



Australian Association of Bush Regenerators (WA) Inc

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N E W S L E T T E R

July/September 2008

Fountain grass:

A pernicious weed or an attractive garden plant?

By Mark Bundock; PhD Candidate – Restoration Ecology, Botanic Gardens and Parks Authority

Fountain grass (*Pennisetum setaceum*) is an attractive perennial plant with a densely clumped form and erect stems that reach heights of 60 to 75 centimeters. The small pink or purple flowers are found in upright and bristly inflorescences, which are typically 15 to 40 centimeters long. Fruits are small, dry achenes adorned with long showy bristles supporting wind-dispersed seeds.

A native to North Africa, fountain grass is now viewed as, and has the characteristics that deem it to be, an invasive species. Firstly, the species is believed to be apomitic, a breeding system that results in progeny that are genetically identical to the maternal plant; and secondly, seeds remain viable in the seedbank for several years. Tunison (1992) reported seed viability persistence of at least six years, potentially allowing the seeds to survive for several consecutive, unfavourable years. Compounding the invasive problem is that the seeds are most likely dispersed over great distances by water, vehicles, livestock and humans.

Not surprisingly, fountain grass has proven itself as a major threat to biodiversity in locations where it has been introduced. In Hawaii, where fountain grass was introduced in ca. 1914, it has altered the natural fire regime, and is a major threat to some critically endangered plant species and natural communities. Fountain grass raises fuel loads, which increases the intensity and spread of

a fire, and results in severe damage to native, dry forest species adapted to less extreme fire regimes (D'Antonio and Vitousek 1992; Williams et al. 1995; Daehler and Carino 1998; Cabin et al. 2000).

Fountain grass was originally introduced into Australia as a decorative garden plant, which subsequently escaped. The date of introduction is unknown, but the plant is now ranked amongst the top ten invasive weed species in South Australia.

As a highly aggressive, fire-adapted colonizer that rapidly re-establishes



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Membership renewal form

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AABR & Local Government Natural Area Managers Network (NAMN)

Forum

To be held within the City of Cockburn on
Wednesday November 12 from 9.30am to 12.30pm

The forum will include a presentation by Steve Easton, Bushland Manager, Kings Park
Managing Revegetation Projects

Details including the venue and other speakers will be in the November newsletter

Savannah Cat banned from Australia

There is some good news for native fauna and the environment with the banning of the savannah cat by Federal Environment Minister Peter Garrett in early August. The cat is a new breed developed from an original hybrid from the mid 1980's between a domestic cat and an African serval. Savannah cats are tall and lean with long necks, legs and ears. Their coats have bold spots and markings.

While the cats proposed for importation into Australia are back crossed with domestic cats they remain a definite potential risk to wildlife. An assessment commissioned by the government

found that the savannah cat poses an extreme threat to native wildlife because of their serval genes. If these animals entered the feral cat population there is the likelihood that the more efficient hunting traits of the wild African serval would be selected for. Later generation savannah cats range from 3.5 to 7.7 kg, however because of random factors in cat genetics there can be significant size differences with some exceeding 13.5 kg with one reported at over 18 kg.

In recognising the savannah cat posing an extreme risk to native animals and the environment Mr Garrett used the Environment Protection and Biodiversity

Conservation Act 1999 to rule out its importation. He said he would not hesitate to use the act in the future to prevent the live import of any species that poses a risk to the wildlife or environment. Thus, the legal definition of "domestic cat" is changed to rule out cats with the genes of the African wildcat, the serval.

Conservationists, including the RSPCA had warned the breeding and introduction of the new hybrid cats would threaten Australian wildlife, including koalas. The issue generated quite a lot of interest with over 500 public submissions sent in.

Global warming 'will multiply pests'

The World Wildlife Fund for Nature (WWF) warns that global warming will allow exotic plants and animals to invade vulnerable Australian ecosystems.

Warming conditions will allow feral animals and invasive weeds to expand their range to other areas and higher altitudes according to WWF's Invasive Species Policy Officer Julie Kirkwood. "Exotic species that haven't been invasive in these areas before are likely to have a sudden competitive advantage in warmer temperatures," she said.

Ms Kirkwood said Professor Ross Garnaut's draft climate change report

had identified that higher temperatures would favour pest and weed species at the expense of native plants and animals. This would ultimately add to the high cost of invasive species to the Australian economy, already in excess of \$4 billion, she said.

"The Garnaut report recognises that existing environmental stress factors such as invasive species need to be dealt with now to reduce the costs of climate change, and recommends the removal of introduced pest species as a key action to building this resilience," she said.

"Rodents, pigs, cane toads, dogs, cats and rapacious exotic plant

species such as lantana and gamba grass have caused numerous extinctions in Australia over the last 200 years and continue to devastate Australia's ecosystems."

Ms Kirkwood emphasised how important it is for the Federal Government to provide full funds for the plans to address the threat of rodents on islands and in other vulnerable areas. She also said the government must also fully implement the National Weed Spread Prevention Plan.

AABR (WA)'s Management Committee

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Weed management a \$1.5 billion problem for Australian Farmers

According to the Australian Bureau of Statistics (ABS) farmers spent more on the management of weeds than any other Natural Resource Management activity during the 2006-07 financial year.

Farmers spent a staggering \$1,574 million controlling weeds, on top of another \$768 million controlling pests and \$649 million on land and soil problems. The nearly three billion dollar total averaged out to \$21,094 per business.

Other findings include: Australian farmers managed 425 million hectares of land, or just over half (55%) of the country's land mass.

Nearly two thirds, or \$982 million, of the expenditure on weed management was on herbicides.

Of all expenditure on pest management

over half, or \$430 million, was for pesticides. Erosion was the most common land and soil problem. It was reported by 48% of farmers, followed by soil compaction (43%), and soil acidity (42%).

On a more positive note, the ABS found that nationally, nearly two thirds of farmers reported that they had improved their natural resource management practices. Of these, 89% reported doing so to increase productivity, 88% for farm sustainability, and 75% to improve environmental protection.

This is the second Natural Resource Management survey by the ABS, and more details are available in Natural Resource Management on Australian Farms 2006-07 (cat. no. 4620.0).

Go to: <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4620.0>

September is *Boneseed Blitz* month

Boneseed (*Chrysanthemoides monilifera* subsp. *monilifera*), also known as Bitou Bush, is a **Weed of National Significance** that flowers in springtime. In WA it has the potential to spread all over the South West.

Go to <http://www.weeds.org.au/WoNS/bitoubush/> for an information flier, Boneseed Management Manual, distribution maps, details of the Western Australia Boneseed Eradication Program, and other important information.

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New Phytophthora Dieback Signage

WA's *Project Dieback* recently launched a series of three new standardised signs to indicate dieback status for natural and susceptible areas including bushland reserves, parks, roadsides, private properties, mining leases, and infrastructure corridors. The signs are 'Dieback Free', 'Dieback Infected' and 'Dieback Unknown'. As well as being included in informational Dieback Protection Area (DPA) signs for DPA boundary access points, they can be used for entry signs for road guide and walk track posts.

Project Dieback is a cross-regional Natural Resource Management project that aims to:

- Promote working together, identifying and managing valued areas, to protect them in the long term from Phytophthora Dieback.
- Increase awareness of current impact and future threat of Phytophthora Dieback to biodiversity in Southwest Australia.

Those organisations closely involved in the new signage project were the State Dieback Consultative Committee, **Great Southern TAFE**, the Department of Environment and Conservation, and the Dieback Working Group.

Signs can be ordered from the Swan Council : (08) 9374 3333. For further information on Project Dieback and the signs go to <http://www.dieback.net.au/>



Grub Alert

A live foreign larval grub was found in an imported bamboo stake used at a Greening Australia planting project in East Gippsland, Victoria recently. Fortunately it was spotted, but unfortunately there may be more about - any introduced plant or animal species is a potential pest risk. Some pests of this kind prefer dead wood and can attack furniture and buildings, others favour live trees and are a threat to our forests. Thus, people are urged to check whether they have recently purchased *Sure Gro* bamboo stakes, and if so to do an inspection. These stakes are imported from China by Sure Gro, and it is believed a failure with fumigation is the cause of the problem.

Helen Tuton, the Sustainable Garden Centre Co-ordinator (Vic & Tas) from Sustainable Gardening Australia, had the bug analysed by Australian Quarantine and Inspection Services (AQIS) who confirmed it is a foreign species. As a result AQIS is recalling this particular batch of stakes.

Unfortunately it is believed hundreds of thousands of stakes were used all over East Gippsland this year, with some possibly available for sale in garden centres.

The word about this potential pest has spread, and Sandy Lloyd from the Department of Agriculture and Food WA (DAFWA) recommends that other imported bamboo, wood, willow screening, and similar products are also checked.

If any suspicious creatures are found it is important to contact the DAFWA Pest and Disease Information Service on Freecall 1800 084 881. If no one is available, leave a message and your call will be returned. These bugs (which shouldn't be destroyed so they can be identified) can be dropped off at 3 Baron-Hay Court, Kensington after 8am during weekdays.

Chinese auger beetle

The grub warning above comes after a similar alert last year where 1.8 x 3 metre willow fencing screens imported from China in February and sold by Bunnings were found to

contain infestations of live adult Chinese auger beetles. These are serious hardwood pests, and potentially damaging to furniture and other timber products. They feed on dry wood, and are between 10 and 14 mm long, 4mm in diameter, cylindrical in shape, and a dark brown colour. Beetle activity can be detected by checking for fine wood dust on the surface of the wood, or beetle exit holes and collections of fallen wood dust. DAFWA advises that stock entering Australia after the February 2007 shipment is clear of live beetle infestation, because they are heat treated for 12 hours.

For further information on the Chinese auger beetle go to <http://www.agric.wa.gov.au/aboutus/mr/mr161107.htm>

This is not the only instance recently of pests being spread to another country. Germany is suffering from the importation of bargain-priced maple trees from China, because they were infested with the citrus long-horned beetle. The beetles attack other trees as well as citrus.

Training dogs to find rare plants

In our September 2007 issue we mentioned a South

Australian Labrador called Fudge that has been trained to find Branched Broomrape, a serious weed there. In the United States, in Central Oregon, dogs are being used to find rare animal and plant species. In one instance Rogue the Belgian shepherd has been trained by his ecologist owner Dave Vesely to find the rare Kincaid's Lupine (a lupin) in long grass.

Updated Website for Perth Urban Bushland Fungi Project

<http://www.fungiperth.org.au>

Western Australia's Chief Scientist, Professor Lyn Beazley, launched the new website for the Perth Urban Bushland Fungi Project (PUBF) on Thursday May 15. The event, held at the Cockburn Wetlands Education Centre in Bibra Lake, attracted a large audience.

Lyn has a keen interest in fungi, and she outlined how important they are in natural ecosystems. One of her passions is education and she sees continued study into all aspects of fungi as vital, particularly as the Kingdom of fungi is less well known than our native plants and animals.

Lyn was obviously impressed by the role PUBF has played in the study of fungi in the bushlands around Perth and beyond, and particularly in how the group has encouraged so much community involvement. To the middle of May they had held 86 events, including surveys in 38 urban bushland sites – some of which had not previously been surveyed for fungi.

About PUBF

PUBF, which began in 2004, both studies and seeks to promote the importance of fungi in bushland, with a focus on the Perth area. A large part of the project is community involvement to enthuse and educate people of all ages. It has been a collaborative project involving professionals and amateurs from the Western Australian Naturalists' Club, the Urban Bushland Council, and the Department of Environment's (DEC) Western Australian Herbarium. Lotterywest provided generous funding from 2004 to 2007. In 2008 the WA Naturalist Club has allocated \$10,000 and DEC is providing facilities. PUBF has also been fortunate to receive donations from the public, and welcomes more so the project can continue to grow. All donations, made via the WA Naturalists' Club, are tax deductible.

About the new Website

Following Lyn Beasley's address Brett Glossop from DEC gave a

demonstration of the site. The initial Perth fungi web site - current from 2006 to May 2008 at www.fungiperth.org.au - was electronically designed by one of PUBF's foundation volunteers John Weaver. Brett, along with Sarah De Bueger of the WA Naturalists Club and DEC Mycologist Neale Bougher, produced the new updated site based on a new software platform that is being adopted throughout DEC.

The new web site includes information about each year's fungi events, news items, information about fungi, and most impressively the on-line self-managed *Fungi Field Book* and all PUBF bushland fungi survey reports. Presenting the field book electronically enables it to expand as knowledge increases, and having on-line survey reports enhances their availability and uptake by bushland managers and community groups. In these reports are recorded 2,928 fungi, represented by more than 300 species.

Another new fungi website

<http://mycorrhizas.info/>

This site was developed by Mark Brundrett from the University of Western Australia's (UWA) School of Plant Biology as an online textbook to provide current information about mycorrhizal associations. It was launched on June 10 at UWA.

Definition of Mycorrhizas

"Mycorrhizas are symbiotic associations essential for one or both partners, between a fungus (specialised for

life in soils and plants) and a root (or other substrate-contacting organ) of a living plant, that is primarily responsible for nutrient transfer. Mycorrhizas occur in a specialised plant organ where intimate contact results from synchronised plant-fungus development."

The site includes photographs down the microscope, an introduction to mycorrhizas, information on their classification, and the morphology of associations (e.g. ectomycorrhizas, such as *Amanita* and *Russula* and *Cortinarius* spp. and orchid mycorrhizas, such as from the family Russulaceae). Mark has also included a list of Australian mycorrhizal plants.



fungimap

Fungimap Conference V

21 - 26 May 2009

**Black Gold Country Cabins, Wallerawang (near Lithgow):
Blue Mountains region of NSW**

Fungimap Inc. is an Australia-wide organisation that promotes the study, appreciation, and conservation of macrofungi in the natural environment. One of its main activities is the mapping 100 readily recognisable 'target' species. This is the 5th Fungimap conference and is being organised in conjunction with the *Sydney Fungal Studies Group*.

Conference speakers, workshop and foray details will be announced at a later date. For further details go to http://www.rbg.vic.gov.au/fungimap_about_us

Fountain grass continued from page 1

following a fire event and out-competes native plants, fountain grass poses a significant threat to Western Australia's biodiversity. Large populations of fountain grass are now found in Western Australia, namely around the greater Perth metropolitan area (Toodyay Road in the hills, Capstick Road in Brigadoon and the junction of Anketell/Abernethy Road near Rockingham, to name but a few). Plants were traditionally found on poor alkaline soils in coastal areas such as Dongara and Geraldton and it has also been major environmental weed on Kings Park scarp for many years. Although known from more easterly populations such as Kalgoorlie, this recent shift into different and heavier soil types indicates this species is capable of spreading far wider than its present range.

The two distinct types of fountain-grass found in Western Australia have low fertility and relatively little cold tolerance (Williams et al. 1995; Lovich 2000), and include:

- a "green type" with narrow green leaves and light purple inflorescences; and
- a "purple (Pollen sterile) type" with broad purple leaves and dark purple inflorescences.

The "green type" sets seed only when self-pollinated. The "purple

type" is pollen sterile and therefore, does not set seed when its own pollen is applied. When isolated, both types usually produce seed sets of 10 % and 0.05 % viability, respectively. However, when pollen from the "green type" is applied to the "purple type", seed viability has the potential to increase from 0.05% to 0.45%. When crossed with another species of *Pennisetum* (*P. ciliare*) seed viability of the "purple type" can be as high as 18 % (Poulin et al. 2005; Goergen and Daehler, 2001).

Indeed, seed viability assessments, via a seed x-ray analysis at Kings Park and Botanic Garden, suggests seed viability that aligns with those reported elsewhere, i.e. 12.6% average (although there is a great degree of variability between plants and sites, with viability ranging between 3.5 and 56.8 %) for the "green type" with no viable seeds found on the "purple type".

The low variability caused by asexual reproduction in fountain grass may decrease the plants ability to rapidly adapt to new environments, indicating that the species may only be able to become invasive in habitats where it is pre-adapted to thrive. Notwithstanding, urgent research is required to understand the ecology of this invasive species, particularly the mode of regeneration that render it

invasive, and also how best to manage it.

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Potential new water weed for WA: Red Ludwigia (*Ludwigia repens*)

An introduced water plant with weed potential has been found in a drain adjacent to a Perth swamp – this so far is the first record and people are requested to keep an eye out for other plants. Red ludwigia is a native of central and southern North America. It likes having its feet wet and is capable of spreading very rapidly. It is variable and can have different leaf shapes and colours depending on nutrient and light levels.

Photographs and drawings are available on Google Images.

Internet searches shows aquarium outlets in Australia are selling this species. More alarmingly, there are people in Perth advertising on websites that they have red ludwigia (one has Hydrocotyl as well) to give away free or to swap.

Description: From the *New South Wales Flora Online* website <http://plantnet.rbgsyd.nsw.gov.au>

Glabrous herb with branched stems ascending or floating procumbent, rooting freely at the nodes. Leaves opposite, usually green above and purplish below, broadly lanceolate-

elliptic to suborbicular mostly 1-4.5 cm long, 4-27 mm wide, base tapering into a petiole 5-25 mm long. Flowers axillary, paired, bracteoles narrow, 1-5 mm long. Sepals 4, triangular. Petals 4, yellow, 1-3 mm long. Stamens 4. Fruit oblong, corners rounded to barely angled, 5-7 mm long, c. 2.5 mm wide, tardily dehiscent; seeds yellowish brown, in several rows, free.

If any suspicious plants are found it is recommended samples are sent or taken to the Western Australian Herbarium to confirm identification.

Saving a Sunburnt Country Biodiversity & climate change conference

The Nature Conservation Council of NSW (NCC) has organised the *Saving a Sunburnt Country* conference with sponsorship from the Department of Environment and Climate Change NSW.

The conference will be held on November 12 and 13 in Sydney (note, these are revised dates).

Conference purpose

- Provide an insight into recent climate change science and projected weather changes in Australia
- Explore the benefits that humans obtain from Australian ecosystem functions and how climate change may affect them
- Examine whether the potential rate of climate change allows

sufficient time for biodiversity and ecosystems to cope

- Evaluate examples of mitigation of the impact of climate change (reducing vulnerability and increasing resilience) and adaptation strategies for conserving biodiversity and ecosystems under climate change conditions - how workable would these strategies be at higher temperatures and with greater climate variability?
- Investigate how community and government can better protect our biodiversity and ecosystems – what further research, planning and innovations are required?

Major conference themes

- How Australian species and ecosystems might respond to climate change

- The effect on human society of changes to biodiversity and ecosystem functions and the benefits humans obtain from it
- Planning for higher temperature scenarios and other changes – the challenges of assisting mitigation and adaptation for biodiversity and ecosystems
- What further contributions, research, planning and innovations on the part of community and government are available to protect our biodiversity and ecosystems?

To attend the conference send an e-mail to Phoebe Ashton pashton@nccnsw.org.au

For further details go to: <http://www.nccnsw.org.au/sunburntcountry>

Invasive Plants Website from *Sustainable Gardening Australia*

<http://www.sgaonline.org.au/invasive.html>

Sustainable Gardening Australia's (SGA) is a not-for-profit non-government organisation whose main objective is to help Australians garden in a way that has a positive environmental impact. Although based in Victoria, their invasive

plant and main web pages are of value for WA.

SGA is building up its range of individual information sheets on invasive plants. They have links to various trees (e.g. willow), grasses and strappy foliage plants (e.g. pampas grass and watsonia),

climbers (e.g. bridal creeper and morning glory), ground covers, and shrubs and aquatic plants (e.g. arum).

You can sign up to receive SGA's FREE monthly email 'Cuttings' newsletter.



The Environmental Weeds of Australia DVD

An interactive identification and information resource for over 1000 invasive plants

In July the Centre for Biological Information Technology (CBIT) launched *The Environmental Weeds of Australia* DVD.

The Environmental Weeds of Australia DVD has been developed to assist with the identification of environmental weeds in Australia. At its core is an interactive Lucid identification key for about 1000 plant species that are either significant, emerging or potential environmental weeds in Australia. For those unfamiliar with a Lucid key, there are help files in the Lucid Player.

The DVD also provides images,

detailed descriptions, and other information on the weeds. The Fact Sheets section can be visited separately from the key to find out more about a particular species. These pages are also useful for confirming an identification, or for finding information about how to distinguish between very similar species. In addition, they often provide links to websites that have relevant information about the control and/or management of these species. There is also a detailed close linked glossary.

Environmental Weeds of Australia is an invaluable resource to all those involved with research, training and

management of environmental weeds in Australia, and for students and schools as well.

The DVD is sponsored by CRC for Australian Weed Management and was produced by the University of Queensland. CBIT develops, distributes and supports commercial quality software for application in research, education and training.

The price for the DVD is \$59 plus GST and postage. For more information and to order a copy go to the CBIT website:

<http://www.cbit.uq.edu.au/software/enviroweeds/>

Battle of Old and New Plants in WA's Hot Spot

The South-west of Western Australia is one of 34 International 'hot spots' of global diversity and endemic plant species. A new study is investigating the known and potential movement of viruses between native plants and introduced crops within this region – known as the South West Australian Floristic Region (SWAFR).

The study is the work of Murdoch University's 'State Agricultural Biotechnology Centre' (SABC). The team, led by Senior Postdoctoral Fellow, Dr Stephen Wylie recognises that the region represents a unique interface between an ancient ecosystem and modern agriculture. This is in stark contrast to older established agricultural systems that have been in place for thousands of years. Thus, the study provides the opportunity to investigate encounters where plant viruses present in native plants can move into crop plants and vice versa.

Viruses can be transmitted via the movement of insects, pollen, and soil fungi or the mechanical action of animals.

The first virus found by SABC, in conjunction with Department of Agriculture and Food WA (DAFWA) staff, is the *Hardenbergia* mosaic virus. *Hardenbergia comptonia*, or native wisteria, is an indigenous species. The virus causes mottling and distortion in the leaves, and is also known to affect lupins. Lupins are a rotation crop and given that WA is the world's largest lupin producer the researchers are keen to establish the potential effect of this native virus on the crop. While this virus is the only one found so far, there are likely to be others – some perhaps from undescribed families – among the 12,000 endemic plant species in WA.

The group is also concerned by movement of viruses from crops and other introduced plants into native

ecosystems. Commercial nurseries propagating plants for revegetation projects could be a source of virus spread, particularly as nurseries promote monoculture conditions.

With climate change in the mix there may be new conditions being created for the transfer of disease by altering the ranges of indigenous and introduced plants and insects. Ecosystem stress is another consideration. This has been seen elsewhere in the world; deforestation in Brazil and Africa has contributed to the spread of viruses from native forest plants into crops of tomatoes and maize.

The research is now funded by an Australian Research Council Linkage Project, supported by the SABC, Saturn Biotech, Worsley Alumina, ALCOA, Kings Park and Botanic Gardens and DAFWA.

For further information visit: <http://www.sabc.murdoch.edu>

Bush Regeneration Items

WANTED

If anyone has interesting bush regeneration items or helpful hints for the newsletter please send them to the Editor (see details below)

WANTED

Helpful Hint

Soursob or *Oxalis pes-caprae* is a particularly difficult weed to remove from bushland or a garden. A good time to kill it is when the bright yellow flowers are out in spring, but before it dies back with the nutrients being reabsorbed into the bulb. To a 7.5% mixture of Glyphosphate add a squeeze of surfactant or washing up detergent and two dessertspoons of urea per litre. Wipe on or spray, taking care not to contaminate desirable plants. The urea helps take the poison down into the bulbs and kill them.

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

OR

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

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