice Research Institute, 9B Cach Mang Thang Tam Street, Cantho City, Cantho Prov., VIETNAM. Fax: 84-71-861457. E-mail: <chinclrri@bdvn.vnd.net>

11-13 August 51ST NZ PLANT PROTECTION SOCIETY CONFERENCE, Hamilton, NEW ZEALAND. Contact: A. Rahman, Ruakura Agric. Research Centre, Private Bag 3121, Hamilton, NEW ZEALAND. Fax: 64-7-838-5073. E-mail: <rahmana@agresearch.cri.nz>. Phone: 64-7-838-5280.

17-21 August 5TH INTERNATIONAL SYMPOSIUM ON ADJUVANTS FOR AGROCHEMICALS, Memphis, TN, USA. Contact: A. Underwood, ISAA, C/- Helena

Chem. Co., 6075 Poplar Avenue, Suite 500, Memphis, TN 38119, USA. Fax: 1-901-761-2640. Phone: 1-901-537-7260.

23-28 August 6TH INTERNATIONAL MYCOLOGICAL CONGRESS, Jerusalem, ISRAEL. Contact: Secretariat, PO Box 50006, Tel Aviv, 61500, ISRAEL. E-mail: <mycol@kenes.ccmil.compuserve.com>. Fax: 972-3-5175674. Phone: 972-3-5140014.

23-29 August 6TH EUROPEAN CONGRESS OF ENTOMOLOGY, Ceske Budejovice, CZECH REPUBLIC. Contact: T. Soldan, Institute of Entomology, AS CR, Branisovska 31, 370 05 Ceske Budejovice, CZECH REPUBLIC. E-mail: <soldan@entu.cas.cz>. Fax: 42-0-38-43625. Website: <www.jcu.cz/~entu>.

14 September ECOLOGY AND MANAGEMENT OF RIPARIAN WEEDS WORKSHOP, Loughborough, UK. Contact: M. Wade, Intl. Centre of Landscape Ecology, Dept. of Geography, Loughborough Univ., Loughborough LE11 3TU, UK. <p.m.wade@lboro.ac.uk>. Fax: 44-1509-223931. Phone: 44-1509-223030.

22-25 September 10TH INTERNATIONAL SYMPOSIUM ON AQUATIC WEEDS, Lisbon, PORTUGAL. Contact: APRH Secretariat, 10th EWRS Aquatic Weed Symposium, Laboratorio Nacional de Engenharia Civil, Avenida do Brazil 101, 1799 Lisboa Codex, PORTUGAL.

23-26 September 4TH INTERNATIONAL WORKSHOP ON OROBANCHE RESEARCH, Albenza, BULGARIA. Contact: K. Wegman, Waldhauserstrasse 37, D-72076 Tubingen, GERMANY. Fax/phone: 49-707-164-658.

26-29 September 29TH AUSTRALIAN ENTOMOLOGICAL SOCIETY MEETING AND SCIENTIFIC CONFERENCE, Brisbane, AUSTRALIA. Contact: S. Brown, ICTE, Univ. of Queensland, Brisbane, QLD 4072. <sally.browne@mailbox.uq.edu.au>. Phone: 61-7-3365-6360. Website: <www.ctpm.uq.edu.au/Education/ApplyEdEnto.html>.

29 September - 2 October 6TH AUSTRALASIAN APPLIED ENTOMOLOGY RESEARCH CONFERENCE, Brisbane, AUSTRALIA.

Contact: S. Brown, ICTE Conferences, Univ. of Queensland, Brisbane, QLD 4072, E-mail: <sally.browne@mailbox.uq.edu.au>. Phone: 61-7-3365-6360. Website: <www.ctpm.uq.edu.au/Education/AppliedEnto.html>.

18-23 October (repeats 25-30 October) **HERBICIDE ACTION INTENSIVE COURSE**, West Lafayette, IN, USA. In-depth survey of the activity, behaviour, and fate of herbicides in plants and the environment. Contact: S.C. Weller, 1165 Horticulture, Purdue Univ., West Lafayette, IN 47907-1165, USA. E-mail: <weller@hort.purdue.edu>. Fax: 1-765-494-0391. Phone: 1-765-494-1333.

25-29 October **REGIONAL SYMPOSIUM FOR APPLIED BIOLOGICAL CONTROL IN MEDITERRANEAN COUNTRIES**, Cairo, EGYPT. Plenary sessions, posters, workshops (entomophagous predators, parasitoids, entomopathogenics); official language is English. Contact: S.A. El Arnaouty, Sec-Gen., Center of Biological Control, Fac. of Agric., Cairo Univ., Giza, EGYPT. Fax: 202-570-2134. E-mail: <LEC@brainy1.ie-eg.com>. Phone: 202-569-5686.



Annual Dinner and AGM

The date for this important event is Thursday 29 October with the venue being the Dundry League Golf Club at Orange. Plan now to attend.

31 October - 4 November **JOINT MEETING, ENTOMOLOGICAL SOCIETIES OF CANADA AND QUEBEC**, "Today's Basic Research, Tomorrow's IPM," Chateau Frontenac, Quebec, CANADA. Contact: J. Delisle, Centre de Foresterie des Laurentides, 1055 rue du PEPS, Sainte-Foy, QUE. G1V 4C7, CANADA. E-mail: <jdelisle@cfl.forestry.ca>. Fax: 1-418-648-5849. Phone: 1-418-648-2526.

8-12 November **AMERICAN PHYTOPATHOLOGICAL SOC. and ENTOMOLOGICAL SOC. OF AMERICA JOINT MEETING**, Las Vegas, NV, USA. Contact: C.S. Dacus, APS, 3340 Pilot Knob Road, St. Paul, MN 55121-2097, USA. E-mail: <corie@scisoc.org>. Fax: 1-612-454-0766. Phone: 1-612-454-7250.

1999

25-28 January **WORKSHOP OF THE SEARS/IOBC WORKING GROUP ON GREENHOUSE/PROTECTED CROPS IPM**, "Natural Enemy to Biological Control Agent: Evaluating the Process," Sydney, AUSTRALIA. The event is primarily for researchers and IPM practitioners concerned with protected crops. Contact: S. Goodwin, Horticultural Research & Advisory Station, NSW Agriculture, PO Box 581, Gosford NSW 2250, AUSTRALIA. Email: stephen.goodwin@agric.nsw.gov.au Fax: 61-2-434-81910. Phone: 61-2-434-81929.

28 June - 1 July **11TH EUROPEAN WEED RESEARCH SOCIETY SYMPOSIUM**, Basel, SWITZERLAND. Contact: EWRS Symposium 1999, C/- FAW, CH-8820, Waedenswil, SWITZERLAND. Fax: 41-62-868-6341. <Daniel.Gut@wae.faw.admin.ch>. Phone: 41-1-763-6111. Website: <www.res.bbsrc.ac.uk/ewrs/ewrs_symp.html>.

5-9 July **10TH BIOLOGICAL CONTROL OF WEEDS INTERNATIONAL SYMPOSIUM**, Bozeman, MT, USA. Contact: N.R. Spencer, USDA/ARS, 1500 North Central, Sidney, MT 59270, USA. Fax: 1-406-482-5038. E-mail: <nspencer@sidney.ars.usda.gov>. Phone: 1-406-482-9407. Website: <www.symposium.ars.usda.gov/>.

12-16 September **12TH AUSTRALIAN WEEDS CONFERENCE**, Hobart, Tasmania, AUSTRALIA. Contact: Conference Design, PO Box 342, Sandy Bay, Tasmania 7006, AUSTRALIA. Fax: 61-03-6224-3774. E-mail: <mail@cdesign.com.au>.



A Good Weed

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

Print Post Approved
PP247134/00010

SURFACE
MAIL

POSTAGE
PAID
AUSTRALIA



The Weed Society acknowledges the generous support of Dow AgroSciences Aust Ltd, Frenchs Forest, and Eagle Environmental Services, Lidcombe, for their sponsorship of

A Good Weed.