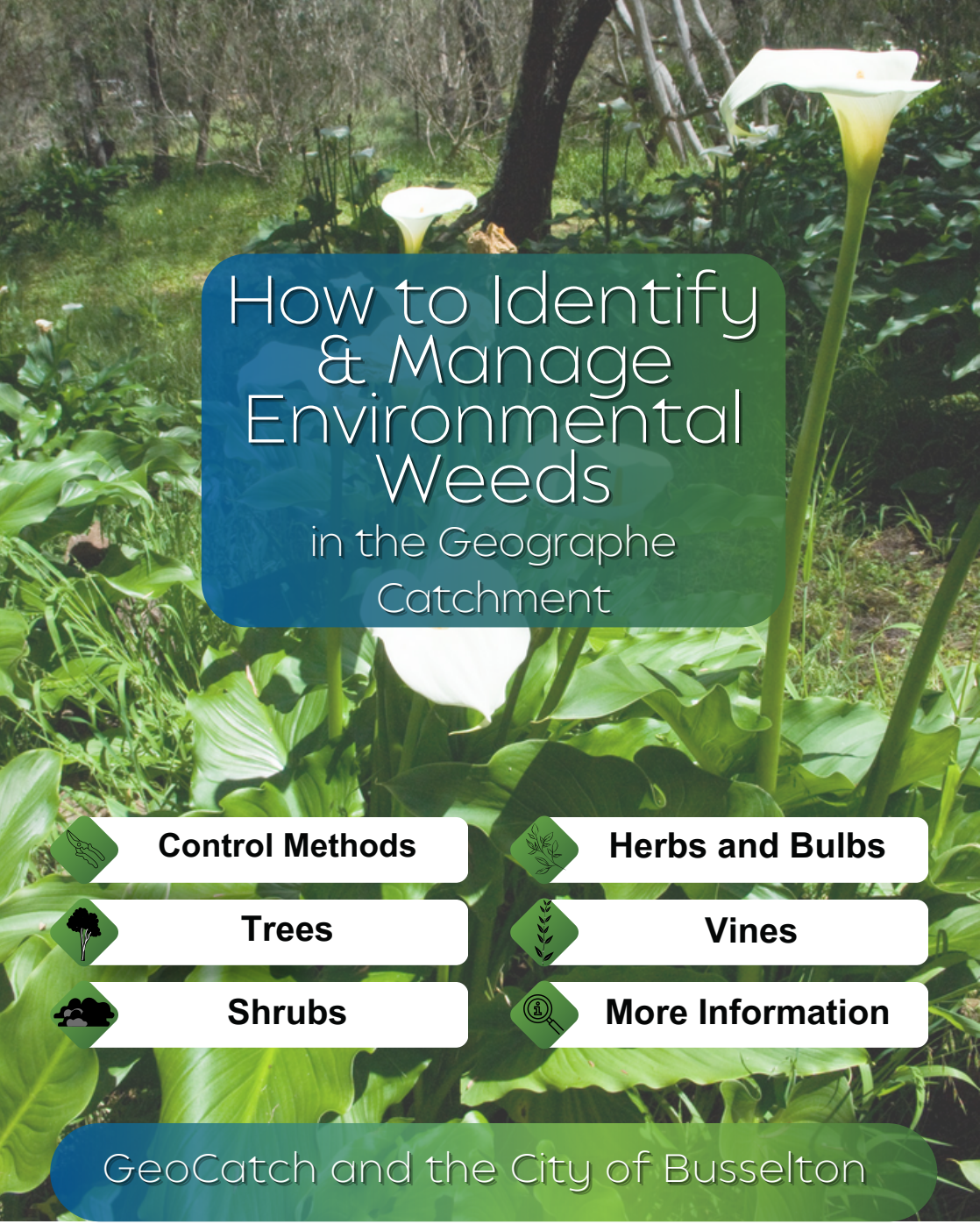


How to Identify & Manage Environmental Weeds

in the Geographe Catchment

- Control Methods
- Herbs and Bulbs
- Trees
- Vines
- Shrubs
- More Information

GeoCatch and the City of Busselton

GeoCatch
The Environment – in Our Hands

Government of Western Australia

natural resource management program

City of Busselton
Geographe Bay

Introduction

Weeds are invading our region's bushland areas and are a threat to their environmental value and the unique biodiversity of the Geographe region. This resource will help you to identify significant environmental weed species that are particularly harmful to our natural areas and gives tips on how to remove them.

WHAT IS A WEED?

Any introduced plant that grows vigorously or reproduces easily is a potential weed. Weeds can reduce biodiversity, or adversely affect the integrity, conservation value and processes of ecosystems. Environmental weeds take over bushland, smothering and competing with local native plants for space, nutrients and sunlight.

Many of the weeds threatening our bushland are escaped garden plants. You can help conserve our natural areas by planting local native plants instead of weeds or other introduced plants.

WHAT CAN YOU DO TO HELP?

Weeds are spread by wind, water, animals and inappropriate disposal of unwanted plant material. Seeds are easily transported on dirty vehicles, tyres, boots and clothing.

Prevention is the most effective method of weed control. If you already have weeds growing, correct identification and a planned method of control is vital to halt their spread. Ongoing monitoring and maintenance is required to prevent re-establishment of weeds. Unwanted plant material should be disposed of by composting or taking to landfill.

WHERE TO FIND MORE INFORMATION

There are many resources available to help you identify weeds and native plants.

- 'Western Weeds: A guide to the weeds of Western Australia' Second Edition by B.M.J. Hussey et al. (2007)
- 'Southern Weeds and their control". Second Edition John Moore and Judy Wheeler. South Coast Natural Resource Management. library.dpird.wa.gov.au
- Department of Agriculture website - weed identification agric.wa.gov.au/pests-weeds-diseases/weeds
- Florabase - Western Australian Herbarium online database for native and introduced plants florabase.dbca.wa.gov.au
- Urban Bushland Council WA Inc. bushlandperth.org.au
- Weed Society of Western Australia wswa.org.au
- Lucidcentral keys.lucidcentral.org/search/environmental-weeds-of-australia/
- Weeds Australia – includes WeedScan, an identification, recording and alert system for priority weeds weeds.org.au
- Weeds of National Significance (WONS) daf.qld.gov.au/business-priorities/biosecurity/invasive-plants-animals/plants-weeds/wons

Trees

FLINDERS RANGE WATTLE

Acacia iteaphylla

Spreading shrub or small tree to 5 m. Smooth, greenish bark, weeping branchlets and grey-green foliage.

The ‘leaves’ are narrow leaf-like phyllodes 5-14 cm long with a prominent longitudinal vein.

The pale lemon yellow globular flowers are arranged in a multi-headed spray. The long seed pods are usually straight, 6-12 cm long.

Flowers in late autumn in South West WA. Main mode of spread is by seed in pods.

This species was widely cultivated in gardens and is now a weed occurring in disturbed woodland areas.

Flinders Range Wattle in flower

Flinders Range Wattle flowers

CONTROL METHODS

Cut young plants (up to 3-4 years old) at ground level, immediately paint stump with herbicide, or stem inject. Can be controlled all year round.

Seedlings can be hand-pulled ensuring the roots are removed with the seedling. Monitor site for recruitment from seedbank.

There are many other alien wattles such as: silver, green, black wattles which can be controlled in the same manner.

Flinders Range Wattle seed pods

TOP WEED TIP

For safe herbicide selection and use, refer to Herbiguide herbiguide.com.au
For information on herbicide application techniques, visit
cdn.environment.sa.gov.au/landscape/docs/hf/weed-management-techniques.pdf

Trees

SYDNEY GOLDEN WATTLE

Acacia longifolia

Bushy shrub or small tree to 10 m with dark grey bark and green foliage.

The ‘leaves’ are leaflike phyllodes 6-20 cm long with 2 or 3 longitudinal veins.

The yellow flower heads are cylindrical, 2-5 cm in length and occur 1 or 2 together in the phyllode axils. Flowers in late autumn and winter in South West WA. Main mode of spread is by seed in pods.

The seed pods are 5-12 cm long, thick and usually straight to slightly curved.

This species was widely cultivated in gardens and is now a weed occurring in bushland areas.

Sydney Golden Wattle in flower

Sydney Golden Wattle flower heads

Sydney Golden Wattle seed pods

CONTROL METHODS

Cut young plants (up to 3-4 years old) at ground level. Immediately paint stump with herbicide, or stem inject. Can be controlled all year round.

Seedlings can be hand-pulled ensuring the roots are removed with the seedling. Monitor site for recruitment from seedbank.

There are many other alien wattles such as: silver, green, and black wattles which can be controlled in the same manner.

WEED FACT

Many environmental weeds are available for purchase from local nurseries and plant stalls. Don’t plant them in your garden. If you have already planted them, remove and dispose of them responsibly. Check the sources of soils and mulches before purchase.

Trees

AUSTRALIAN BLACKWOOD

Acacia melanoxylon

Large tree to 30 m with dark grey fissured bark and dark green foliage.

The leaves are leaf-like phyllodes 4-16 cm long, often asymmetrical with 3-5 prominent longitudinal veins.

The globular cream flower heads are in short sprays of 3-5 heads. The coiled and twisted seed pods are up to 15 cm long. Each seed is encircled by a bright pink or red stalk.

Flowers in spring. Main mode of spread is by seed in pods or from suckers after root disturbance.

This species is a troublesome weed of creeklines and swamps, forming dense thickets after suckering.

Australian Blackwood flower

Australian Blackwood leaves

CONTROL METHODS

Cut young plants (up to 3-4 years old) at ground level, immediately paint stump with herbicide, or stem inject. Can be controlled all year round.

Mature plants must be ringbarked or felled. Plants will resprout from stumps or disturbed root stock.

Monitor the site for recruitment from seedbank, as the seeds can remain viable for many years.

Australian Blackwood seed pods

TIPS FOR MANAGING WEEDS

Have a plan of what you are going to do when you have controlled your weeds, otherwise they will return.
Revegetate areas where weeds have been removed with local native plants.

Trees

VICTORIAN TEATREE *Leptospermum laevigatum*

Fast-growing bushy shrub/tree to 7 m with grey-green foliage and white flowers. Greyish-green leaves are small, oblong and leathery, arranged opposite on the stem. Small single white flowers with 5 broad spreading petals and numerous stamens. Bears domed woody fruit (nuts).

Flowers in winter to early spring, spreading by seed dispersed by wind, vehicles, soil movement, water and garden refuse. A major weed invading road verges and bushland, particularly in sandy coastal areas. Smothers and outcompetes native species. The roots produce compounds that slow the growth of other plants.

Victorian Teatree flowers

Victorian Teatree fruit (nuts)

CONTROL METHODS

Slash, fell or bulldoze thickets and dispose of plant material. Older plants can be felled but small plants tend to regrow. Grazing will control seedlings.

Spray regrowth and individual plants with herbicide. New seedlings can be hand-pulled but older seedlings break off and regrow.

Brazilian Pepper

BRAZILIAN PEPPER *Schinus terebinthifolius*

Sprawling evergreen shrub or small tree 7-10 m with smooth pale bark and leaves that smell of turpentine when crushed. The leaves are dark green, composed of oval leaflets.

Flowers in late summer, with male trees bearing small cream flowers, and female trees producing small red berries which are dispersed by birds, spreading seed. Common in older suburbs as a street tree and garden specimen. It forms thickets on disturbed land and favours riverbanks and swampy sites. It can trigger hayfever.

Brazilian Pepper berries

CONTROL METHODS

Hand pull seedlings ensuring removal of all roots. Stem inject older plants with herbicide to bottom 50 cm of trunk during summer. Trees will sucker from damaged roots and regrow vigorously from cut stumps. Avoid root disturbance until trees are confirmed dead.

SWEET PITTOSPORUM

Pittosporum undulatum

Large evergreen shrub or tree growing to 12 m with grey bark.

The leaves are glossy dark green 6-15 cm long and elliptic with wavy margins.

The clustered bell-shaped flowers are white and fragrant. The orange-yellow fruits are hard, globular capsules which open to release brown seeds surrounded by a sticky pulp.

Flowers in spring. The sticky fruits are easily spread by birds.

This ornamental is used as a hedge plant and is now an invader of gullies and bushland areas, outcompeting native plants.

Sweet Pittosporum flowers

Sweet Pittosporum fruit

Sweet Pittosporum leaves

CONTROL METHODS

Avoid burning areas that have a Pittosporum seed bank unless control of seedlings is planned for the following seasons.

Spray seedlings with herbicide. For larger trees paint cut stumps with herbicide. Control all year round.

TIPS FOR MANAGING WEEDS

Burning weed infestations can increase the fire hazard and visual effect of weeds as many weeds respond well to fire.

Fire also creates areas of bare soil which lead to new weed infestations.

NORFOLK ISLAND HIBISCUS

Lagunaria patersonia

Evergreen small pyramidal tree up to 20 m with attractive pink flowers.

A dense canopy of greyish-green leaves which are oval shaped and leathery.

Flowers are pink and hibiscus-shaped developing into large fuzzy brown seed pods which contain masses of highly irritant fibreglass-like hairs.

Flowers in spring and early summer. Seeds disperse from pods by wind, water and wildlife.

A hardy species widely planted in gardens as an ornamental and for amenity. Regarded as an environmental weed and becoming widespread. A pest due to the irritant hairs.

Norfolk Island Hibiscus flowers

Norfolk Island Hibiscus

CONTROL METHODS

Hand pull seedlings and fell large trees. Ringbarking is also suitable.

Control in autumn when pods are not on trees.

Norfolk Island Hibiscus fruit

WEED FACT

Native wildlife depend on our local plants for food and habitat.

Weeds can outcompete native species. They present a greater fire hazard than native plants, and shelter introduced animal pests.

CAPE or MONTPELLIER BROOM

Genista monspessulana, Genista spp.

Evergreen, perennial upright shrub to 2 m with drooping branches and bright yellow pea flowers.

The leaves are clover-like with leaflets about 1 cm long and softly hairy. The pea flowers are bright yellow and develop into pods that shed in early summer. Flowers in spring, producing an abundance of seed that may lie dormant for years.

Mostly spread by soil movement on machinery but also wildlife. Introduced as an ornamental garden plant, it is a major weed of bushland, pastures and roadsides, classed as a Priority 1 Significant Environmental Weed. It readily and rapidly colonises cleared and partly cleared land.

Montpellier Broom flowers

Montpellier Broom

CONTROL METHODS

Young seedlings can be hand-pulled whilst older plants should be cut at ground level. Cut and paint the stump with herbicide. Can control all year round.

MYRTLE-LEAVED MILKWORT

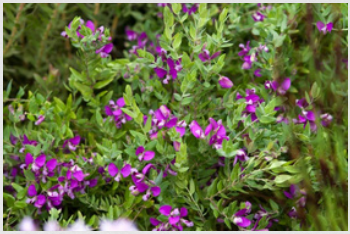
Polygala myrtifolia

Dense rounded shrub to 2.5 m with light to deep green leaves 1-5 cm long, and clustered pink/purple or white pea flowers. The fruit is a circular capsule.

Flowers in spring and early summer, this species spreads by seed dispersal.

Originally a garden specimen, it now invades bushland, particularly in sandy coastal areas. Available to purchase as a sterile hybrid from nurseries, it is known to revert to its weedy form.

Myrtle-leaved Milkwort flowers



Myrtle-leaved Milkwort

CONTROL METHODS

Handpull seedlings and small plants and cut larger plants at ground level. Use herbicide where disturbance may lead to erosion.

Spray infestations in winter and control regrowth for three seasons to avoid re-infestation.

Vines

BLUE PERIWINKLE *Vinca major*

Sprawling perennial creeper with shiny green leaves and blue flowers that grows as a dense groundcover.

The leaves are shiny dark green 2-7 cm long. The single five-petaled flowers are blue to violet with a white throat and 3-5 cm wide. Flowers appear in winter to early summer.

Cultivated in gardens, this is a Priority 1 Significant Environmental Weed invading damp shady areas such as creek lines, bushland and paddocks. The plants cover large areas by producing roots where the stems contact the ground. It can be toxic to stock.

Blue Periwinkle flower

Blue Periwinkle

CONTROL METHODS

Remove vines and stolons by hand, mowing or cutting; then spray with herbicide and repeat spray every 4 weeks. Monitor and spot spray or manually remove the last remnants of plants. Solarisation can be effective. Can control all year.

Madeira Vine flowers

MADEIRA OR POTATO VINE *Anredera cordifolia*

Blanketing vine with aerial tubers and waxy green, heart-shaped leaves 5 cm long and fleshy. Flowers are creamy 10 cm long spikes of numerous small flowers. Flowers from December to April. Produces warty, light brown aerial tubers and potato-like subterranean tubers up to 1 m depth.

Spreads by tubers and vegetative material to blanket bushland and riparian areas, growing at rates of up to 1 m per week. A Weed of National Significance.

Madeira Vine

CONTROL METHODS

Successful control requires exhaustion of the tubers which are viable for up to 15 years. Physical control is only practical for small infestations. Do not pull the vines from the canopy as it results in a rain of tubers. Tubers and vegetative material will shoot in contact with moist soil.
Herbicides can be effective using a variety of methods. Regrowth and seedlings can be spot sprayed.

Vines

MORNING GLORY

Ipomoea indica

Perennial climbing vine that grows vigorously as a dense ground cover and can climb high into the canopy. Leaves are soft and hairy, trilobed and broadly heart-shaped. The roots have tubers.

The flowers are large, blue/mauve and funnel-shaped, growing in groups as multiples of three. The vine produces new roots from nodes of vegetative matter where they make contact with soil. Flowers from spring to autumn.

Widely cultivated in gardens but now invades unused land, rivers and creeks. Twining stems choke seedlings and trees whilst shrubs are quickly smothered.

Morning Glory flowers

Morning Glory

CONTROL METHODS

Remove manually by pulling up the roots and mulching heavily to discourage regrowth. Spot spray herbicide on young, actively growing plants, ensuring thorough coverage.

Stems can be cut and painted with herbicide. Control in spring to summer.

Morning Glory infestation

CHARACTERISTICS OF WEEDS

Environmental weeds have certain 'invasive' characteristics including: large volumes of seed with long dormancy, effective dispersal mechanisms, rapid seedling growth, and the ability to regenerate after cutting or disturbance.

Vines

DOLICHOS PEA *Dipogon lignosus*
Rampant, twining vine with masses of white, pink/purple flowers on wiry stems up to 3 m long. The leaves are compound and consist of three leaflets 3-10 cm long.

Flowers are pink, purple or white and pea-shaped arranged in elongated clusters. Pods are smooth, flattened and sickle-shaped (2-5 cm long) containing seeds that are brown-black with a white spot. Flowers from spring to summer.

A major environmental weed invading coastal areas, creekbanks, roadsides, and bushland. It smothers all ground-flora, shrubs and trees, and prevents regeneration.

Seeds are dispersed by birds and spread in garden waste. The seedbank persists for up to 5 years. It also reproduces vegetatively by coppicing and resprouting.

Dolichos Pea flowers

Dolichos Pea seed pods

CONTROL METHODS

Hand pull seedlings and small plants ensuring removal of all root material; sever vines of larger plants and leave to dry in canopy, then dig out woody roots. Soil disturbance and fire generates mass seed germination.

If using herbicide, scrape and paint or foliar spray in highly degraded sites. Optimum time to treat is during September and October but herbicide can be applied occasionally in any month.

Dolichos Pea infestation

TOP WEED TIP

Try manual removal first. If herbicide is required, always follow the manufacturers directions, and wear personal protective equipment such as a face mask, goggles, gloves and long clothing to cover skin.

ARUM LILY *Zantedeschia aethiopica*

Long-lived robust herb with dark green, upright leaves and single white flowers on stems growing to 1m. Large leathery leaves 13-45 cm long with wavy margins borne on long, thick stalks. Roots are fleshy and form extensive tubers. Showy white 'flowers' up to 15 cm wide are actually a funnel-shaped bract surrounding a yellow flower spike at the top of long stems. Yellow berries are oval containing several seeds. Flowers in spring and spreads vegetatively from tuber fragments and by seeds. Originally a garden specimen, this is a declared weed in WA.

Arum Lily flower

Found in creeks, bushland and areas of summer-moist land, it forms large dense clumps competing with bushland and summer pasture. Stock deaths have occurred from grazing Arum Lily.

Arum Lily infestation

CONTROL METHODS

Best controlled by foliar spray herbicide when flowering in winter to early spring. Apply when 50% - 75% of flowers appear.

Wavy Gladioli flowers

WAVY GLADIOLI *Gladiolus undulatus*

Tufted perennial herb with a tall flower spike growing from a corm. Leaves are erect and sword-shaped. The corms have fibrous papery skin and produce many small cormels beneath. The flower spike to 1 m high has funnel-shaped white to cream flowers 12 cm long and 6-pointed with a distinctive wavy margin. Flowers in spring and early summer.

This is a major weed, occurring commonly along roadsides and watercourses in wetter areas.

Wavy Gladioli corms

CONTROL METHODS

Very difficult to control by hand weeding. Do not hand pull, as this spreads the corms. Carefully dig out with all corms, repeat each year until eradicated. Remove old flowers to prevent seeding.

Wipe or spray with herbicide before and during flowering in late winter to early spring. Spray again in following season to control emerging seedlings. Grazing and mowing provide control.

WATSONIA *Watsonia meriana or Watsonia Spp*

Tufted perennial herb with a tall flower spike and creeping rhizome. The leaves are erect and sword-shaped to 1 m long produced annually from a corm. The flower spike is up to 2 m high with many trumpet flowers. Reproduces from the corm and small bulbils up the flower spike. Dormant during summer with growth in winter. Flowers spring and early summer.

A Priority 1 Significant Environmental Weed on roadsides, watercourses and railway lines, often invading bushland. The cormels detach and create new outbreaks.

Watsonia flower

CONTROL METHODS

Thick infestations are difficult to control manually. Mowing and slashing are ineffective. Cultivate to 100 mm depth after flowering and before new corms form or the flower stem emerges. Follow up cultivation is needed. Dig up isolated plants and dispose of the corms and bulbils. See below for herbicide application similar to African Corn Flag.

Watsonia

African Corn Flag flowers

AFRICAN CORN FLAG *Chasmanthe floribunda*

Tufted perennial herb with tall spikes of orange flowers, with a tall flower spike. Similar to Watsonia. Erect sword shaped leaves to 1 m long produced annually from a corm.The flowering stem is tall and spike-like with many large orange or yellow flowers which curve downwards, one petal much longer than the others.
Flowers from winter to spring.

A Priority 1 Significant Environmental Weed and a serious weed of roadsides, grasslands, woodlands, waterways, coastal and disturbed sites. The cormels detach and create new outbreaks.

African Corn Flag

CONTROL METHODS

The control methods for African Corn Flag are the same as above for Watsonia. Control in winter. Apply herbicide when early flowering for the best control. Weed wipe herbicide, or spray large areas. Eradication from an area can be achieved in 2-3 years.

Other Weeds of Concern

COMMON FIG
Weed of concern around rivers and creeks and a major threat to conservation values anywhere it has taken hold.

Ficus carica

OLIVE
Olives reduce biodiversity and contain volatile oils that increase bushfire risk.

Olea europaea

COOTAMUNDRA WATTLE
Bushy large shrub or small tree to 10 m. Smooth grey bark and blue-grey delicate-looking foliage.

Acacia baileyana

KURRAJONG
Evergreen tree to 15 m with a dense rounded canopy of bright green leaves, semi-deciduous in summer.

Brachychiton populneus

QUEENSLAND SILVER WATTLE
Bushy large shrub or small tree to 7 m. Silver leaves.

Acacia podalyriifolia

AFRICAN or TALL FEATHER GRASS
Erect, perennial grass that can grow to a height of 2 m.

Cenchrus macrourus

BRACELET HONEY MYRTLE
Large spreading shrub or small tree to 8 m with rough, grey bark and dense light green foliage. White bottle-brush flowers.

Melaleuca armillaris

TAGASASTE
Evergreen shrub or small tree growing to 6 m with long, drooping, leafy branches and producing masses of white/cream flowers.

Cytisus proliferus

Other Weeds of Concern

BLEEDING HEART TREE
Small bushy shrub or occasionally a tree to 6 m. The soft dark green leaves are heart shaped.

Homalanthus populifolius

BRIDAL VEIL
Scrambling or weakly climbing perennial vine with green, wiry, multi-branched stems to 3 m long.

Asparagus declinatus

WHITE WEEPING BROOM
Shrub to 3 m high and may reach 6 m across. Plants are grey-green with slender, drooping branches.

Retama raetam

FREESIA HYBRID
Perennial growing to 0.4 m high with trumpet-like flowers that dies back each summer to an underground corm.

Freesia spp. Hybrid

WILD RADISH
Winter and spring-growing annual that may grow up to 1.5 m high.

Raphanus raphanistrum

CAPE TULIP
Perennial herb to 0.7 m high, with a corm at the base of the plant, salmon pink flowers with yellow centre, and single leaves.

Moraea flaccida, M. miniata

COTTONBUSH
Erect shrub to 2 m with narrow leaves and soft spiny egg-shaped fruit. The foliage and stems produce a milky sap when damaged.

Gomphocarpus spp.

GERALDTON CARNATION WEED
Short-lived perennial leafy small erect shrub growing to 0.6 m with bright green-yellow 'flowers'

Euphorbia terracina

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