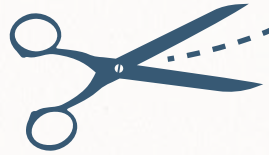
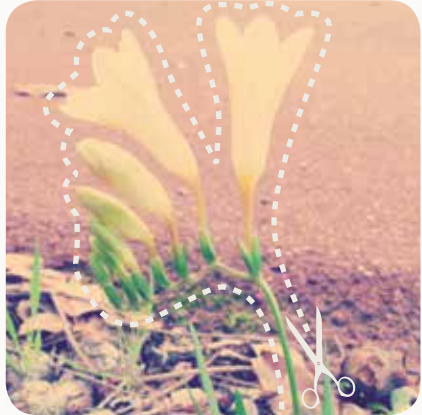




Plants out of place

Managing weeds in Perth's eastern region





Contents



Introduction	2
What is a weed?	2
Identification	2
Best Weed Management Practices	3
Control Techniques	4
Bulbs	6
Grasses	14
Herbs	21
Rushes	28
Shrubs	29
Vines & Creepers	47
References	50

Acknowledgements

Shire of Mundaring - Environmental Services Team
Shire of Kalamunda - Environmental Services Team
Eastern Hills Catchment Management Program
Jane Brook Catchment Group
Photographs provided by Una Bell, Tamara Wilkes-Jones,
Cliff Burns and Renee D'Herville

First published 2013. Design and layout by Media on Mars.

Printed by QDi. Copyright Shire of Mundaring 2013



Introduction

This booklet aims to provide easy identification of some of the most threatening weeds that occur in Perth's Eastern Hills and outlines recommended methods of control. We can all take action to solve the weed problem. This compact booklet is great in the field and will help you get to know the weeds in your local area.

What is a weed?

A weed, also known as an invasive plant, is any plant that requires some form of action to reduce its effect on the environment. A weed colonises and persists in an ecosystem in which it did not previously exist. Many garden and agricultural plants introduced into Australia in the last 200 years are now weeds, impacting on natural remnant ecosystems.

Although most of Australia's weeds are from other countries, Australian native plants can also become weeds when species move from within their natural habitat into new areas where they compete with indigenous plants for space and nutrients

Identification

It is important to correctly identify a weed to ensure that it is a weed and not a native. Correct identification is an important step in making sure that new weeds can be eradicated before they become established. Factors to consider when identifying weeds include:

- where and when the weed is growing
- what group the weed belongs to (herb, grass, shrub, bulb, vine)
- leaves – shape and size, colour of the weed
- flower, seed head or fruiting body of the weed

Along with this booklet, there are many resources such as field guides, fact sheets and websites to help you correctly identify weeds. A list of suggested resources is provided at the back of this booklet. If you cannot identify a weed using these resources, identification can be gained by sending a sample or photo to your local shire Bushcare Officer and for further assistance enquire at the Western Australian Herbarium.



Best Weed Management Practices

Early detection and prevention of new invasive weeds is invariably cheaper and more successful than eradicating established infestations. In the event that weed infestations become established, procedures and methods for their control are available to reduce their impact. Here are some conservation and land management principles to help get you started:

Hygiene - we often contribute to the spread of weeds. Cleaning weed seeds from tools, equipment, machinery, vehicles (especially tyres), pets, clothing and boots is fundamental to the success of weed control. Place seed heads and plant material in bags, such as wool bale bags, shopping bags or old chaff bags. Prevent seed spread by ensuring bags are clean before taking into bushland areas.

Before removing weeds, it is important to consider the wildlife that may be using them for habitat and food. Provide natural habitat or alternative shelter before removing the weeds.

If in doubt, don't pull it out! Ensure that you have correctly identified the plant as a weed before removing it.

Consider your control technique in view of the whole ecosystem. Are you causing more harm than good? Are you achieving something to benefit the whole ecosystem?

Look beyond boundaries - most weeds don't distinguish fences. The weeds and plants that occur in bushland and in garden areas are all linked. Weeds are introduced into the bush from surrounding gardens and agriculture and once in the bushland they are able to re-invade backwards and forwards across these boundaries.

Start at the top - weed seeds and other plant parts move down into and along catchments by being carried by water and rolling down slopes. Where possible, it is more efficient and effective to start controlling weeds at the top of the catchment or watercourse so that weeds upstream do not keep re-infesting treated areas downstream.





Control Techniques

Basal Barking

Basal bark spraying is applied around the full circumference of the trunk or stem of plant to a height of 30 cm and is suitable for thin-barked woody weeds and undesirable trees. This method allows the herbicide to enter underground storage organs to slowly kill the weed. The weed will die but remain in-situ, retaining ideal perching and nesting structures that many native birds desire. This method is best performed by qualified and licensed contractors.

Cut and Paint

The plant is cut off completely at its base (no higher than 15 cm from the ground) using a chainsaw, axe, brush cutter or machete (depending on the thickness of the stem/trunk). Herbicide is then sprayed or painted onto the exposed surface of the cut stump emerging from the ground, with the objective of killing the stump and the root system. It is vital that the herbicide is applied as soon as the trunk or stem is cut. More than 15 seconds delay with application will have poor results. This method is effective when used with a team of two, one person cutting and the other painting. It is useful to add coloured dye to the herbicide to identify treated stumps. For large stumps, the herbicide only has to be applied to the cambium layer, just inside the bark. This method allows immediate removal of the weed and is mainly used for trees and woody weeds.

De-heading

Weed flower heads can be cut off, sealed in a strong garbage bag and placed in normal waste bins to prevent spread. This method assists with avoiding seed set.

Drill and Fill

Drill and fill involves drilling through the bark into the sapwood tissue in the trunks of woody weeds and trees. A battery-powered drill is used to drill downward-angled holes into the sapwood about 5 cm apart. The herbicide is applied, within 15 seconds, into the hole using a backpack reservoir and syringe that delivers measured doses of herbicide.

Foliar Spraying

Herbicide is diluted with water at a specific rate and sprayed on the foliage until every leaf is wet, but not dripping. This method is suited to shrubs, grasses and dense herbs and vines, less than 6 m tall. Advantages include speed and economy. Disadvantages include the potential for spray drift and off-target damage. For large infestations that require targeted applications of herbicide, a hose and adjustable nozzle can be used to spray from a herbicide tank and pump unit on a vehicle. Smaller infestations can be sprayed using a knapsack spray unit. Spot spraying is used to treat individual plant.

Frilling

Using an axe or tomahawk, cuts are made into the sapwood around the circumference of the trunk at waist height. While still in the cut, the axe or tomahawk is leaned out to make a downward angled pocket which will allow herbicide to pool. The herbicide is immediately injected into the pocket. Cuts should be made no further than 3 cm apart. It is important not to entirely ring-bark the trunk, as this will decrease the uptake of the herbicide into the plant.

Manual Removal

Manual control techniques encompass hand-pulling, grubbing and digging treatments using tools such as trowels, forks, mattocks, shovels, rakes, chisels and knives. Removing weeds manually is the most sensitive. Care should be taken not to disturb the soil excessively to avoid erosion.

Solarisation

Solarisation is the technique of placing plastic sheets over weeds for a period of time during their main growth to inhibit photosynthesis and increase temperatures beyond the weed's tolerance levels. The treatment is particularly effective on small infestations of various rhizomatous species where there is little or no indigenous ground flora present.



Arum Lily (*Zantedeschia aethiopica*)

ORIGIN

South Africa

KEY POINTS

- A garden escapee which is now found in moist areas in creeks, rivers and wetlands
- Out competes with indigenous plants and stops water flow
- Can be toxic to stock

DESCRIPTION

Arum Lily has a tuft of dark green, shiny, succulent leaves arising from tuberous roots. The leaf blades are heart or arrow-shaped and are 25 cm long, almost as long as the flower stalk. The large, white, funnel-like flower, with yellow spike is 10 cm wide and is produced in late winter to spring. The orange-yellow berries are spread by birds and water.

CONTROL METHODS

- Manual removal is only effective with younger plants and if all the root fragments are removed
- Cut flowers to prevent birds spreading seed
- Spot spray using glyphosate plus surfactant, when the water level is low or dry to avoid water contamination



Baboon Flower (*Babiana angustifolia*)

ORIGIN

South Africa

KEY POINTS

- Introduced as a garden ornamental which has escaped to become a serious weed in native bushland
- It is dispersed mainly by the dumping of garden refuse and earthworks

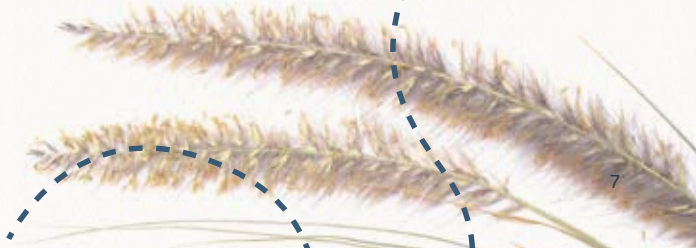
DESCRIPTION

Baboon Flower grows to 35 cm high. The leaves are hairy, striped or ribbed and are folded lengthwise like a fan. The loose flower spike has 3-10 individual flowers. Flowers are purple, blue or mauve with red to black markings. It reproduces by corms and flowers August to October.



CONTROL METHODS

- Hand weed small infestations in sensitive areas, ensuring to remove the corm
- Spotspray larger clumps with glyphosate and surfactant before flowering



Freesia (*Freesia alba x leichtlinii*)

ORIGIN

South Africa

KEY POINTS

- Freesia is a horticultural hybrid which is now a serious bushland weed occurring in a variety of disturbed habitats

DESCRIPTION

Freesias are tufted plants with soft, light basal leaves arising annually from an underground corm. The erect flowering stem is bent to one side just below the lowest flower. It has white or creamy yellow flowers which have yellow to orange markings. The tubular flowers are arranged on one side of the flower stalk. Flowers in spring.

CONTROL METHODS

- These plants are difficult to control by hand weeding because they produce seed, corms and bulbils. Loosen the soil before removal to prevent the corm breaking off
- Painting leaves with a brush or wiper dipped in undiluted glyphosate can be used in sensitive areas
- The area will require follow-up spraying or hand weeding of the tiny seedlings emerging from bulbils



One-leaf Cape Tulip (*Moraea flaccida*)

ORIGIN

South Africa

KEY POINTS

- This plant is a garden escapee which has now become a significant weed throughout southern Australia
- One-leaf Cape Tulip is difficult to control chemically due to the dormancy of corms below the ground
- It is highly toxic to stock and may invade pastures

DESCRIPTION

One-leaf Cape Tulip is a herb with two to three sprawling leaves produced annually from a small corm. The branched flowering stem has short-lived pink to orange flowers. The flowers each have six petals. It reproduces by corms. Prior to flowering Cape Tulip can be recognised by the browning-off of the leaf tips. It flowers in late winter and spring.

CONTROL METHODS

- Individuals and small numbers of plants should be dug out and the corms and fruit destroyed by burning or immersion in boiling water
- Can be effectively and economically controlled with glyphosate treatment, repeated over several seasons. It is most effective when the plant is just

about to flower. Treatment must be undertaken annually to reduce the population of Cape Tulip



Pink Gladiolus (*Gladiolus caryophyllaceus*)

ORIGIN

South Africa

KEY POINTS

- A garden escapee, which now invades urban bushland
- These plants are very difficult to control by hand weeding because they produce many small cormels under the main corm, which usually break off and remain in the soil

DESCRIPTION

Pink Gladiolus is a tufted plant with erect sword-shaped leaves to 40 cm high, which die back each summer to an underground corm. It has 4-6 leaves with distinct red margins. In young plants the leaves twist spirally in an anti-clockwise direction. Flowers are bright pink from August to November. It spreads quickly by large numbers of seeds produced and dispersed.

CONTROL METHODS

- Wipe individual leaves with glyphosate in degraded areas or spray dense infestations in degraded areas, just on flowering in late winter to early spring
- The area will require spraying again next season to control tiny seedlings emerging from cormels
- Hand weed, ensuring to dig out the cormels



Three-cornered Garlic or Onion Weed (*Allium triquetrum*)

ORIGIN

Africa and southern Europe

KEY POINTS

- Found in damp areas, frequently near creeks or granite rocks
- Capable of forming dense colonies, dominating native understorey

DESCRIPTION

Three-cornered Garlic has a tuft of soft leaves arising in late winter from a small, pale bulb. The 3-angled, strap like leaves may be up to 45 cm long and have a characteristic 'onion' or 'garlic' smell when crushed. The flowering stem is topped with a cluster of white drooping bell-like flowers. It flowers in late winter and early spring.

CONTROL METHODS

- Remove manually and ensure all bulbs are removed otherwise the plant will reshoot
- Foliar spray with glyphosate or metsulfuron



Watsonia, Bulbil Watsonia, Bugle Lily (*Watsonia* spp.)

ORIGIN

South Africa

KEY POINTS

- A garden escapee, it has become a major environmental weed of disturbed bushland and roadsides, particularly near water
- Native plants which, when not flowering, may be confused with *Watsonia* are Kangaroo Paws with darker green, fleshier, unribbed leaves, that are often mottled with dark markings on the older leaves

DESCRIPTION

Watsonias have erect sword-shaped leaves to 1 m in length which are produced annually from a corm. The flowering spike is usually unbranched and up to 2 m high with many large trumpet shaped flowers. Each flower has a curved tube and 6 spreading lobes. It reproduces from a large corm and small bulbils. They flower in spring and early summer.

CONTROL METHOD

- Control involves physical removal of corms from the soil, prevention of dispersal of the cormels by removing the foliage and flowering stems and the use of chemicals
- Removal of flowering stems from all

plants in a given population prevents bulbil and seed production and therefore recruitment of new *Watsonia* plants

- Apply glyphosate just as the flower spike emerges



Wavy Gladiolus (*Gladiolus undulatus*)

ORIGIN

South Africa

KEY POINTS

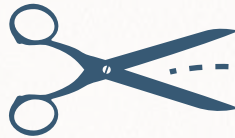
- Occurs commonly along roadsides and watercourses in wetter areas.
- These plants are very difficult to control by hand weeding because they produce many small cormels under the main corm, which usually break off and remain in the soil

DESCRIPTION

Wavy Gladiolus has 3-5 erect sword-shaped leaves with red-purple sheaths arising annually from a corm. The flower spike is often more than 1 m high and has one sided sprays of 3-8, showy, white to cream flowers. The funnel shaped flowers have a distinctive wavy margin. It flowers from spring to early summer.

CONTROL METHODS

- Wipe individual leaves with glyphosate in degraded areas or spray dense infestations in degraded areas, just on flowering in late winter to early spring
- These plants are very difficult to control by hand weeding because they produce many small cormels under the main corm. Dig up the plant and soil containing the corm and cormels.



African Love Grass (*Eragrostis curvula*)

ORIGIN

South Africa

KEY POINTS

- An agricultural pasture escapee
- Common weed infesting road verges and degraded areas

DESCRIPTION

A large, densely tufted, perennial grass, growing to about 1.2 m tall. The inflorescence is grey. It flowers November to May.

CONTROL METHODS

- Small plants can be dug out, ensuring the seeds are removed and bagged. The tough fibrous roots tend to break off and regrow
- Spray with glyphosate during summer or before seed set. Repeat applications are required for seedling emergents.



Annual Veldt Grass, Perennial Veldt Grass (*Ehrharta longiflora*, *Ehrharta calycina*)

ORIGIN

South Africa

KEY POINTS

- Common weeds along creeklines and roadsides
- Perennial Veldt Grass is a weed in bushland
- Fire enhances seed germination

DESCRIPTION

Winter-active grasses growing from 30-60 cm tall. Annual Veldt Grass has large spikelets which are purple and green. Perennial Veldt Grass has smaller spikelets, often purple and straw-coloured.

CONTROL METHODS

- Small populations are easy to hand-pull, as roots are very shallow, ensuring crown removal
- Plants can be sprayed with grass selective herbicide over autumn to winter, before flowering stems emerge. Follow-up treatment may be necessary. Spray seedlings within four to six weeks of emergence



Annual Veldt Grass



Annual Veldt Grass



Perennial Veldt Grass

False Bamboo or Giant Reed (*Arundo donax*)

ORIGIN

Asia and southern Europe

KEY POINTS

- A garden escapee that is now a weed along watercourses, wetlands and moist disturbed areas
- Can be confused with Bamboo

DESCRIPTION

The plume-like inflorescence is 30-60 cm long. It flowers autumn and winter.

CONTROL METHODS

- Smaller infestations can be removed manually, but it is labour intensive as all underground rhizomes must be removed to prevent regeneration. However, manual removal is more selective and may be necessary to prevent damage to nearby native plants
- Hand pulling can be effective on plants of less than 2 m in height
- Larger plants can be cut near the base and painted immediately with glyphosate
- Glyphosate can be sprayed on the leaves immediately after flowering and before the plant becomes dormant in the cooler months



Fountain Grass (*Cenchrus setaceus*)

ORIGIN

South Africa

KEY POINTS

- Introduced as an ornamental grass, now a weed of disturbed areas near drains, roads and on rocky areas

DESCRIPTION

A robust perennial grass with flowering stems to 1 m tall. The leaves are tough, smooth and hairless and grow to 60 cm long. The flowers are numerous and pale purple to pink. Each flower is surrounded by up to 25 thin bristles which enclose the cylindrical grain, which is wheat coloured. Flowers from late spring to mid winter.



CONTROL METHODS

- Small infestations can be removed by uprooting, removing and destroying seedheads
- Extensive infestations can be spotsprayed with glyphosate
- The long-lived seeds make continued monitoring after treatment essential



Haas Grass (*Tribolium uniolae*)

ORIGIN

South Africa

KEY POINTS

- Pasture grass which is now infesting road verges, jarrah forest and wandoo woodlands
- Fire will cause massive seedling recruitment

DESCRIPTION

A densely tufted upright perennial grass to 0.6 m high. Inflorescence is up to 7 cm long and is green, maturing to straw colour. Flowers October to January. Reproduces mainly by small lightweight seed. May reproduce from material that breaks off from the base.

CONTROL METHODS

- In small, isolated populations cut below the base of the plants and take care to remove all seed and material
- Spot spray with glyphosate or engage contractors to apply selective herbicide



Pampas Grass (*Cortaderia selloana*)

ORIGIN

South America

KEY POINTS

- A garden escapee
- An aggressive coloniser, especially in moist areas of open and disturbed areas

DESCRIPTION

The large and long-lived tussock grass can grow to 4 m high. Leaves are long, up to 2 m finely serrated, blue-green above and dark green below. It has fluffy pink to brownish inflorescence which is held high above the leaves. Each plume has up to 100,000 flowers. The seeds can be dispersed over long distances by wind or water. Flowers in winter.

CONTROL METHODS

- Manual removal is the best method of control where possible. Plants can be dug out, ensuring to remove all the roots. Slash back or brush-cut the sharp leaves first. If plants are flowering, carefully remove plumes, placing them in a large bag for disposal (old wool bale bags are very useful for putting weed refuse in)
- Small seedlings can be sprayed with glyphosate





Tambookie Grass (*Hyparrhenia hirta*)

ORIGIN

South Africa

KEY POINTS

- Introduced as an agricultural pasture grass, which is now found along roadsides, rivers and creeks
- Out competes local native plants
- Fire stimulates vigorous regrowth

DESCRIPTION

Tambookie Grass is a densely tufted perennial to 1 m high. The inflorescence is grey and is produced from November to July. It spreads by seeds.

CONTROL METHODS

- Hand remove small infestations, ensuring to remove the whole root
- Larger plants may be sprayed with glyphosate from November to March
- In large degraded areas, brush-cut or slash the stems before seed maturity and spray the regrowth with glyphosate
- Reduce the use of herbicide in areas with native grasses
- Bag seed heads



African Veldt Daisy (*Osteospermum ecklonis*)

ORIGIN

South Africa

KEY POINTS

- Occasionally found around settlements, often growing from dumped garden rubbish
- Plants grow mostly in sandy soil on steep slopes or at the base of cliffs

DESCRIPTION

Soft, spreading perennial herb to 1 m high. Stem can be woody at the base. Flowers are purple or white. Flowering occurs in winter and spring.

CONTROL METHODS

- Hand remove small infestations
- Spot spray with glyphosate before flowering
- Cut flowers off and dispose of to avoid seed set



Blackberry Nightshade (*Solanum nigrum*)

ORIGIN

Europe

KEY POINTS

- A weed of wasteland, pastoral land and cropping
- Readily spread by birds into bushland

DESCRIPTION

Blackberry Nightshade is a herb growing to 1 m high. Leaves are entire or very shallowly lobed. The flowers are white. The succulent, globular berries are at first green, becoming dull black at maturity. Flowering for much of the year.

CONTROL METHODS

- Prevent seed set for several years
- Manually remove plants before flowering
- On larger infestations, apply glyphosate when the weed is actively growing in summer.
- Encourage shrub species and litter build up to reduce re-infestation.



Cottonbush (*Gomphocarpus fruticosus*)

ORIGIN

South Africa, Mediterranean

KEY POINTS

- An escaped garden shrub, now an environmental weed, that has spread into disturbed, moist sites, including areas of broken ground along watercourses, storm water drains and bushland
- Spreads by light fluffy seeds and lateral roots

DESCRIPTION

Cottonbush is an upright perennial plant that normally has a rather slender shrubby habit and grows to 2 m tall. Its stems are pale green in colour and covered in small white hairs when young. The stems become woody with age. The plant exudes a milky sap when broken. The leaves are narrow and shiny pale green in colour. The loose drooping clusters of 3-10 flowers are white/cream in colour and occur from spring through until early autumn, but most abundant in summer.

CONTROL METHODS

- Avoid contact with the toxic sap
- The shallow root system means small infestations can be dealt with by hand pulling. All material should be removed and disposed of carefully to prevent spread

- Larger infestations are best managed with a combination of mowing/brush-cutting, followed by spraying with Glyphosate



Dock (*Rumex sp.*)

ORIGIN

Europe, South-west Asia

KEY POINTS

- A robust, upright perennial with a root system that can reach 3 m in depth
- Often found along creeklines, drains and in wetlands

DESCRIPTION

Dock is a tap-rooted perennial 50-150 cm high. The tap-root can reach 3 m in depth. It has a basal rosette of big leaves at ground-level. Flowers are greenish to white and are on slender stalks as long as the flower. The fruiting heads become rusty-brown and conspicuous. Regrows from rootstock in winter and flowers and fruits by early summer.

CONTROL METHODS

- Single plants of Dock can be controlled by deep hoeing
- Larger infestations can be sprayed with glyphosate, taking care around waterways



Flat-weed (*Hypochaeris radicata*)

ORIGIN

Europe, Asia, North Africa

KEY POINTS

- Widespread and can be found on roadsides, watercourses and disturbed areas

DESCRIPTION

Flat-weed is a perennial with a deep taproot. It is rosette forming at the base with flowering stems up to 30 cm tall. Flowers are bright golden yellow and daisy-like. Flowers all year, but mainly in spring. Can produce hundreds of fine silky white seeds which germinate in autumn.

CONTROL METHODS

- Remove entire plant, dispose in a plastic bag. May need to use hand tools as the plant has a long taproot to remove
- Spotspray with glyphosate



Paterson's Curse (*Echium plantagineum*)

ORIGIN

Europe, North Africa, Canary Islands

KEY POINTS

- Introduced as a garden plant and considered a useful fodder species in times of drought
- Widespread on agricultural land, roadsides and vacant land
- A threat to understorey species of many bushland reserves and displaces native annuals

DESCRIPTION

An annual herb which grows to 120 cm high. It has several erect stems that arise from a taproot and large rosette of leaves at the base of the plant. The stems and leaves are covered in hairs that can cause skin irritation if touched. The trumpet shaped flowers are pink when in bud, then mature to purple/blue. The seeds are dark brown to grey. Flowers in late winter to spring.

CONTROL METHODS

- Isolated plants can be hand pulled
- Flowering and seeding plants should be destroyed (e.g burning), as the seeds will continue to mature even after being cut or pulled
- Herbicides should be applied at the seedling or rosette stage and when the plant is actively growing to be most effective



Soursob (*Oxalis pes-caprae*)

ORIGIN

South Africa

KEY POINTS

- A weed of roadsides, waterways and bushland
- Poisonous to stock

DESCRIPTION

Soursob is a small, upright perennial growing to 40 cm high. The leaves are bright green, often with purple-brown markings on the upper surface and consist of 3 heart-shaped leaflets. Each leaf is on a stalk to 15 cm long emerging from a rhizome at the soil surface.

Flowers are bright yellow and trumpet-shaped. Bulbs sprout in autumn and flowering occurs from June to October, after which rising temperatures kill the aerial growth.

CONTROL METHODS

- Control should be targeted at the bulb exhaustion stage, which occurs just before or right on flowering
- Plants may be carefully dug out, but hand removal after bulbil formation will dislodge bulbils, contributing to spread
- Chemical control is often the most practical option available for dense infestations in bushland, as it avoids soil disturbance and erosion



Sharp Rush (*Juncus acutus*)

ORIGIN

Africa, Europe and North America

KEY POINTS

- Sharp Rush is a significant threat to wetlands and bushland areas
- Be careful when collecting seed for revegetation, as it can be confused with native species

DESCRIPTION

Sharp Rush is an erect tussock-forming perennial to 1.5 m high. It features stiff, sharply pointed leaves and bracts. Flowers throughout the year but mainly in spring and summer.

CONTROL METHODS

- Small tussocks or small infestations may be dug up using a mattock, taking care not to disperse the seed
- Slashing/burning alone results in low levels of mortality, but applying glyphosate to new growth after slashing will be more effective. To maximise herbicide uptake, application is best conducted in the warmer months when plants are actively growing



Blackberry (*Rubus fruticosus*)

ORIGIN

Europe

KEY POINTS

- A serious weed of creeklines, spreading into forest and woodland along water courses
- A Weed of National Significance (WoNS)

DESCRIPTION

Blackberry is a perennial plant with arching, prickly stems or canes. The stems take root where they touch the ground, often forming dense thickets. The broad leaves are 3-5 cm long and divided into 3-5 toothed leaflets. The flowers are white or pink tinged and have 5 rounded petals. It flowers in late spring and summer.

CONTROL METHODS

- Small infestations can be dug out when soil is moist
- For large infestations foliar spray with glyphosate and surfactant



Brazilian Pepper (*Schinus terebinthifolius*)

ORIGIN

Brazil, Paraguay and Argentina

KEY POINTS

- Garden escapee
- Forms dense thickets which shade out and smother native plants
- Contact with the sap and leaf resin can cause skin irritation

DESCRIPTION

Brazilian pepper is a large shrub to small evergreen tree, 3-7 m high. Both the male and female plants produce small cream coloured flowers, but only the female tree produces small red berries. When crushed, the dark green leathery leaves emit a strong turpentine or peppery smell. Flowers in late summer and early autumn.

CONTROL METHODS

- Brazilian pepper seedlings can be carefully handweeded, ensuring to remove all the root
- Cutting and painting the stump with herbicide only offers temporary control
- To ensure long term control, apply the basal bark and stem injection techniques, which will minimise suckering



Castor Oil Plant (*Ricinus communis*)

ORIGIN

North east tropical Africa

KEY POINTS

- Grows along watercourses, floodplains, old fields and roadsides
- Its seeds are extremely poisonous to humans and livestock
- Seed is scattered over several metres when released explosively from ripe fruits

DESCRIPTION

Castor Oil Plant is an annual or perennial shrub which grows to 6 m high. The hollow stems and branches are dull pale green or red in colour. The large leaves are divided into 7-9 pointed triangular segments with toothed edges and have obvious veins. There are both male and female flowers on the one plant. The male flowers have creamy-white stamens and the female flowers have 3 forked red styles. Flowering can occur throughout the year, but mostly during summer.

CONTROL METHODS

- Individual plants can be removed by digging or hand pulling
- Large individual plants can be cut and the stumps immediately painted with glyphosate
- Slash or brush-cut before flowering



Early Black Wattle (*Acacia decurrens*)

ORIGIN

New South Wales

KEY POINTS

- Capable of forming dense stands, crowding out local species

DESCRIPTION

Early Black Wattle is an erect shrub to 10 m high. The bark is smooth and green. The dark green leaves are bipinnate (very fine leaflets). Flowers are golden and ball-shaped. Flowers in spring.

CONTROL METHODS

- Small seedlings can be hand removed
- Mature plants can be cut and painted
- Seedlings and smaller plants can be sprayed with glyphosate. Follow-up spraying of germinants is essential in subsequent years



Coastal Tea Tree (*Leptospermum laevigatum*)

ORIGIN

Tasmania, Victoria, New South Wales, South Australia

The main weed species are:

- Introduced as a garden plant and is now a major bushland weed
- It spreads rapidly along road verges, swamps, lakes, rivers and in woodlands on sandy and lateritic soils
- The roots produce chemicals that reduce the growth of companion plants
- This plant is killed by fire, but not the seed bank

DESCRIPTION

Coastal Tea Tree is a large shrub or small tree up to 6 m tall. Leaves are grey-green 15-30 cm long. Flowers are small and white and flower time is April/June - October. It is a prolific seeder and the seeds are dispersed by wind.

CONTROL METHODS

- Hand pull seedlings in the first year or two (older seedlings tend to break off and regrow). Fell older plants. Slash, fell or bulldoze thickets, then burn when dry
- Use cut and paint method on mature plants when actively growing with undiluted glyphosate
- Remove tops that may have seeds still attached

- Use basal bark spray method for regrowth
- Plant shrub and tree species 2 years after the last spray to increase levels of shade



Common Fig (*Ficus carica*)

ORIGIN

South-west Asia

KEY POINTS

- Garden escapee
- The species can form dense thickets, along creeks and rivers

DESCRIPTION

The Common Fig is a fast growing deciduous tree or shrub to 4 m high. The leaves are green in Spring and Summer. The purple/green fruit is produced from summer to autumn. Figs have the ability to reproduce vegetatively, i.e from broken off branches.

CONTROL METHODS

- Small seedlings can be hand removed, ensuring all material is taken offsite
- Trunks can be cut flush with the ground then painted with neat glyphosate
- Stems can be injected with glyphosate, by drilling and filling



Cootamundra Wattle (*Acacia baileyana*)

ORIGIN

Southern New South Wales

KEY POINTS

- A prolific seed producer, with some seed remaining dormant in soil for over 10 years
- Plants can live for over 20 years

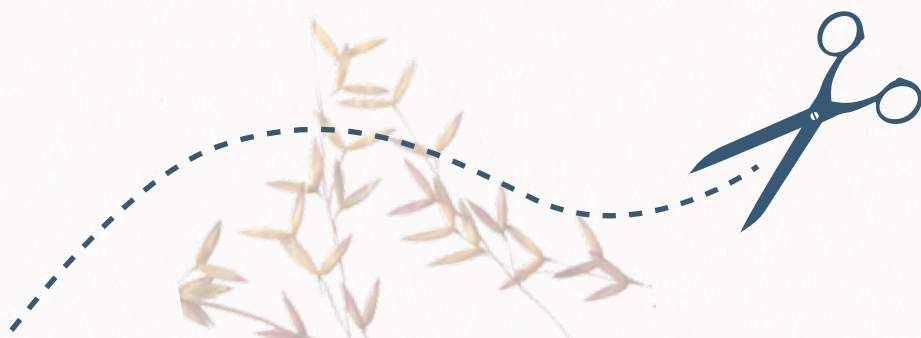
DESCRIPTION

Cootamundra Wattle is a shrub that grows to 10 m high with a spreading crown. It has a smooth grey trunk. The leaves are bipinnate and have 2-4 pairs of leaflets. The flower heads are yellow, ball-shaped and arranged in 10 cm long sprays. Flowers June to September.



CONTROL METHODS

- Seedlings can be hand-pulled and small plants dug out
- Younger plants can be treated by cut and paint or drill and fill
- Older plants do not reshoot, so can be ring-barked or cut down without herbicide



Cotoneaster (*Cotoneaster glaucophylla*)

ORIGIN

China

KEY POINTS

- Cotoneaster will grow virtually anywhere a bird drops the seeds. Thickets under tall trees and other perching places displace local native plant species and shade the soil. Habitat is lost, and other weeds invade

DESCRIPTION

An evergreen shrub to 4 m high. Leaves are oval in shape 3 to 8 cm long, dark green above and lower surface is covered with soft white hairs. Clusters of tiny white flowers appear in Spring to Summer on hairy stems. Fruit is round and red.



CONTROL METHODS

- Cotoneaster can be dug out, and seedlings and small plants hand pulled
- Responds readily to cutting and painting with a glyphosate based product

Flax-leaf Broom (*Genista linifolia*)

ORIGIN

Europe and Mediterranean

KEY POINTS

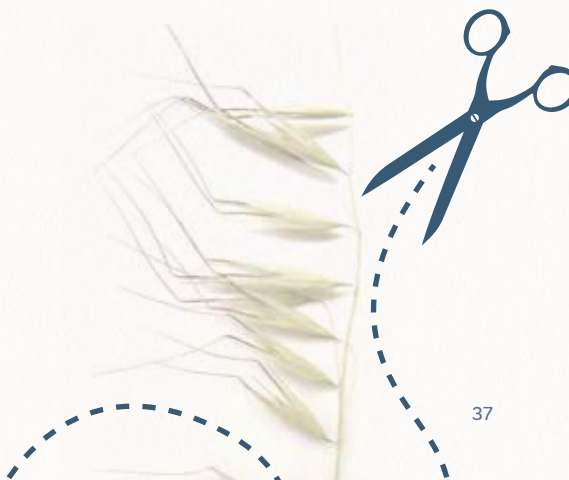
- A Weed of National Significance (WoNS)
- Garden Escapee now inhabits native bushland and roadside reserves
- Produces large amount of long-lived seeds, which explode from pods as they dry out and are also resistant to fire

DESCRIPTION

Flax-leaf Broom is an erect shrub to 3m high. The stems are ribbed and covered with short soft hairs. The dark green leaves are almost stalkless and divided into 3 leaflets. The yellow pea flowers are clustered in groups of 3-16 at the ends of the branchlets. Flowers August to November.

CONTROL METHODS

- Due to the longevity of soil-stored seeds, control of larger infestations should be considered as a long-term endeavour
- Hand weeding or hoeing is an option for where there are only isolated plants. In smaller infestations apply the cut and paint using glyphosate



Flinders Range Wattle (*Acacia iteaphylla*)

ORIGIN

South Australia

KEY POINTS

- Commonly cultivated in nurseries and has now become a serious environmental weed
- Colonises roadsides and bushland areas, displacing native species and reduces biodiversity
- Produces high volumes of highly viable seed each year

DESCRIPTION

Flinders Ranges Wattle is a dense, hairless shrub 2-5 m high with smooth, greenish bark, weeping branchlets and grey-green foliage. The seed pods are usually straight and 60-120 mm long. The pale to lemon yellow flower heads are globular. Flowers April to September.

CONTROL METHODS

- Hand pull small seedlings, ensuring to remove the whole root
- Larger trees can be cut and painted or ringbarked, applying glyphosate
- Foliar spraying may be easier because of the shrubby nature of the tree, however, this may cause off-target damage to nearby native plants
- If glyphosate is not providing good control, a contractor may be engaged to apply a broadleaf selective herbicide



Geraldton Wax (*Chamelaucium uncinatum*)

ORIGIN

Western Australia

KEY POINTS

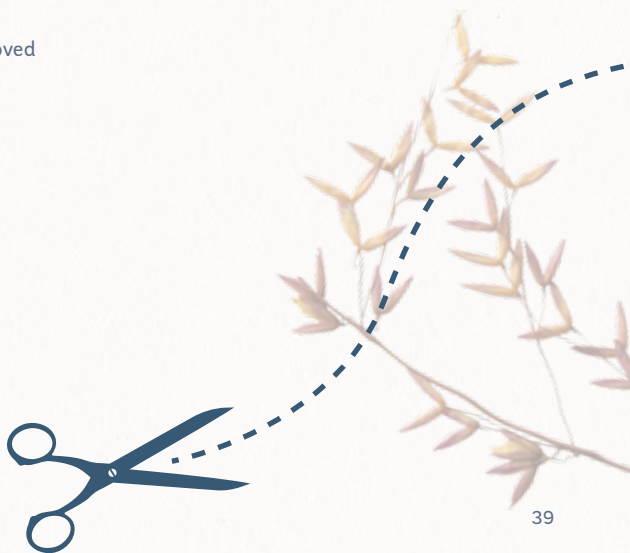
- Geraldton Wax is regarded as an environmental weed in those parts of Western Australia where it has invaded outside its native range
- It can cause major structural changes to the plant communities that it invades

DESCRIPTION

A medium to large shrub 2-3 m high which has an open habit. The leaves are narrow, up to 20 mm long and aromatic when crushed. The white to pink flowers appear in late winter and can last well into summer.

CONTROL METHODS

- Small seedlings can be hand removed
- Trunks can be cut flush with the ground then painted with neat glyphosate



Golden Wattle (*Acacia pycnantha*)

ORIGIN

Victoria, South Australia

KEY POINTS

- Australia's National Emblem, but regarded as an environmental weed in Western Australia
- An abundant weed of roadsides and invasive in bushland areas

DESCRIPTION

A medium shrub growing to 10 m high. It has bright green sickle-shaped phyllodes to 14 cm. The flowers are golden, large and ball-shaped. Flowering occurs from July to November. Reproduction is by seed, which are long-lived and germinate readily after fire.



CONTROL METHODS

- Hand pull small seedlings, ensuring to remove the whole root
- Larger trees can be cut and painted or ringbarked, applying glyphosate
- Overall foliar spraying may be easier because of the shrubby nature of the tree, however, this may cause off-target damage to nearby native plants
- If glyphosate is not providing good control, a contractor may be engaged to apply a broadleaf selective herbicide

Lantana (*Lantana camara*)

ORIGIN

Mexico, Caribbean, South America

KEY POINTS

- Weed of National Significance (WONS)
- Lantana forms dense, impenetrable thickets that take over native bushland
- It is regarded as one of the worst weeds in Australia

DESCRIPTION

A much branched, thicket forming shrub, 2-4 m tall. The woody stems are square in cross-section and hairy when young but become cylindrical and up to 150 mm. The leaves are rough and finely hairy. Flowers range from white to purple and red. Flowering can occur almost all year round.

CONTROL METHODS

- Small seedlings and regrowth can be handpulled or handcut to create access through thickets for further control
- Foliar spraying is only effective if the Lantana is actively growing and the plants are less than two metres high. Mature Lantana is best treated with foliar spraying between February and the first frost
- Follow-up spot spraying is essential until the indigenous species become dominant



Lavender (*Lavandula stoechas*)

ORIGIN

Mediterranean

KEY POINTS

- Establishes on disturbed, bare ground, often along roadsides
- Forms dense stands that exclude all other ground flora and smaller shrubs while severely impeding overstorey regeneration

DESCRIPTION

Lavender is a small upright shrub to 1 m high. The opposite leaves are downy, greyish-green and fragrant. Flowers are deep purple and cylindrical heads topped with a few distinctive purplish bracts. Flowers July to November. Abundant seeds are produced in late spring and early summer.

CONTROL METHODS

- Plants are easily hand-pulled or dug out, particularly in moist soil
- To minimise soil disturbance, apply the cut and paint method
- Foliar spray with glyphosate



Myrtle-leaf Milkwort (*Polygala myrtifolia*)

ORIGIN

South Africa

KEY POINTS

- Garden escapee, invading roadsides and creeklines
- It establishes large soil-stored seedbanks that remain viable for up to 3 years
- Seeds are dispersed by birds, ants, wind, water and in dumped garden waste

DESCRIPTION

An erect spreading shrub to 3 m high. Leaves are oblong to oval. Individual flowers are pea-like with spreading 'wings' 7 to 13 mm wide, purple or mauve on their inner surface and green outside. Flowers most of the year, especially during late winter to early spring. Flowers are purple to white.

CONTROL METHODS

- Young plants may be removed by pulling, shallow digging or spotspraying but this is unlikely to be practicable in heavy infestations
- Fell mature plants and follow-up removing germinating seedlings for at least 5 years
- If fire is used as a control measure, some or most of the plants in a population will need to be killed sometime before the fire as green plants do not burn well



Oleander (*Nerium oleander*)

ORIGIN

South Africa

KEY POINTS

- Garden escapee, invading roadsides and creeklines
- It establishes large soil-stored seedbanks that remain viable for up to 3 years
- Seeds are dispersed by birds, ants, wind, water and in dumped garden waste
- Due to their toxicity, care should be taken when removing Oleanders. Dust masks, protective goggles, gloves and long sleeves should be worn.

DESCRIPTION

Oleander is an evergreen shrub growing to 4 m high. The leathery leaves are up to 20 cm long. The white to pink flowers occur between July and October. The fruit is a long narrow pod to about 25 cm long and is filled with seeds covered with silky hairs.

CONTROL METHODS

- Young plants may be removed by pulling, shallow digging or spotspraying but this is unlikely to be practicable in heavy infestations
- Fell mature plants and follow-up removing germinating seedlings for at least 5 years



Sydney Wattle (*Acacia longifolia*)

ORIGIN

New South Wales and eastern Victoria

KEY POINTS

- Has been widely planted outside its natural range
- There can be up to several hundred seeds per square meter of soil

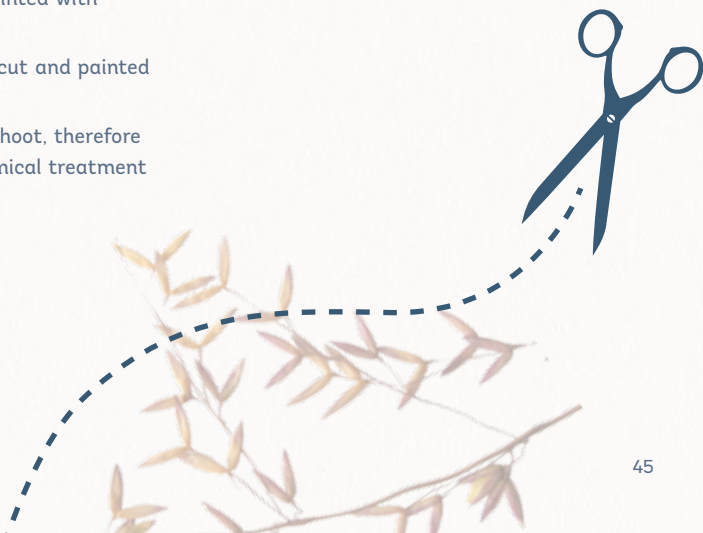


DESCRIPTION

An upright shrub growing from 1-8 m tall. The linear leaves are bright green or dark green in colour. The yellow or golden flowers are densely arranged in elongated clusters. Flowering occurs June to October.

CONTROL METHODS

- Seedlings can be hand-pulled. Tops have a tendency to break away when pulled so if roots remain they should be dug out or stems painted with glyphosate
- Younger plants can be cut and painted or drill and filled
- Older plants do not reshoot, therefore can be cut, but no chemical treatment required



Tree Lucerne or Tagasaste (*Chamaecytisus palmensis*)

ORIGIN

Canary Islands

KEY POINTS

- Garden escapee, invading winter wet gullies, roadsides and creeklines
- Tagasaste fixes nitrogen, thus increasing soil fertility, allowing weeds to dominate. It is so prolific it will quickly displace native vegetation

DESCRIPTION

Tagasaste is a large, bushy shrub to 6 m tall with drooping, soft hairy branches and leaves. The leaves are greyish green. Flowers are creamy white and are pea flower shaped. Flowers October to June. It is a very hardy and prolific seeder, producing exploding seed pods. The seeds are viable in the soil for up to about 20 years.

CONTROL METHODS

- Seedlings and small plants may be removed by hand pulling. Larger bushes and trees need to be cut down using secateurs or saws and the stumps treated with herbicide
- Plants can be treated using basal bark method, conducted by a contractor



Blue Periwinkle (*Vinca major*)

ORIGIN

Europe and Northern Africa

KEY POINTS

- Grows in a wide range of habitats but prefers moist fertile soils in well shaded sites
- Forms dense ground cover, suppressing native species regeneration
- Can be difficult to control because of its resilient root system that effectively propagates new plants

DESCRIPTION

An herbaceous perennial growing to 50 cm high. The slender stems are either ground-creeping, up to several metres long and rooting at the nodes (joints in the stem), or short and upright. Lilac-blue flowers occur between spring and summer.

CONTROL METHODS

- Hand remove small infestations
- The solarisation technique can be applied to small infestations for up to six months. Spray regrowth with glyphosate. For herbicide effectiveness, surfactant is required in the spray
- Plants can be slashed or mown and the regrowth sprayed with glyphosate
- Care should be taken to remove all stems and roots to minimise regeneration



Bridal Creeper (*Asparagus asparagoides*)

ORIGIN

Southern Africa

KEY POINTS

- Weed of National Significance (WoNS)
- Major threat to biodiversity
- Forms dense root mats

DESCRIPTION

Twisting, climbing, wiry green stems grow annually from an underground perennial root system. The root system is a branching rhizome with numerous fleshy tubers. The stems flower prolifically, producing red berries which are attractive to birds.

CONTROL METHODS

- Biological control, leaf hopper and rust fungus can help keep populations under control
- Small infestations can be successfully controlled by digging out the root mat
- Take care to remove all rhizomes and tubers
- Larger infestations can be controlled by spraying with metsulfuron (contractors only)
- Integrated management may be the most successful (i.e. a combination of the above control methods as appropriate)



Mile-a-minute, Morning Glory (*Ipomoea cairica*, *Ipomoea indica*)

ORIGIN

Tropical regions

KEY POINTS

- Smothers vegetation
- Garden escapee
- Common along creeklines

DESCRIPTION

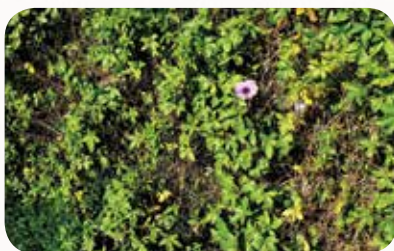
Ipomoea species are twining vines. Leaves are lobed and flowers are bright purple-blue. It is particularly invasive in creekline habitats. Can regrow from cuttings dumped in bushland.

CONTROL METHODS

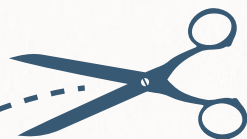
- Cut off stems leaving approximately 1m attached to the plant. Lay these sections on the ground (avoiding native vegetation as much as possible). Spray these sections with Glyphosate. Revisit and retreat monthly or as necessary
- For small infestations, cut off stems and allow canopy to die off. Follow remaining runners back to roots and dig out, taking care to remove all nodes.
- Any material left in the ground is likely to reshoot. All material removed should be bagged



Morning Glory



Mile-a-Minute





References

Australian Government. Weeds in Australia:

<http://www.environment.gov.au/biodiversity/invasive/weeds/>

Australian Government departments of Agriculture, Fisheries and Forestry and Sustainability (a jointly administered website):

http://www.weeds.gov.au/cgi-bin/weeddetails.pl?taxon_id=10892#

Australian National Botanic Gardens, 2010,

Australian National Botanic Gardens

Parks Australia, Canberra,

viewed 11 July, 2012,

www.anbg.gov.au

Cooperative Research Centre for Weed Management:

www.weeds.crc.org.au

Department of Environment and Conservation, Herbarium Database, FloraBase:

<http://florabase.dec.wa.gov.au/>

Eastern Hills Catchment Management Program Fact Sheets:

<http://www.emrc.org.au/natural-resource-management-fact-sheets.html>

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, Inc Western Australia.

Moore, J. and Wheeler, J. (2002). *Southern Weeds and their Control*. Department of Agriculture of Western Australia, Bulletin No 4558/02

NSW Department of Primary Industries:

<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/profiles/lantana>

Weeds Australia, National Portal:

www.weeds.org.au

Wooroloo Brook LCDC (2004). *Environmental Weeds, Eastern Plains and Hills Region*



Index

African Love Grass	14	Freesia	8
African Veldt Daisy	21	Geraldton Wax	39
Annual Veldt Grass, Perennial Veldt Grass	15	Golden Wattle	40
Arum Lily	6	Haas Grass	18
Baboon Flower	7	Lantana	41
Blackberry	29	Lavender	42
Blackberry Nightshade	22	Mile-a-minute, Morning Glory	49
Blue Periwinkle	47	Myrtle-leaf Milkwort	43
Brazilian Pepper	30	Oleander	44
Bridal Creeper	48	One-leaf Cape Tulip	9
Castor Oil Plant	31	Pampas Grass	19
Coastal Tea Tree	33	Paterson's Curse	26
Common Fig	34	Pink Gladiolus	10
Cootamundra Wattle	35	Sharp Rush	28
Cotoneaster	36	Soursob	27
Cottonbush	23	Sydney Wattle	45
Dock	24	Tambookie Grass	20
Early Black Wattle	32	Three-cornered Garlic or Onion Weed	11
False Bamboo or Giant Reed	16	Tree Lucerne or Tagasaste	46
Flat-weed	25	Watsonia, Bulbil Watsonia, Bugle Lily	12
Flax-leaf Broom	37	Wavy Gladiolus	13
Flinders Range Wattle	38		
Fountain Grass	17		

Notes

A series of horizontal dotted lines for writing notes.



