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Department of Biodiversity,
Conservation and Attractions

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### References:

Bradley, J. (1988), *Bringing back the bush*, Ure Smith, Willoughby, NSW.

Burke, G (1994), Who's going to pay?; Keighery, G (1994), Bushland weeds overview; Pen, L (1994), Weeds in Wetlands; all in Weeding Western Australia, A forum for land managers, 29 March 1994, Australian Association for Environmental Education (WA).

This poster was produced by the Department of Environmental Protection and the Swan River Trust

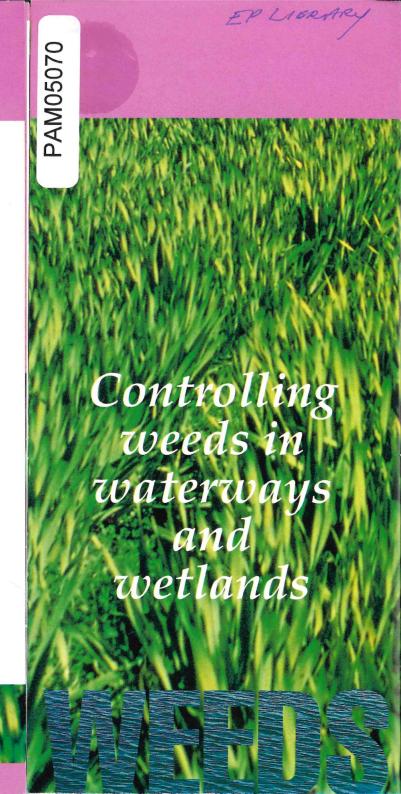
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Department of Environmental Protection



### The aliens have arrived...

### Removing weeds

Special care must be taken when removing weeds from foreshores and wetlands. If the soil is disturbed too much, more weeds may invade the weeded area. Removing too much vegetation may also cause erosion.

When removing weeds, it is important to remember that the aim is to allow the natural vegetation to regenerate.

Preferably, weeding in bushland and wetlands should only be done by, or with the assistance of, trained bush regenerators. Generally, you should:

- Minimise soil disturbance;
- Work from good areas to bad;
- Allow the bush to dictate the rate of work. (Bradley, 1988).

It is important to remove any parts of the plants that may cause the plants to re-invade the weeded area. Bulbs, corms and seed heads should be put into bags immediately and taken away. With plants that reproduce from cuttings, all plant material should be removed.

### A word about herbicides

Recommendations for weed control often involve herbicides. Herbicides are rarely selective (to the specific weed being controlled) in their action, so care should always be taken when using them, especially near wetlands and waterways.

Follow the manufacturers' instructions exactly and always wear protective clothing.

If possible, remove weeds mechanically, rather than using herbicides.

Generally, it is better to apply herbicides selectively, by stem-injecting (drill a hole into the tree and inject herbicide into it) or applying them with a wick applicator. (There are several types of wick applicators on the market.) Many herbicides are water soluble and can cause severe problems in wetlands and waterways. It is not only the active ingredients in herbicides that can cause harm—other chemicals, called surfactants, contained in commercial herbicide mixtures can cause problems. Surfactants "open" membranes, allowing better uptake of herbicides by plants. This same property can cause them to damage the gills of aquatic animals, such as tadpoles and water fleas.

Given this, it is best not to spray herbicides containing surfactants on or near wetlands or streams, unless they have been specifically tested and found to be safe for use in this environment. For more information contact the Department of Environmental Protection.

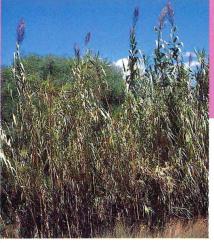


\*Stenotaphrum secundatum Buffalo grass

A creeping perennial grass with flowering stems (September-April) up to 30cm high and leaves to 15cm long. Originally from tropical and sub-tropical regions. Disperses vegetatively. Competes with native plants in disturbed areas.

### \*Cynodon dactylon Couch

A perennial grass with prostrate and erect stems and leaves up to 10cm long. Originally from Europe but now cosmopolitan. Spread by wind, water and vegetatively. Can be difficult to control. The Swan River Trust has used flauzifop-butyl to control couch in riverine areas, and reports little impact on natives but good control of couch.



### weeds are invading our wetlands and waterways

### \*Arundo donax Giant reed, Giant danube reed, Bamboo

A bamboo-like perennial grass up to 4m tall with leaves up to 60cm. Plume like

clusters of flowers up to 60cm long. From southern Europe, the Mediterranean area and Asia. A garden escape dispersed vegetatively and by water. Can be confused with true bamboo (\*Bambusa spp.) which is bigger and also a weed of watercourses in WA. Best controlled by cutting to ground and wiping regrowth with glyphosate 1% when 50cm high.

### \*Conyza bonariensis Flaxleaf fleabane

An annual, with erect, multi-branched, flowering stems up to 1m high. Flowers creamy. Originally from South America, now widespread. Major problem in disturbed sites. Produces lots of seeds, so difficult to control. Decreases in numbers as natives come back, especially after fire. Hand-pull — large plants may require two people.

### \*Cortaderia selloana Pampas grass

A large, tussocky perennial grass. Has silvery whitepink feathery flowers that appear from March to April and persist until September. Comes from South America, now widespread, posing a very serious threat to wetlands. It is dispersed by water and wind. Harvest and remove flowering plumes. Small plants and seedlings can be hand-pulled.



### \*Paspalum dilatatum Paspalum

Widespread perennial grass, up to 1m tall. Flower heads tend to be sticky to touch. Originally from South America. Difficult to control in some situations. Can be hand-pulled in some situations.

### \*Watsonia spp. Watsonia

There are several species of this genus that are problem weeds in WA. All are cormous herbs in which the above ground parts are renewed annually. Up to 2m high, with many basal leaves up to 1m long; white, pink or orange flowers October-December. Originally from South Africa. Very serious threat — highly invasive, especially in disturbed areas. Very difficult to hand-pull due to corms. In small infestations, the corms can be sieved out of the ground, put in bags and removed. Heavy infestations can be treated with glyphosate just before flowering.



### \*Zantedeschia aethiopica Arum lily

A tuberous perennial herb. Up to 1m tall with stalked leaves to 50cm. White flowers with bright yellow stamens from August to November. Comes from South Africa. Very serious threat. Spread by birds, water and vegetatively. Can be dug out, although this is difficult. Continuously cutting and

removing all leaf matter will eventually kill arum lilies. All plant material should be taken away.

### \*Rumex spp. Dock

There are several species of dock that are weeds in WA. Generally, they are perennial herbs with erect flowering stems up to 1.25m tall and large leaves at the base. Originally from Europe and Africa. Produces many seeds. Difficult to hand-pull. Seed heads should be removed. Continual cutting will eventually kill dock.

### \*Ipomoea indica Morning glory

A perennial twiner (sometimes prostrate). Leaves up to 10cm long and tubular flowers up to 8cm long. Native to the



tropics. Has a limited distribution but medium to large populations. Dispersal is vegetative. Morning Glory smothers native plants, often spreading from gardens. Pull twining stems off plants and bag immediately for removal.



### \*Myrsiphyllum asparagoides Bridal creeper

A cormous twiner in which the above ground parts are renewed annually. Has twining stems up to 2m long.

Originally from South Africa. Bridal creeper is a very serious threat to Perth's wetlands and bushland, smothering small plants by climbing and trailing over them. It is spread vegetatively and by birds. Difficult to hand weed but can be done. Care must be taken to remove corms and pulled plants must be taken off site.



### \*Rubus fructicosus (Also R. discolor, R. selmeri and R. ulmifolius) Blackberry

Straggling perennial vine with long arching stems, prickles sparse, flowers pinkish-white, mature fruit purple-black. Originally from Europe, it was introduced as a fruit crop. In WA, limited distribution, medium to large populations, mostly in swamps, lakes, rivers and damplands, espe-

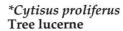
cially along disturbed creek edges. Spread from gardens by birds, other animals and vegetatively. Very serious threat. Small infestations can be handpulled. Large infestations may require mechanical removal with machines. Root bases can be dug out or painted with glyphosate.



### \*Ricinus communis Castor oil bush

A tall, branching, perennial shrub. Branches tinged green-red and fruits burr-like. Originally from Africa and Asia. A potential threat, spread by water and animals. Small plants can easily be hand-pulled. For larger plants, cut and paint stump with

glyphosate or stem inject. Easily breaks down into mulch. Produces seeds that remain dormant until parent plant has been removed so follow up work to remove seedlings is needed.



A large shrub to small tree. Small white pea flowers in spring, followed by hairy pods up to 5cm long, each carrying about 10 seeds. Originally from the Canary Islands, it was introduced as a hedge plant and fodder crop. Readily forms large thickets. Handpull seedlings. For larger trees, the suggested method is to cut it down and paint the stump with glyphosate.





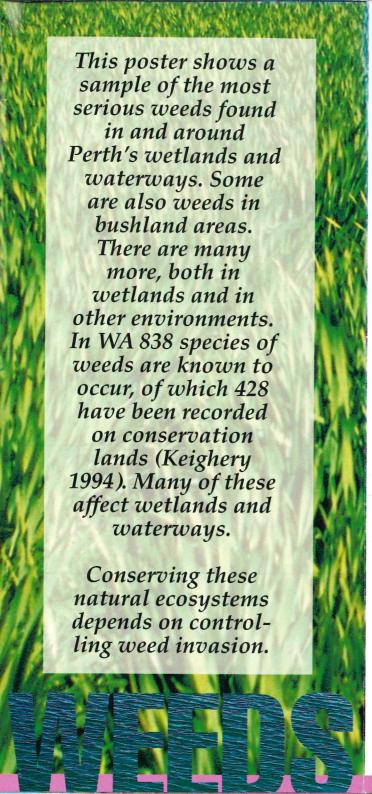
### \*Populus spp. Poplars

Large deciduous tree — some species up to 40m tall. Stem is usually erect and slender. Reproduces from suckers and cuttings. Suckers can usually be controlled by cutting off plant tops repeatedly. If unsuccessful, paint fresh cut stems with glyphosate. Will continue to sucker until parent plant is killed, which can be done by removing most of the leaves and stem-injecting herbicide.



\*Schinus terebinthifolia Japanese pepper

An evergreen tree that grows to a height of 8m with a spread of 3m. The stem is short, stout and branching; flowers tiny and greenish. Produces round, orange berries which are spread by birds and water. Small plants can be hand-pulled. For larger trees, cut off and paint stump or stem-inject.



### \*Cyperus congestus Dense flat sedge

A tufted perennial herb, up to 60cm tall, leaves grass-like and much shorter than the stems. Flowers October-March. Originally from South Africa. Spread by animals, water and possibly wind and poses a potential threat to natural ecosystems. Can be very difficult to distinguish from native sedges. It is important to make an accurate identification before clearing this sedge from wetlands.

### \*Typha orientalis Bulrush

An emergent, perennial aquatic plant. Usually 3-4m tall, leaves flat in cross-section; chestnut-brown female flowers in a spike 1-4cm diameter from November to January. Native to South Australia, Victoria, Tasmania, New South Wales and Oueensland. Very serious threat to swamps, lakes, rivers and damplands in WA. Spread by animals, water and wind. Competes with native Typha (T. domingensis) and other natives. Can be difficult to distinguish the two species. T. domingensis has bright green leaves and cinnamon brown female flower spikes. It is important to ensure an accurate identification has been made before clearing Typha from wetlands. Can be controlled by cutting stems below water level in summer, which causes plants to rot. Remove flowers.



### \* Denotes exotic species

### More information on weeds is available from:

Waterways Commission and **Swan River Trust** 16th Floor, London House 216 St Georges Terrace PERTH WA 6000 Ph: (09) 327 9777 (Waterways Commission) Ph: (09) 327 9700 (Swan River Trust)

### **Department of Environmental Protection**

Westralia Square 141 St Georges Terrace PERTH WA 6000 Ph: (09) 222 7000

### Agriculture Protection Board of WA

Baron-Hay Court SOUTH PERTH WA 6151 Ph: (09) 368 3333

### Australian Association of Bush Regenerators

c/- APACE Winter House 1 Johanna Street NORTH FREMANTLE WA 6159 Ph: (09) 336 1262

### Department of Agriculture

Baron-Hay Court SOUTH PERTH WA 6151 Ph: (09) 368 3333

### Greening Western Australia

1118 Hay Street WEST PERTH WA 6005 Ph: (09) 481 2144

### Kings Park and Botanic Gardens

WEST PERTH WA 6004

Ph: (09) 321 5065



hat is a weed?

A weed is a plant growing out of place. In areas of natural vegetation, that means anything that is not indigenous (native to that particular area) is a weed. So natives from elsewhere in Australia, or even elsewhere in the State, can become weeds if they are growing outside their natural range. The seriousness of a weed problem depends on the weed's growth habit and its ability to spread and colonise.

Weeds are one of the most serious threats facing Perth's bushland, waterways and wetlands.

### Why are weeds a problem?

'Weeds compete with local plants for space and light. Because they are not part of the local ecosystem, they usually exist free of pests, diseases, grazers and other controlling influences, so they have huge potential to spread. Weeds take over the natural vegetation, reducing species diversity, diminishing habitat value and changing the landscape. The result is a new ecosystem, vastly different from the original and without the same conservation values.

# ow serious is the problem?

It has been estimated that the direct and indirect costs of weeds to the Australian community are about \$50 million a week (Burke 1994). This figure, however, does not include damage to the environment.

### Where do weeds come from?

The weeds that occur in Perth's bushland and wetlands mostly come from gardens and farms. Seed can be blown or washed into bushland, streams or wetlands. A common source of weeds is garden refuse. People often dump garden waste in natural areas. It may contain seeds, bulbs or cuttings that can grow into new plants. Birds can also bring weed seeds into bushland in their droppings. Imported aquarium plants can become terrible aquatic weeds if they find their way into streams, rivers or wetlands.

## s it anything to do with me?

How you manage your garden can affect the weed problem in Perth's bushland and wetlands. There are a few simple things you can do:

- Don't dump garden waste in the bush near rivers or wetlands. Either compost your gar-
- den waste or take it to a tip to be composted.
- Be selective in what you grow in your garden. There are many plants that are not a threat to local ecosystems. Grow some local indigenous species — this will also save water and attract birds and lizards to your garden.
- If you do have any of the plants featured on this poster in your garden, think about removing them. If you want to keep them, manage them so they aren't a problem for local waterways and wetlands — remove flower heads before they seed and dispose of any cuttings carefully (compost them or take them to a tip where they will be composted.)
- Never empty aquaria into rivers or drains.