



# Australian Association of Bush Regenerators (WA) Inc

Volume 15 Issue 5

NEWSLETTER

November 2007

## Effectiveness of 2,2-DPA in Controlling *Babiana*, *Ixia* and *Allium* in Native Bushland

Easton S D, Dixon I R, Broomfield S J

**I**ntroduced geophytes pose a serious threat to bushland communities. While restricted in distribution within Kings Park, *Allium*, *Babiana* and *Ixia* species have the potential to spread rapidly impacting upon biodiversity. With encouraging results from the use of 2,2-DPA (Propon) on *Watsonia* species within the bushland it was decided to trial the herbicide on *Babiana angustifolia*, *Ixia maculata* and *Allium triquertrum*.

Concentrations were chosen based on full and half recommended rates for *Watsonia* control, (740g/kg 2,2-DPA) at 5 and 10 kg/ha plus the surfactant Agral at 3.5ml/L. Plots with sufficient weed cover were selected and sprayed at a rate of 400l/ha. It was noted that, particularly with the *Ixias*, smaller plants displayed variable wetting, it was also noted that due to their dense upright nature coverage was not absolute. Due to growth conditions *Allium* plants

exhibited elongated growth this along with the high density of plants led to dense matting which prevented complete herbicide coverage.

Within four days of herbicide application the *Ixia* started to yellow, after two weeks both the *Babiana* and *Ixia* showed significant indications of stress, though there was no indication of herbicide damage to the *Allium* trials.

Twelve months after herbicide application, the plots were scored. There was no emergence of *Babiana* at either concentration. *Ixia* trials showed a 96% reduction in cover using the lower rate of herbicide and 99% reduction with the higher rate. This less than complete kill may be attributed to the poor coverage of plants at time of herbicide application. Although *Allium* showed no signs of stress post treatment there was a 94% reduction in cover using 5kg/ha and a 97% reduction at 10kg/ha.

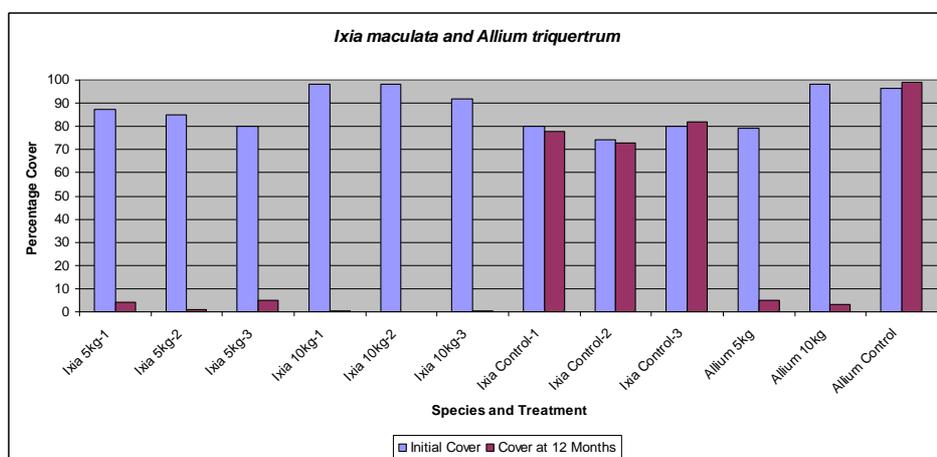


Figure 1: Cover of *Ixia maculata* and *Allium triquertrum* in control and treated plots (5kg/ha and 10kg/ha) pre-treatment and 12 months post-treatment.

(Continued on page 4)

## in this issue:

Use of 2,2-DPA in weed control	1, 4, 5
November Forum	2
AABR Committee	2
Dieback news	2
Controlling weeds with sugar	3
WANTED	3
<i>In Safe Hands</i> safety manual	5
Glyphosate resistance	6
Longstem seedlings	6, 7
Western Weeds	7
Medecos	8

web/e-mail  
[www.aabr.com.au](http://www.aabr.com.au)  
[aabrwa@westnet.com.au](mailto:aabrwa@westnet.com.au)

# FORUM NOTICE

November 14

Guest Speaker

**John Moore**

Crop Protection Adviser, HerbiGuide

**HerbiGuide**  
*The Pesticide Expert on a Disk*

*HerbiGuide is a comprehensive computer programme on CD developed for WA conditions by John Moore and Corey Moore. It contains information on weeds, pests and diseases in crops, pastures, and horticulture to help with crop protection decisions*

*In September's issue we included an article about HerbiGuide and we look forward to John passing on more information about this useful resource*

**7.30 p.m. Wednesday November 14**  
Kings Park Administration Centre  
Fraser Avenue, Kings Park

take first right turn on Fraser Avenue and proceed ahead through the roundabout

All welcome. Refreshments served

## AABR (WA)'s Management Committee

Vice President  
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dbright@cockburn.wa.gov.au  
regen4@primus.com.au

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Bill Betts

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Steve May

Newsletter Editor  
Kirsten Tullis  
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## Dieback News

**S**teve McCabe is the new Dieback Coordinator for the Dieback Working Group (DWG). Steve is an AABR (WA) member who has also served on the committee.

### DIG Conference

The Dieback Information Group held a successful Dieback Information Group Conference on July 13 that featured the latest dieback research in Western Australia and the impacts of the disease on our ecosystems.

### *Phytophthora ramorum*

One of the topics raised at the conference was a species of *Phytophthora* (*Phytophthora ramorum*) that is causing great damage in Europe and the USA. It is commonly known as Sudden Oak Death in California.

Scientists from Murdoch University's Centre for Phytophthora Science and Management (CPSM) told the conference that if *P. ramorum* were introduced to Australia it could be more devastating than *P. cinnamomi*. A characteristic making it hard to control is an ability to spread through splashes and winds during wet weather, in contrast to the soil borne *P. cinnamomi*. While the risk of it coming in on plant material imported

legally is low because of our strict quarantine rules, there is a higher risk of illegal entry.

### DIG activities

Teachers from Armadale Primary School have developed an education kit on the Dieback threat for year 6 and 7 students.

November 18 DIG Dieback Treatment Day	November 23 Dieback Education Kit
Alcoa, DWG, Roleybushcare and DEC are supporting the application of phosphite in Stinton Cascade Reserve, Karagullen  9.00 a.m. - 12 noon Meet at the corner of Brookton Highway and the eastern end of Irymple Road	Professional Learning Day for Teachers  Call Steve on (08) 9374 3321

### Contact

Steve McCabe can be contacted at the Swan Catchment Centre:  
Swan Catchment Council  
80 Great Northern Highway  
MIDDLE SWAN WA 6056  
PO Box 2206 MIDLAND WA 6936  
(08) 9374 3321  
Mobile: 0438 044 488  
[steve.mccabe@water.wa.gov.au](mailto:steve.mccabe@water.wa.gov.au)

## Controlling Weeds with Sugar

An unusual and unexpected method of weed control came across the Editor's desk that is worthy of mention – sugar. Research carried out by Dr. Suzanne Prober, Dr. Kevin Thiele & Dr. Ian Lunt in Central NSW indicates that ordinary table sugar might be a promising control method for at least some weeds.

By comparing topsoils from degraded and undisturbed bushland remnants the authors found there to be an increasing correlation between weed cover and soil nitrate. Following this finding they undertook some trials to restore groundlayer at two woodland remnants by reducing weed cover and increasing native grasses. One area was dominated by weedy annual grasses and Paterson's curse (*Echium plantagineum*) and the second by weedy annuals and native perennial grasses.

Weeds were tackled by reducing soil nitrate levels and seed set, and native

grasses were promoted by introducing seed. The authors first tried to reduce the soil nitrate by burning off weeds in mid-October. While it diminished the following season's annual grass weeds it did not reduce the soil nitrate, and it also promoted the growth of Paterson's curse. They were aware that there is a temporary effect following crop harvest with reduced plant growth amongst the stubble because of stubble breakdown by microorganisms that consume nitrogen and raise carbon in the soil. So, it was decided to try a faster acting carbohydrate by adding 500g of sugar per square metre every three months over a 15 month period (these plots were not burnt). It was hoped that the amplified activity of microorganisms would deprive weeds of the nutrients they need. Almost all of the nitrate was eliminated in these plots, resulting in much reduced annual weed growth.

In these weed depleted plots they added seed from two native grasses; kangaroo grass (*Themeda australis*)

and snow grass (*Poa sieberiana*). Because of drought conditions only some of the Kangaroo grass established itself and survived. The highest number surviving after two years were in the burnt plots, followed by the sugar treated ones.

The full article *Add Sugar and Kangaroo Grass and Burn in Spring - A Recipe for Success in Woodland Understorey Restoration?* By Suzanne Prober, Kevin Thiele & Ian Lunt, 2004 can be read at the following address from 'The Woodland Web': <http://www.csu.edu.au/herbarium/woodlandweb/restoration/sugar.htm>

An article by Margrit Beemster ('A Sweet End to Weeds' 2005) also gives further details and references and this can be seen on *The Woodland Web* site: [http://www.csu.edu.au/herbarium/woodlandweb/restoration/sweet\\_end\\_to\\_weeds.htm](http://www.csu.edu.au/herbarium/woodlandweb/restoration/sweet_end_to_weeds.htm)

WANTED

### Articles & Ideas for the AABR (WA) Newsletter

If anyone has interesting articles, helpful hints, or even ideas for articles please send them to the Editor, Kirsten Tullis (see contact details page 8)

### Help with circulating the newsletter

Caril Barker, who kindly photocopied and posted out the newsletter until recently, has resigned her volunteer position

WANTED

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# Effectiveness of 2,2-DPA in Controlling *Babiana*, *Ixia* and *Allium* in Native Bushland

*continued from page 1*

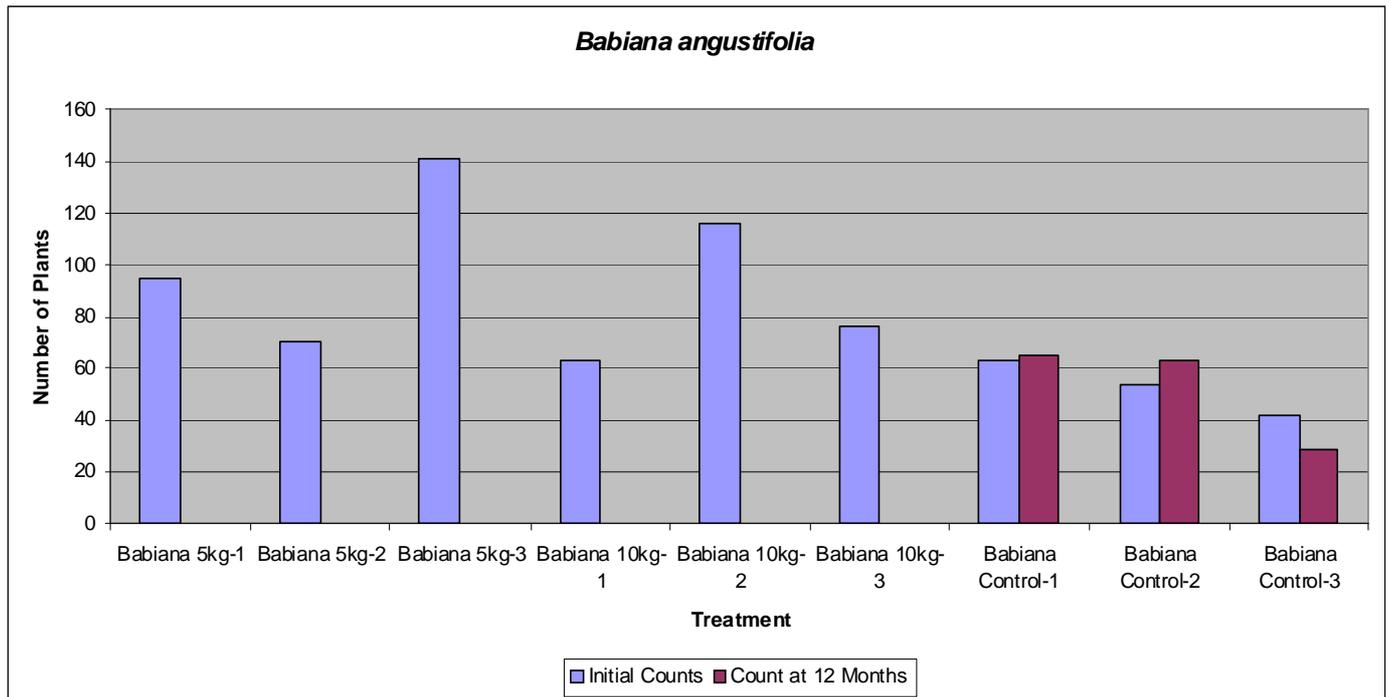


Figure 2: Number of *Babiana angustifolia* plants in control and treated plots (5kg/ha and 10kg/ha) pre-treatment and 12 months post-treatment.

To test the tolerance of local native species to 2,2-DPA a selection of greenstock was treated with both concentrations of herbicide (Table 1). These trials comprised 20 species representing 16 genera from 7 families. The trials indicated 2,2-DPA at 5 and 10 kg/ha+.

Pulse (a penetrant) at 2ml/L produced severe leaf and shoot damage at both rates to all species. Initially 5 kg was less damaging but still caused leaf drop on every species tested with the exception of *Anigozanthos manglesii*. However, all species (except *Ozothamnus cordatus*, as insufficient material was available) at 5 kg/ha recovered. At 10 kg/ha *Ozothamnus cordatus*, *Calothamnus quadrifidus*, *Melaleuca huegelii* and *Grevillea crithmifolia* were killed. Further trials are being conducted with greenstock and seedlings covering a wider range of families. Early indications are that 2,2-DPA will impact the majority of greenstock species to some degree, through the burning of foliage. Observations in the field indicate that established vegetation has the ability to regenerate after initial herbicide damage.

Name	
<i>Acacia cochlearis</i>	<i>Hardenbergia comptoniana</i>
<i>Acacia cyclops</i>	<i>Kennedia prostrata</i>
<i>Acacia lasiocarpa</i>	<i>Kunzea ericifolia</i>
<i>Acacia pulchella</i>	<i>Grevillea crithmifolia</i>
<i>Allocasuarina humilis</i>	<i>Jacksonia furcellata</i>
<i>Anigozanthus manglesii</i>	<i>Melaleuca huegelii</i>
<i>Anthrocercis littorea</i>	<i>Melaleuca systema</i>
<i>Calothamnus quadrifidus</i>	<i>Olearia axillaris</i>
<i>Daviesia divaricata</i>	<i>Ozothamnus cordatus</i>
<i>Eucalyptus gomphocephala</i>	<i>Templetonia retusa</i>

Table 1. Species used in initial greenstock tolerance trials

*Continued on page 5*



Figure 3: Allium trials, 10kg/ha treatment to left control on the right



Figure 4: *Ixia maculata* trials, Control in foreground 10kg/ha plots in the background



Figure 5: Impact of 5kg/ha 2,2-DPA on A) *Anigozanthus manglesii*, B) *Spyridium globulosum*, and C) *Eucalyptus gomphocephala*



## *In Safe Hands*

A Safety Management Toolkit for Community Groups in Practical Conservation

**A** manual including two DVDs (Training Program and Documentation) was recently released by the Conservation Volunteers Australia (CVA) and the Rio Tinto WA Future Fund.

Complimentary copies of the manual have been sent to every NRM regional body and their sub-regional groups as well as Landcare and friends groups. *In Safe Hands* was also produced with the support of the Department of Environment and Conservation.

The manual provides valuable information to groups to help them minimise any risks associated with undertaking practical conservation work.

### Contents

- Occupational Health and Safety Policy and Implementation Guidelines
- Guidance Notes
- Safety Prompts
- Volunteer Induction Guide
- Project Briefing Guide
- Volunteer Safety Card
- Documentation and Record Keeping
  1. Volunteer Registration Form
  2. Risk Assessment Form
  3. Project Safety Check
  4. Site Safety Inspection Report
  5. Accident Report Form
  6. Serious Incident Investigation Report
  7. Paracetamol Use Form
  8. Project Report

For further information please contact CVA on 9336 6911 or e-mail [perth@conservationvolunteers.com.au](mailto:perth@conservationvolunteers.com.au)

*In Safe Hands*

A Safety Management Toolkit for Community Groups in Practical Conservation.

## Potential Glyphosate Resistance in New Weeds

**G**lyphosate, commonly sold as 'Roundup', is one of the most useful weed control tools for agriculture workers and bush regenerators. Unfortunately its sustained use has resulted in a small number of weed species evolving resistant populations over the world. The best known example, until recently the only Australian example, is annual ryegrass (*Lolium rigidum*). More recently it has been joined by awnless barnyard grass (*Echinochloa colona*) in NSW. Both occur in WA, though annual ryegrass is much better known.

### Four new species at risk

The National Glyphosate Sustainability Working Group (GSWG) formed in 2004 to promote the sustainable use of glyphosate in Australian agriculture. This group has discovered that there are four other species identified to be at risk of developing glyphosate resistance. These are wild oats (*Avena fatua*), sowthistle (*Sonchus oleraceus*), flaxleaf fleabane (*Conyza bonariensis*) all occurring in WA, and liverseed grass (*Urochloa panicoides*).

These particular species were identified as being potentially resistant to the herbicide through a risk assessment carried out by the working group, which included field trials. The four species all produce large quantities of seed and thus large populations; have a history of herbicide resistance elsewhere in the world; and occur in farming systems employing minimum or no tillage where they are sprayed repeatedly with glyphosate.

Flaxleaf fleabane is already showing signs of resistance, with susceptibility to the herbicide (when used alone) rapidly diminishing as the plant matures. The group found that early spraying and/or the use of another herbicide as well are better options, and also recommend

considering strategic tillage to kill mature and stressed plants to cut seed set.

### Reducing risk of resistance

To help reduce the possibility of resistance developing GSWG is promoting the wise use of herbicides. For instance the group recommends against continually using just one herbicide group. GSWG also has an on-line register of glyphosate resistant populations in Australia, as well as guides to growers and advisors on how to reduce the possibility of glyphosate resistance.

More information can be found on the National Glyphosate Sustainability Working Group's website at [www.weeds.crc.org.au/glyphosate/index.html](http://www.weeds.crc.org.au/glyphosate/index.html)

### Contact

For more information contact Mr. Andrew Storrie  
Glyphosate Sustainability Working Group  
0428 265 409; (02) 6763 1174  
[andrew.storrie@dpi.nsw.gov.au](mailto:andrew.storrie@dpi.nsw.gov.au)

Detailed information on preventing and managing herbicide resistance is available in the Weeds CRC's Integrated Weed Management manual [www.weeds.crc.org.au/publications/iwm\\_manual\\_flyer.html](http://www.weeds.crc.org.au/publications/iwm_manual_flyer.html)

Another paper of interest, available from the website below, is: *Integrated Weed Management for the Control of Herbicide Resistant Annual Ryegrass* by John M. Matthews, R. Llewellyn, S. Powles, and T. Reeves of C.R.C. for Weed Management Systems, University of Adelaide. SA 5064

[www.regional.org.au/au/asa/1996/contributed/417matthews.htm](http://www.regional.org.au/au/asa/1996/contributed/417matthews.htm)

## Benefits of Planting Longstem Seedlings

The following item has been adapted from information, including a fact sheet, from the Central Coast Group of the Australian Plant Society, NSW.

The fact sheet was produced in conjunction with the Gosford City Council and Wyong Shire Council, and can be downloaded from the group's website: [www.australianplants.org](http://www.australianplants.org)

The sheet explains what potting mix and fertilizer rate to use, how to grow the seedlings, and how to plant them.

**T**he use of longstem seedlings for rehabilitation is a recent practice that is growing in popularity in the

Eastern States, particularly in riparian areas. They can also be used in arid regions, sand dunes and other sloped or exposed sites, highly saline areas, and windy sites. Longstems have much longer stems than typical seedlings, and are planted deeper to give better root growth and to reduce their washing away in floods or because of erosion. Being planted so deep means follow up watering is not usually needed. They do however need 12-18 months to grow in the nursery, i.e. 2-3 times longer than standard seedlings.

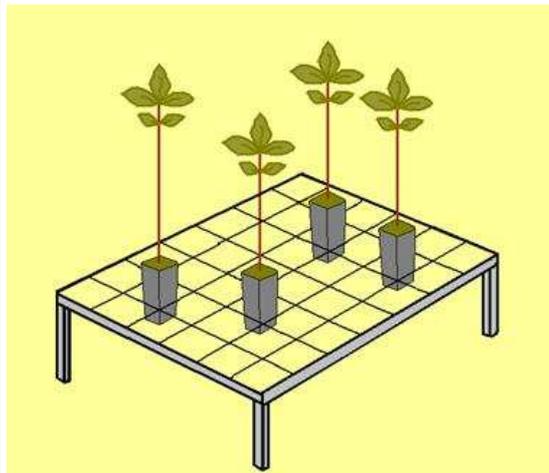
The use of longstems came about because of big problems over east with the planting of willows or *Salix* sp., in lieu of or in addition to native trees and shrubs, on stream banks

etc. Willows were preferred because they could be propagated as large hardwood cuttings (around a metre long), have deep rooting ability, quick growth, and are resistant to washing away. However they have become a serious weed. Bill Hicks began working on the problem some years ago and came up with the longstem solution.

Standard tubestock, say in 130mm x 50mm x 50mm forestry tubes, is vulnerable to being washed away in floods or drying out because of their shallow roots. Longstem native tubestock mimic the advantages that willows have over standard native tubestock. The seedlings are grown

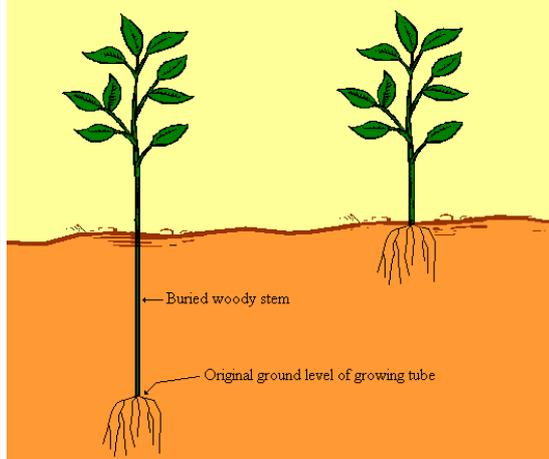
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Long stem planting

Conventional planting



in the same 50mm bottom tubes (and must be bottom air pruned and ribbed) to a metre or more and planted so that just 25% of the seedling is exposed. They respond by producing new roots above the original root system which help to anchor the plants in the ground. Because of the planting depth, an auger or other equipment is required at planting time.

Generally any native tree or large shrub with firm bark that will produce a long stem is suited to longstem production.

It might be expected problems would arise through the restricted growing causing deformed roots, and also disease along the submerged stem killing the seedling or impeding its growth. However, these problems appear to have been overcome with Bill's experimentation with fertilizers. He found a regime incorporating trace elements works very well. During its time in the pot, the plant is able to grow substantially up

top without overdeveloping its root system. In addition when planted in situ, the deeper root ball is better protected from drying out, frost, and weed competition. Trials have been conducted in the Upper Hunter Valley since 2001 and other areas, and monitoring has found that survival and growth rates are generally better with longstem seedlings. In the Upper Hunter, salt tolerant seedlings have thrived despite severe drought, saline, and frost conditions.

### Further information

You can also see more information and pictures regarding long stem planting techniques by going to the other page on the website <http://www.australianplants.org/longstem.htm>

Bill Hicks has produced a video that is available for purchase at Norkhil Technologies Pty. Ltd. or email [norkhil@bigpond.com](mailto:norkhil@bigpond.com)

**AABR (WA) would be interested to learn of any longstem projects in WA, so if anyone has any information please send it to me, Ed.**

## NEW BOOK

### ***Western weeds: a guide to the weeds of Western Australia***

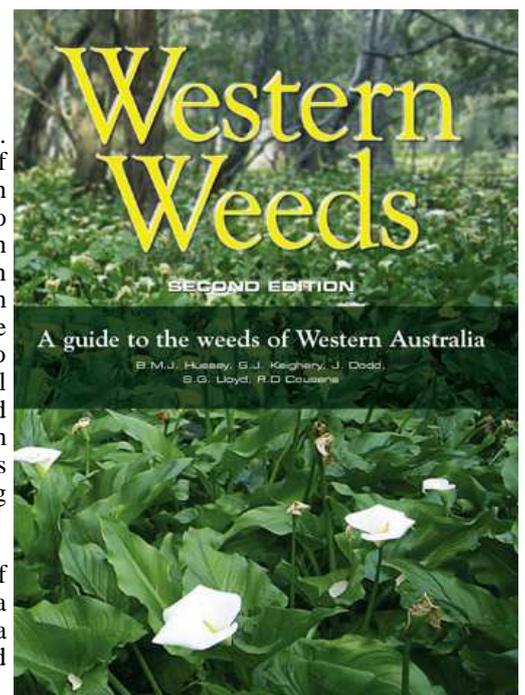
- 2nd edition

By B.M.J. Hussey, G.J. Keighery, R.D. Cousens, J. Dodd and S.G. Lloyd

ISBN 9780958111126, published 2007, by the Weed Society of WA, colour, soft cover, 312 pages  
Price \$A35.00 plus \$11 postage within Australia.

This excellent book has now been revised and the new edition is now available. As it says in the introduction, there are about ten thousand known species of flowering plants growing wild in Western Australia. Ten per cent have been introduced and the rest are natives. *Western Weeds* is a book that will help you to identify these introduced 'weeds' in agricultural and environmental areas and in gardens throughout the State. It describes about 1050 weeds, which along with 625 colour photos and 15 line drawings fills 312 pages. Descriptions range from brief to detailed with sufficient information being given, along with the photograph, to enable identification. Diagrams to explain plant structures and to aid in identification are provided in the text. A plain English glossary of botanical terms is included along with a list of declared plants that are not yet established in Western Australia. There is also a list of plants that have been recorded in Western Australia, but not yet thought to be naturalized. The book concludes with a list of references that are useful for identifying plants and understanding their management and an index of both common and scientific names.

If you are not from the west do not be put off by the title of this book as many of the species illustrated are common in other States. Highly recommended as a very useful addition to your collection of weed books at a very low price and a most valuable book for farmers, environmentalists, gardeners, horticulturists and students.



## Medecos XI

The International  
Mediterranean Ecosystems  
Conference

2nd - 5th Sept 2007 – Perth

**T**he recent Medecos conference presented nearly 130 ecology papers from the five Mediterranean-climatic regions: Southwestern and South Australia, the Mediterranean Basin, the Cape region of South Africa, central Chile, and California (USA-Mexico).

It is worthwhile checking out the proceedings for the many interesting papers from around the world. The list of extended abstracts can be seen at <http://www.medecosxi2007.com.au/abstractlist.pdf> and below is a sample list of papers of relevance to AABR (WA).

**The use of remote sensing technologies to investigate severe woodland decline in Western Australia** Paul Barber, Graeme Behn, Drew Haswell, Frank Honey, Andrew Malcolm, Christine Stone, Bernie Dell and Giles Hardy

**Vertebrate herbivores as alternative long distance dispersers of plants with shortrange dispersal modes** María Calviño-Cancela, Ken Okamitsu and Byron B Lamont

**Water stress vulnerability of four *Banksia* species in contrasting ecohydrological habitats on the Gngangara Mound, Western Australia** Caroline Canham, Ray Froend and Will Stock

**Thresholds of habitat fragmentation**

**for birds in a rapidly urbanising Mediterranean ecosystem, Perth, Western Australia** Robert A Davis, Lesley C Brooker and J Dale Roberts

**The impact of *Phytophthora cinnamomi* on ecosystem function and health of Mediterranean forests, woodlands and heathlands in Western Australia** Bernard Dell, Giles Hardy, Emer O’Gara and Bryan Shearer

**Managing translocation sites for rare species to achieve better long-term outcomes** Bob Dixon

**The effect of prescribed burning on the leaf litter invertebrates of the jarrah forest, with special reference to *Apocrita* (Insecta: Hymenoptera)** Mark Heath, Phillip Ladd and Jenny Davis

**The evolution of grasstree growth phenology: Questioning the fit of an established theory for Australia’s Mediterranean vegetation** Dylan Korczynskyj

**An assessment of the impact of fire-suppressing agents on native vegetation in Western Australia** David R Leach, Deanna P Rokich and Kingsley W Dixon

**Wind erosion and invertebrate activity on broadcast seed removal in *Banksia* woodland restoration, Western Australia** Rachael Ord, Deanna Rokich, Shane Turner and Julie Plummer

**Identification of good quality, viable seeds: An essential step towards induction of somatic embryogenesis of a sedge species important for land rehabilitation** M Panaia, E Bunn and J McComb

**Establishing the mycorrhizal status of**

**native Fabaceae** Megan H Ryan, Susan Barker, Yinglong Chen, Matthew D Denton, Tamara Edmonds-Tibbett, Mark Tibbett and Christopher Walker

**Pollen dispersal between planted populations and remnant native populations in a fragmented agricultural landscape** Jane Sampson, Melissa A Millar and Margaret Byrne

**Dormancy of *Pyrorchis nigricans* is overcome by after-ripening and warm stratification** Jessica Soanes, David Merritt, Kingsley Dixon, Andrew Batty and Stephen Hopper

**Managing biodiversity at a landscape scale in the Avon River Basin of Western Australia – The Ecoscapes Project** Margaret Wheeler, Brett Beecham, Terry Walshe, Murray Penner and Alan Kietzmann

**Butterflies in remnant bushland: Factors affecting species richness** Matthew Williams and Byron Lamont

**Influence of rainfall on native mammal populations in southeastern Australia** Barbara A Wilson, Mandy Lock and Rannveig Magnusdottir

**Studying fire regimes and biodiversity in southwestern Australia for improved land management** Roy Wittkuhn and Lachie McCaw

~ ~ ~

Copies of the proceedings are available from:  
Science Directorate  
Biodiversity Conservation Centre  
Kings Park and Botanic Garden  
Fraser Avenue West Perth WA 6005  
Ph: (08) 9480 3641  
E: [scienceadmin@bgpa.wa.gov.au](mailto:scienceadmin@bgpa.wa.gov.au)

**AABR**

was established in 1986 in NSW (with the WA branch forming in 1992) out of concern for the continuing survival and integrity of bushland and its dependent fauna in or near bushland areas. AABR seeks new members and friends for promoting good work practices in natural areas. The Association’s aim is to foster and encourage sound ecological practices of bushland management by qualified people, and to promote the study and practice of Bush Regeneration.

### To join AABR (WA) .....

Contact Bill Betts on - Ph: (08) 9300 1206 Mob:0408 094 412  
Fax: (08) 9206 5839 E-mail: [Bill.Betts@joondalup.wa.gov.au](mailto:Bill.Betts@joondalup.wa.gov.au)

OR

go to our **website** for a membership form

[www.aabr.com.au](http://www.aabr.com.au)

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open to appropriately qualified & experienced bush regenerators  
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Contact the Editor: Kirsten Tullis  
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**COPY DEADLINE Issue 1 2008 – 14 Feb**

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