

Weeds or wildflowers

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Summary Exotic weeds and naturalised Australian plants have become a serious threat to the biodiversity of Western Australian ecosystems. This threat led to the formation of a volunteer network to encourage community and government awareness and examine best practice management protocols for bush land ecosystems through partnerships.

Keywords Environmental weeds, best practice management, community involvement, partnerships.

INTRODUCTION

The wildflowers of Western Australia in their associated ecosystems are renowned as one of the world's most exciting hot spots of biodiversity.

Concern was expressed for this important unique flora when the invasion by environmental weeds, began to impact on the vista of the colourful spring scenes and to damage ecosystems. The control of this invasion was seen, in the past, to focus on agricultural weeds in preference to environmental weeds. Therefore, the community formed the Environmental Weeds Action Network (Inc.) (EWAN), to promote preventative action and to distribute information.

This paper describes the activities of EWAN in this field since its formation.

FORMATION

In 1996 the Wildflower Society of Western Australia (WSWA) called a public meeting and brought together some 60 participants, including representatives of voluntary conservation groups, state and local government agencies and scientists. Concern was expressed for the urgent need for action to prevent the further spread of environmental weeds into the bushland. Aims were set in place to continue to support the setting up of infrastructure for an environmental weed management strategy for Western Australia, to follow on from the then National Weeds Strategy Draft (Canberra 1997).

From this meeting EWAN was formed, with a formidable management committee led by well-known local environmentalist Joanna Seabrook OAM elected to the Chair. This committee has had a major influence in steering the Network to accomplish many of today's positive outcomes.

The formation of cooperating partnerships with many active groups has resulted in great progress.

These unique partnerships with enthusiastic volunteer committee members, and the positions they hold within local, state, national and volunteer agencies has been successful.

AIMS AND STRATEGIES

EWAN aims to promote, through education, community and practical action, the retention and management of Australia's natural bushland by limiting the invasion of weed species. The following strategies were decided as necessary to achieve the aims of the network

EWAN would lobby federal and state government agencies to:

- Influence policing of entry into the State of seeds and other plants material belonging to undesirable plants.
- Promote adequate funding for environmental weeds research by government agencies.
- Promote the development of the State Weeds Strategy and the State Weed Plan.
- Encourage the inclusion of environmental weeds as declared plants.

Management protocols would be examined to:

- Work towards halting the distribution of garden plants which have become, or have the potential to become, environmental weeds.
- Promote best practices in weed control to preserve the ecology of the bushland.
- Promote safe and effective use of herbicides in relation to established vegetation.
- Encourage greater scrutiny of genetically manipulated organisms.

Support and provision of educational programs to include actions to:

- Assist interested members of the community with education in basic plant identification.
- Collate methods of control of environmental weeds, by gathering all information pertaining to work carried out and making a compendium of methods, research and results which may be used to assist and inform those needing advice.
- Encourage all land owners and managers, including state and local government authorities, to set up and/or coordinate environmental weeds control programs through education and promotion.
- Nominate a weed of the year and focus on the control of that weed, understanding that all control

must be taken with sensitivity to the surrounding environments.

Support to encourage research programs to:

- Investigate alternative means of weed control.
- Lobby for greater funding for biological control.
- Develop a list of very serious environmental weeds.
- Encourage research into weeds to quantify the problem and to pinpoint the effects on biodiversity and ecosystem function.

Networking is an essential part of EWAN activities to:

- Encourage and help volunteer participation in the control of environmental weeds.
- Promote cooperation between federal, state and local government authorities and research institutions relating to legislation, policy research and projects.

SUMMARY OF PROGRAMS

Lobbying EWAN has been actively involved with promotion of stricter and more organised quarantine services. Speakers from Australian Quarantine and Inspection Service (AQIS) have participated in workshops to explain and discuss their programs and new initiatives. The success of AQIS at the state level is monitored regularly.

Members have participated in discussion groups with weed regulators from the USA on the monitoring and control of weed seeds by mail order and from websites. Lobbying for the exchange of information with South Africa to both state and federal governments has resulted in support for weed scientists looking into the quarantine restrictions on the exchange of seed between the two countries.

EWAN has a program to maintain regular contact with national and state politicians whose portfolios cover the legislation for the prevention, control and management of environmental weeds. EWAN members were represented on the committees which set up the State Environmental Weeds Strategy (CALM 1999) for areas under the care of the Department of Conservation and Land Management (CALM) and the more recent State Weed Plan (Dept of Agriculture 2001). EWAN continues to be involved as a member of the steering committee for the State Weeds Coordinating Council for the implementation of the Plan for guiding and monitoring environmental weeds management in this state.

Local weed strategies in place throughout the state are based on and support this document. It entails the collaboration of individuals and volunteer groups on the ground or in cohesion with local governments within each regional catchment. They are supported

by the state government departments involved, and the federal government through the Cooperative Research Centre for Weeds Management Systems (Weeds CRC).

EWAN members are called on regularly to visit and give advice and demonstrations of weed management to country bushcare groups.

Through submissions to the Federal Minister, EWAN supported the successful funding of the second round of the Weeds CRC and to maintain contact with them

EWAN's requests for the inclusion of environmental weeds as declared plants has met some resistance at this stage, due to the lack of funding which would be required for such control to be put in place. This avenue continues to be pursued.

Management EWAN's greatest initiative has been the implementation of an environmental weed management project to set up best weed management protocols to preserve the ecology of the bushland. The four year program was completed this year with support from the Natural Heritage Trust (NHT), a national environmental funding program through Environment Australia.

This project employs a full time project officer and technical assistant. Six sites in all were chosen, including five Bush Forever (WA Planning Commission 2000) sites, giving a cross section of ecosystems within the Swan and Avon River Catchment area. They are the Brixton Street Wetland, Shenton Park Bushland, Blue Gum Lake and country sites, Gingin Brook Nature Reserve and the Quairading Nature Reserve on the edge of the wheatbelt. This enabled weed management protocols to be examined for a wide range of ecosystems. The Swan Catchment Centre provides the necessary office support for the project.

All sites are supported by community based Friends and Bushcare groups, formed by concerned citizens and either local government or CALM conservation officers.

Activities involved working with these groups and offering advice. Workshops were held regularly at different sites throughout the period with regular days set aside for management activities. Plant surveys for species lists, both native and exotic, were completed, with a field herbarium prepared and presented to each reserve. A set of specimens was also data based and deposited with the Western Australian Herbarium. Weed mapping was carried out at each site to locate weeds and to show their relationship to the quality of the bushland. This mapping enables the groups to plan the best approach for removal or to prevent further spread. Seasonal work programs are in place for each site.

Many different weeding methods were trialled in plots and transects. These were then scored to monitor results to determine the most effective methods of attack for the control of individual species and secondary incursions. The disturbance to the soil was kept to a minimum. The volume of root matter left in the soil was taken into consideration.

Different weed species and their responses were recorded over the four seasons, with particular emphasis on the growth in consecutive seasons, to register any further weed species taking the opportunity of the cleared space. The natural seeding of existing native plants is always recommended.

The use of seed of local provenance from the reserve or neighbouring local vegetation is encouraged with direct seeding. Replanting of specially grown local plants is a preferred last resort, but only if the first program is not successful or the area cleared is too large.

Herbicide trials were carried out to test their potential on different weeds species and their affect of the surrounding vegetation. A permit was granted for minor 'Off-label use' of some 50 herbicides in WA for use in environmental weed management after approaches from EWAN, NHT project committee

The overall value of the NHT project to the community over the period of its activity including the grants and in kind participation of all partners is estimated at over \$600,000.

Figures show that 65% of naturalised exotic plants were ornamental plants introduced for horticulture (Groves 1996). Approaches to the Nursery and Garden Industry of WA (NGIWA) have been well received and supported. Discussions with the management committee led to the opportunity for EWAN to present papers at the 2000 State Conference, with a presentation to both the retail section and the wholesale producers. Encouragement was given to industry members to be more aware of the role they have to play in the prevention and spread of real and potential weeds species. NGIWA now participates in the national educational program of 'Garden Plants under the Spotlight' (Weeds CRC 1999).

A care sheet for home gardeners compiled by EWAN is distributed and made available for annual Garden Week Displays.

EWAN has assisted Kate Blood of the Weeds CRC to run 'Garden Thugs' workshops in WA. This is a national education scheme for all gardeners, with emphasis on their role in the prevention of the spread of weeds. Workshops with NGIWA have been conducted. Posters and pamphlets are distributed to garden centres and plant nurseries as a part of the program.

Education EWAN supported the WA Herbarium Weeds Information Network and its training program, funded by an NHT grant, for the collection of weeds from throughout the state. This program could provide a valuable source of information for future location and budgeting of weed management programs if continued.

Workshops on the more difficult to identify plant groups, such as native grasses, rushes and sedges, to differentiate them from the invading exotic species were held. They were run in conjunction with other groups such as the Australian Association of Bush Regenerators (AABR), the Wildflower Society of WA and the Urban Bushland Council. Wide interest is shown in these natural genera, especially in their use to revegetate exposed bushland and wetlands.

From the findings of our NHT environmental weeds management project, a best practice management manual for bushland will be published in October 2002. This manual, supported by the Weeds CRC, will become an essential educational tool for environmental bush managers in Western Australia.

The promotion of the 'Weed of the Year' has proven very successful. Funds from the Lotteries Commission Gordon Reid Fund and the Swan Catchment Centre have enabled a series of publications on managing numerous weeds species to be produced and distributed. These were on bridal creeper (*Asparagus asparagoides* (L.) Druce, Liliaceae), watsonia (*Watsonia meriana* (L.) Mill., Iridaceae), Geraldton carnation weed (*Euphorbia terracina* L., Euphorbiaceae), taro (*Colocasia esculenta* (L.) Schott, Araceae) oxalis species including soursob (*Oxalis pes-caprae* L., Oxalidaceae), arum lily (*Zantedeschia aethiopica* (L.) Sprengel, Araceae), and woody weeds including Brazilian pepper (*Schinus terebinthifolia* Raddi, Anacardiaceae).

A workshop on the Geraldton carnation weed was held, and featured information gathered on this toxic weed and the dangers of such plants which may be encountered during management. Proceedings of the workshop and a management brochure were published and distributed. The information is available to local councils, friends groups, bushcare and landcare groups, education centres and libraries.

EWAN has a very comprehensive website, which is kept up to date with current the information gathered from our management project and workshops. It is an educational site with links to other appropriate sites.

Research Besides research carried out during the NHT environmental weed management project, EWAN continues to lobby state and federal government

agencies to provide further funding for research institutions for continued research into weed management.

Members have supported the Commonwealth Scientific and Industrial Research Organisation's (CSIRO) successful research into biocontrol of bridal creeper (*Asparagus asparagoides* (L.) Druce, Liliaceae). This control has involved interaction with environmental groups and schools throughout the south-west of Western Australia to rear the leaf hopper (*Zygina* sp.) for release on infestations.

Information notes are distributed to members and conservation groups twice a year. These update EWAN's and other groups' activities as well as informing recipients of the latest weed information.

The Weeds CRC around Australia runs the national education and awareness program 'Weed Buster Week' every October. EWAN supports the event with displays, surveys or workshops. This year EWAN's 'Weed Of the Year 2002' is the arum lily, which will be featured with a workshop and field trip.

Networking The EWAN management committee is a voluntary community based committee drawn from environmental groups, local government and state government agencies who volunteer their time and expertise towards the aims of the network. Committee members have additional interests in the Wildflower Society of Western Australia, Friends groups, the Conservation Council of WA, Urban Bushland Council, Canning River Residents Environmental Protection Association, Plant Protection Society of Western Australia, NGIWA, Botanic Parks and Gardens, Department of Agriculture, Local governments, Swan Catchment Centre, the Department of Conservation and Land Management, and Department of Environmental Protection, Water and River Protection.

Recent funding to the network for administration purposes from Environment Australia will enable EWAN to further consolidate their role.

CONCLUSIONS

The progress EWAN has made in a few short years in partnerships within the community and links to all the groups mentioned, has enabled successful environmental weed management programs to be set up and planning established. These, supported by the State Weed Plan through the State Weed Coordinating Council will continue to guide this State to a promising outlook for environmental weed control and fight to protect our environment so we have the choice of weeds or wildflowers.

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