

Water notes

Water notes for wetlands management



GOVERNMENT OF
WESTERN AUSTRALIA



Natural Heritage Trust



ADVISORY NOTES FOR LAND MANAGERS ON RIVER AND WETLAND RESTORATION

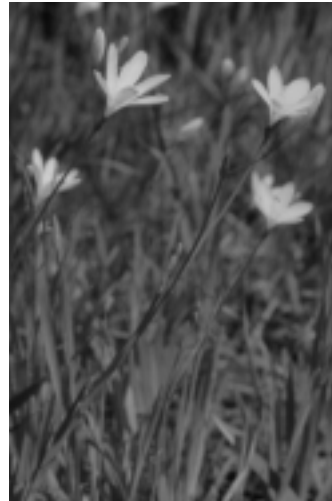
Wetlands and weeds

A weed is generally considered to be a plant that grows where it is not wanted. A better definition is that it is a plant that has the capacity to invade cultivated or disturbed land or natural ecosystems.

Weeds are generally vigorous and hardy and successfully compete with native species for space, light, nutrients and water. This is not because native species are inherently weak, but rather because, unlike native species, the weeds have left their disease organisms and grazing animals behind in their natural environment. It is these organisms that stop weeds from being “weedy” in their own natural habitats. Serious weeds are highly invasive. The spread of weed species is closely linked to the disturbance of native vegetation through activities such as clearing, grazing and dumping of garden refuse. Wherever disturbance occurs the risk of serious weed invasion is greatly increased.

How are weeds introduced to wetlands?

Weed seeds are dispersed by a range of mechanisms which includes transportation by wind and water and consumption of weeds and their fruit by native or introduced animals. Native birds are a good example of a most effective “vector” for dispersal. Some weed seeds are adapted to attach to the fur of animals and are transported in this way. For example, livestock act as seed carriers both via their fur and their faeces. Livestock can also retard native vegetation regeneration as a consequence of both grazing and trampling.



Sparaxis (Harlequin flower) K. Brown
A serious weed species found in clay wetlands on the Swan Coastal Plain.

In urban wetland areas human activities such as clearing, dumping of garden waste and lighting of frequent fires are the main causes of disturbance which lead to weed invasion. The disposal of water plants from ponds and aquariums into or near wetlands can lead to serious weed invasion problems. Simply growing invasive plant species near wetlands in home gardens

or parklands, increases the risk of invasion. Once established the growth of aquatic weeds is often accelerated as a consequence of the discharge of nutrient rich stormwater into wetlands which creates a more favourable environment for weed growth.

The effect of weeds on wetlands

Weed invasion threatens wetland biodiversity, leading to a decline in both species and habitat diversity.

Weeds impact upon wetland ecology in a number of ways by:

- directly competing with established native wetland plant communities;
- restricting native plant regeneration through competition;
- reducing the resources available for feeding, breeding and shelter of fauna; and
- increasing fire risk as a result of increased fuel loads.

Aquatic weeds have the potential to threaten irrigation channels and to block waterways. They can spread rapidly and form dense mats above or below the water. This results in a reduction in light entering the wetland and a depletion in oxygen levels in some cases causing death of aquatic fauna such as fish.ⁱ Certain weeds can increase fire risk and



frequency resulting in the loss of native trees and shrubs. It should be mentioned however, that certain aquatic weeds, such as bulrush (*Typha orientalis*) make excellent waterbird habitat.



Weed invasion at Lake Joondalup. Grassy weeds in the foreground and giant reeds (*Arundo donax*) in the background.

How can you help look after the wetland in your area?

Weeds should be “nipped in the bud” before they become well established and pose a serious threat to the natural ecology of the wetland. You can help by preventing disturbance, being vigilant and identifying and controlling weeds when they begin invading native plant communities.

- An excellent reference for weed identification is “Western Weeds – A Guide to the weeds of Western Australia” which contains both a description and a photograph of each of the most serious weed species found in Western Australia.
- Further assistance in weed identification can be obtained from the Weed Science Group at Agriculture Western Australia, and from the Western Australian Herbarium which is based at the Department of Conservation and Land Management Offices in South Perth.
- Plants which are serious weeds may be ‘declared’ by the Agriculture Protection Board under the Agriculture and Related Resources Protection Act (1976). Agriculture Western Australia should be notified of the location of declared weed species. If a plant is declared, all landholders are obliged to control that plant on their properties. A list of declared plants is available from Agriculture Western Australia.
- State and local government authorities are responsible for weed control on public land. You can help by contacting them when you become aware of potentially serious

weed invasion in areas of remnant bushland or wetland on public land. However, government resources are limited and usually engaged in combating more significant statewide and regional weed infestations, so volunteering your or your group’s services to tackle locally significant infestations is a much more effective course of action. Many individuals and community groups in WA do just that.

- Landowners are responsible for weed control on their own property. State and local government authorities can provide advice on weed control. An excellent reference for the control of individual weed species is “Managing Perth’s Bushlands” published by Greening Australia (WA).
- Protect wetland vegetation on your property from grazing, disturbance and clearing by fencing off natural areas of native vegetation.
- Revegetate wetlands with plant species native to the area, preferably with seed or plants from as near to that area as possible. This will maintain local biodiversity. Weed species will need to be controlled until the native seedlings are well established.
- Do not dump garden prunings or lawn clippings from your garden in a wetland or surrounding bushland.
- Never dispose of water plants from your pond or aquarium in a wetland, waterway or drain. Water plants should always be removed, dried out and bagged for disposal by rubbish collection or burial.
- Stormwater should not be discharged directly into wetlands as this often results in increased nutrient levels and the introduction of weed species.



Arum Lily (*Zantedeschia aethiopica*) is a highly invasive weed species.

C.Walker



A list of aquatic wetland weeds in southern Western Australia:

Common name	Botanical name
Alligator weed*	<i>Alternanthera philoxeroides</i>
Arrow head*	<i>Sagittaria montevidensis</i>
Bulrush	<i>Typha orientalis</i>
Fanwort	<i>Cabomba caroliniana</i>
Hydrocotyl or water pennywort*	<i>Hydrocotyle ranunculoides</i> , <i>H. verticillata</i>
Lagarosiphon*	<i>Lagarosiphon</i> spp.
Leafy elodea*	<i>Egeria densa</i>
Parrot's feather*	<i>Myriophyllum aquaticum</i>
Sagittaria*	<i>Sagittaria platyphylla</i>
Salvinia*	<i>Salvinia molesta</i>
Strap weed	<i>Vallisneria americana</i>
Water hyacinth*	<i>Eichhornia crassipes</i>
Water lettuce*	<i>Pistia stratiotes</i>

A list of common wetland weeds in southern Western Australia:

Common name	Botanical name
Trees	
Acacia longifolia	<i>Acacia longifolia</i>
Cape lilac	<i>Melia azedarach</i>
Castor oil bush	<i>Ricinus communis</i>
Coral tree	<i>Erythrina</i> spp.
Edible fig	<i>Ficus carica</i>
Japanese pepper	<i>Schinus terebinthifolia</i>
Olive tree	<i>Olea europaea</i>
Poplars	<i>Populus</i> spp.
Tea tree	<i>Leptospermum laevigatum</i>
Tree lucerne	<i>Cytisus proliferus</i>
Willow tree	<i>Salix babylonica</i>
Grasses (annual, perennial and giant) and other weeds	
African love grass	<i>Eragrostis curvula</i>
Annual veldt grass	<i>Ehrharta longiflora</i>
Bamboo	<i>Bambusa</i> spp.
Barbgrass	<i>Parapholis incurva</i>
Buffalo grass	<i>Stenotaphrum secundatum</i>
Couch	<i>Cynodon dactylon</i>
Fountain grass	<i>Pennisetum setaceum</i>
Giant reed	<i>Arundo donax</i>
Paspalum	<i>Paspalum dilatatum</i>
Great brome	<i>Bromus diandrus</i>

Kikuyu	<i>Pennisetum clandestinum</i>
Lupins	<i>Lupinus</i> spp.
Pampus grass	<i>Cortaderia selloana</i>
Quaking grass	<i>Briza maxima</i>
Shivery grass	<i>Briza minor</i>
Sweet vernal grass	<i>Anthoxanthum odoratum</i>
Perennial veldt grass	<i>Ehrharta calycina</i>
Wildoats	<i>Avena fatua</i> , <i>A. barbata</i>
Yorkshire fog	<i>Holcus lanatus</i>
Tall herbs & bulbs	
Arum lily*	<i>Zantedeschia aethiopica</i>
Canna lily	<i>Canna</i> spp.
Flat sedge	<i>Cyperus congestus</i> , <i>C. eragrostis</i>
Harlequin flower	<i>Sparaxis bulbifera</i>
Docks	<i>Rumex</i> spp.
Watsonia	<i>Watsonia</i> spp.

Weeds and salinization

Atriplex/creeping saltbush	<i>Atriplex prostrata</i>
Barley grass	<i>Hordeum leporinum</i>
Bearded grass	<i>Polypogon monspeliensis</i>
Rye grass	<i>Lolium</i> spp.
Wild aster	<i>Aster subulatus</i>
Sharp rush	<i>Juncus acutus</i>
Saltwater water couch	<i>Paspalum vaginatum</i>

Annual

Flaxleaf fleabane	<i>Conyza bonariensis</i>
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Vines and creepers

Blackberry*	<i>Rubus</i> spp.
Blue periwinkle	<i>Vinca major</i>
Bridal creeper	<i>Myrsiphyllum asparagoides</i>
Common lantana	<i>Lantana camara</i>
Dolichos pea	<i>Dipogon lignosus</i>
Japanese honeysuckle	<i>Lonicera japonica</i>
Morning glory	<i>Ipomoea indica</i> , <i>I. Caricia</i>

* Declared plants in Western Australiaⁱⁱ

ⁱ Water Note WN2, Wetlands and fire

ⁱⁱ Agriculture Western Australia 1997, Weednote: Serious aquatic weeds of Western Australia. Agdex 674 No.1/97.



Further reading

Available from Water and Rivers Commission

Water note WN2, *Wetlands and fire*

Water note WN3, *Wetland vegetation*

Water note WN4 *Wetland buffers*

Water note WN5, *Wetlands as water bird habitat*

Water note WN10, *Protecting riparian vegetation*

Water note WN15, *Weeds in waterways*

Available from other sources

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Brouwer, D. 1995, *Managing your wetlands on farms*, NSW Agriculture, Australia.

Buchanan, R. A. 1991, *Bush Regeneration: Recovering Australian landscapes*, TAFE, Sydney, Australia.

Fisher, J. 1998, *Management Plan, Bannister Creek Reserve, Prepared for the City of Canning*, Western Australia.

Hussey, B. M. J. Keighery, G. J. Cousens, R. D. Dodd, J. and Lloyd, S. G. 1997, *Western Weeds: A guide to the weeds of Western Australia*, Plant Protection Society of Western Australia and the Gordon Reid Foundation for Conservation, Western Australia.

Scheltema, M. and Harris, J. (eds) 1995, *Managing Perth's Bushlands: Perth's bushlands and how to manage them*, Greening Australia (WA), Perth, Western Australia.

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