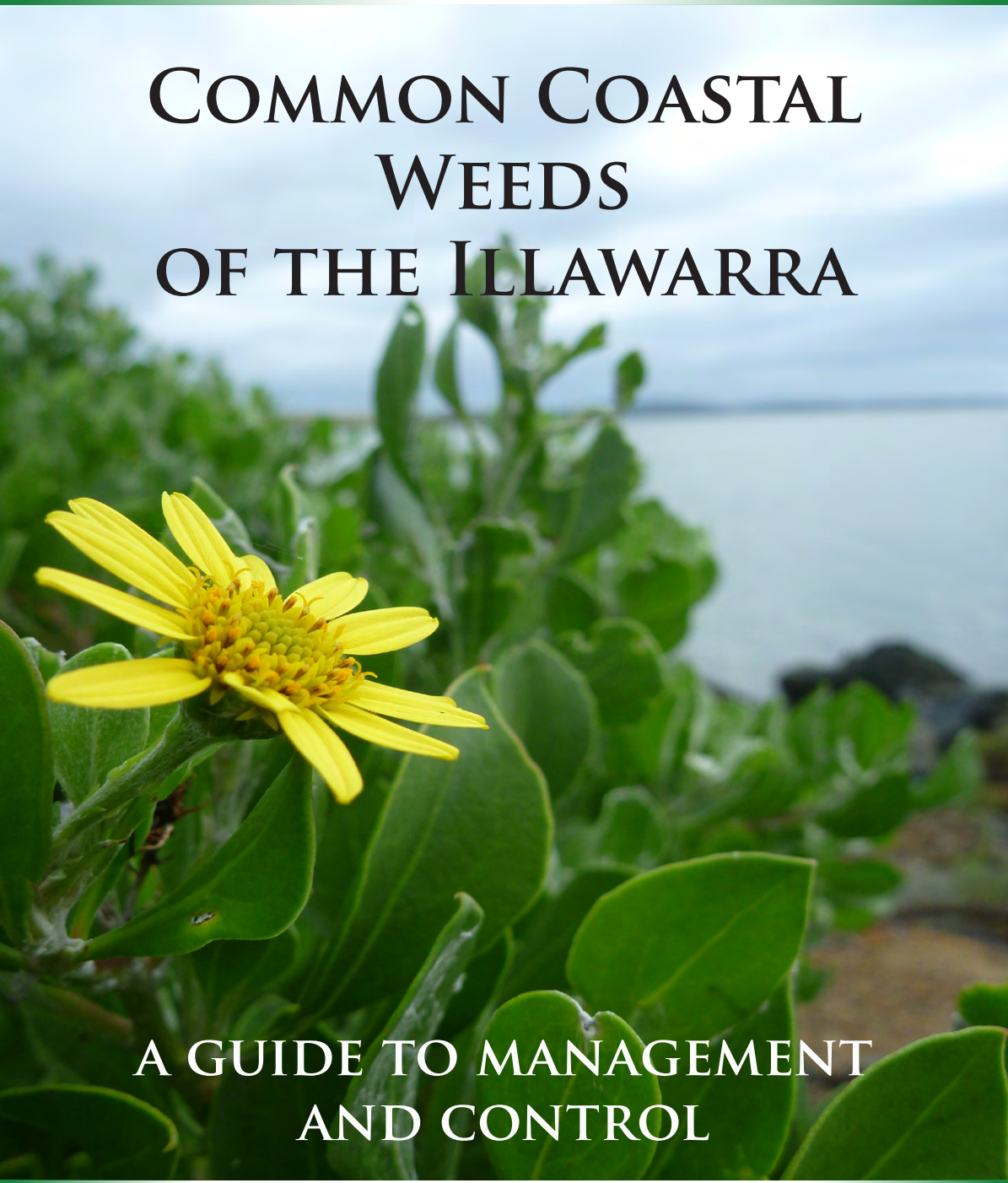
Common Coastal Weeds of the Illawarra



A guide to management and control

CARING FOR OUR COUNTRY
NSW GOVERNMENT
Southern Rivers CMA CATCHMENT MANAGEMENT AUTHORITY

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Front and back page (photo): Bitou Bush Lake Illawarra, Megan Rowlatt.

GENERAL INFORMATION

What is the purpose of this booklet?

This booklet has been designed to assist volunteers and individuals in the Illawarra working on coastal sites to identify and control weeds commonly found in the region's natural areas.

Although the booklet does not contain all weeds found on coastal sites in the Illawarra, the list provided has been obtained through consultation with local weeds officers, Bushcare and Landcare volunteers and local council staff.

What is a weed?

A weed is a plant that grows outside its natural environment and adversely impacts the environment in which it grows. This can include weeds which have come from another country as well as native Australian species which are now living outside of their natural range.

Weeds invade natural areas in a number of ways and invasion is usually opportunistic with some sort of disturbance in the vegetation. This could be in the form of a bushfire, clearing of the land, earthmoving equipment, trampling or vandalism by people using the land, nutrient enrichment through fertilisers or other influences from surrounding properties such as increased runoff etc.

Seed from weed species is distributed in a number of ways and it is important to consider dispersal mechanisms when applying weed control, to minimise further spread of the weed into nearby areas. Mechanisms for weed dispersal include:

- wind blown
- carried in by humans and animals on clothing or fur
- distributed by birds and other animal droppings after fruits have been consumed
- water dispersed
- spread by mowing or slashing and also on machinery used on site
- imported with poor quality mulch or soil brought on-site
- dumped as garden waste.

Why are weeds a problem?

There are a number of reasons why we would want to eliminate weeds from our natural areas, as they are invasive and can:

- displace native vegetation
- outcompete natives for light and nutrients
- alter the soil conditions and nutrient composition making it difficult for natives to establish
- displace local fauna due to native habitat loss
- increase the fuel load and therefore increase the risk of bushfire
- be highly toxic to animals and humans or can cause allergic reactions and irritation.

WEED CONTROL

Herbicide Use

Many groups and individuals working in bush regeneration use herbicides to assist with the control of certain species of weeds. It is important to consider all possible control techniques before using herbicides and also to develop a plan which involves a combination of control techniques so a more holistic and sustainable approach is taken to controlling weeds on your site. It is often wise to work under the supervision of a person who is certified in the use of chemicals and herbicides and seek permission from the landholder if it is not you before commencing any herbicide treatment. Consider potential long-term effects of continuous use of herbicide on site and proximity to waterways if you choose to spray on site. There are limitations in working near waterways. If you choose to use herbicide make sure that you are following the correct protocol for the use of the chemical you are using and note that the type of herbicide required will vary with the type of weed you are controlling. When considering herbicide use with any weed you should also refer to the latest edition of the ***Noxious and environmental weed control handbook (I&I NSW)***. This lists all herbicides currently registered for noxious weeds as well as permits required for many environmental weeds.
Always follow the directions outlined on the labels of the products you are using, and always wear appropriate safety attire when in contact with poisons. This includes gloves, long sleeves and long pants, safety glasses, sturdy closed in shoes and a face mask. Again, consult the label for additional recommendations. If you are ever in doubt on whether to use herbicide on your site, consult your local council or weeds authority for further advice (see back of booklet for Illawarra regional contacts).

Before you remove weeds...

First and foremost it is important that you correctly identify the species you are removing or controlling on your site. If in doubt, leave it and have it identified by an expert.
Once you know what you are working with it is good to be aware of the fruiting and seeding times of the plant and plan to remove the plant before it is able to spread further on your site. If you choose to use herbicide learn the best times to carry out treatment e.g. for bulb and corm species the best time to apply can be after flowering but before seed is set.
Try to remove as little waste as possible from your site and leave parts of the plant which are not capable of reproducing/re-shooting on site to mulch down. You can do this by cutting into small pieces and leaving where the weed once invaded to return nutrients to the soil. Bag and remove any seed heads, flowering or reproductive parts from the site to eliminate chance of further distribution. Try to avoid stockpiling weeds, as these can become attractive to arsonists and will also take longer to break down. Where there is potential for weeds to re-shoot or re-establish in the soil, leave perched on a nearby rock or low-lying branches to eliminate contact with the soil and monitor over the coming months to make sure it does not take root or re-shoot. When planning weed control it is important to consider the rate at which you remove weeds in relation to your capabilities to control any weeds which might replace the weeds you intend to remove. Remember that many weeds (such as lantana and wild tobacco) can provide valuable habitat for native fauna, and removing this vegetation can displace these animals. Consider removing weeds at a rate which allows new native habitat to re-establish to ensure habitat is available for native fauna.

WEED REMOVAL TECHNIQUES

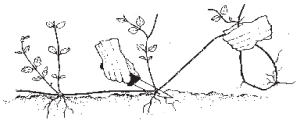
HAND PULLING

Many young plants can be hand removed with caution so as to not leave any reproductive parts in the soil. This can be carried out with a knife or a trowel and digging beneath the surface to remove runners, the tap root and any bulbs etc., which may have started to develop. It is helpful for removal if the soil is moist. Take care to shake any excess soil from the roots and leave the area as undisturbed as possible.

DIGGING - REMOVING BULBS, CORMS AND TUBERS

This is achieved by digging reproductive plant parts out of the soil. Move aside any leaf litter and expose the base of the plant. Dig down next to the stem until the bulb or tuber is exposed. Dig up the bulb or tuber and remove the plant, bagging the bulb or tuber. Some plants may have multiple tubers and will require further digging and follow up.

FOR VINES AND SCRAMBLERS



Using a knife or trowel for ground scramblers, follow the vine along the ground and dig carefully below the surface to remove any tubers or reproductive plant parts. Bag and remove them from the site. The vines, if stems or other parts cannot re-shoot, can be rolled and left on site to compost down.

FOR SOFT HERBACEOUS WEEDS

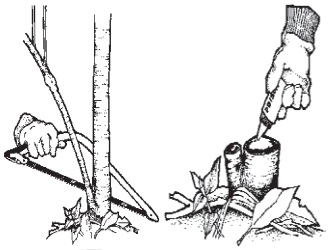
Carefully remove any seed or fruit, bag and remove from site. Grasp the stem at ground level to eliminate risk of snapping the stem and leaving the roots in the ground. Gently rock the stem loosening the soil around the base and slowly remove from the soil, shaking any loose soil and cover disturbance with soil by patting back down into the ground. Leave plants to break down on site where roots are not making contact with the soil once removed. This can be done by placing on a rock or on top of some low-lying branches on site.

CROWNING

This is where the crown of the plant (which is the growth point of the plant), is cut and removed from the ground. Gently remove and bag any seed or fruit from the stems of the plant. Grab the stems around the base of the plant to expose the base. Insert a knife or lever on an angle into the ground close to the crown. Working around the base, cut through all of the roots around the crown. Remove and bag the crown. Be mindful of your body when carrying out any of the above tasks, be sure to vary your position as to not injure or fatigue your back and joints. Take regular breaks and always wear appropriate safety attire.

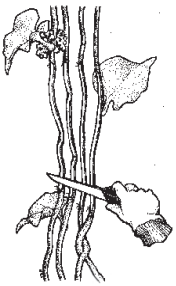
WEED REMOVAL TECHNIQUES

CUT AND PAINT



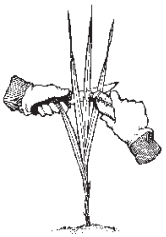
This method is most effective on woody weeds up to 10 cm in basal diameter, but can be used on some vines and creepers. Make a horizontal cut as close to the ground as possible (to eliminate run off of herbicide and reduce trip hazards on your site), with loppers, secateurs, or a saw. Immediately apply herbicide to the exposed area, ideally within 10 seconds before the plant cells begin to close and translocation of the herbicide ceases to occur. If the plant does re-shoot, you can cut and paint the shoot after sufficient growth has occurred.

SCRAPE AND PAINT



This treatment is ideal for the control of vines and scramblers. With a sharp knife or with smaller vines a potato peeler can be useful, scrape 15-30 cm along the length of the vine to expose the fleshy layer beneath the epidermis of the vine. Immediately (within 10 seconds) apply any herbicide along the length of the scraping. Do not ring bark. For thicker vines you may need to complete two scrapings opposite each other along the vine. Vines left in the canopy should die but follow up treatments may be required.

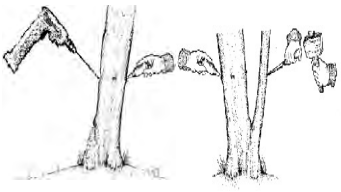
STEM SWIPE



This technique is most useful for species with underground tubers, bulbs and corms which can be hard to remove from the soil. Using a knife for backing support, swipe along the length of the stems or leaves with the herbicide applicator bottle.

STEM INJECTION or FRILLING/CHIPPING

This method is ideal for woody weeds (trees and shrubs) over 10 cm in basal diameter and often where the site restricts access to the weeds or removal is a problem.



Stem Injection: At the base of the tree or shrub drill holes at a 45 degree angle into the sapwood at 5 cm intervals

OR

Frill/Chip: Instead of a drill use a chisel and hammer to make incisions into the trunk. Fill each hole or incision with herbicide immediately. Repeat the process at 5 cm intervals around the base of the tree/shrub.

WOODY WEEDS

Lantana

Lantana camara and other garden varieties such as *Lantana montevidensis* (creeping lantana)

Origin: Lantana, originally from Central and South America, was introduced to Australia as an ornamental garden plant. It occurs in a range of habitats including open exposed hill sides, coastal dunes, rainforests and bushland.

Identification: Lantana is a woody shrub heavily branched which grows in dense clumps or thickets and can also behave like a climbing vine. The stems are square in shape and are covered in small prickles. Leaves grow opposite to each other along the stem with round toothed edges which, when crushed produce a distinct odour. Leaves are bright green on the surface and a paler green on the underside. Flowers cluster and range in colour from light cream to yellow, white, pink, orange and red. Fruits are berry like, start out green and when ripe turn to dark purple to black in colour.

Flowering and seeding: Most of the year.

Dispersal: Birds and animals spreading seed. Vegetatively by stems taking root as the plant spreads creating dense stands. Dumped garden waste. Poor quality mulch.

Control: Hand pull seedlings, cut and paint larger plants cutting branches into small pieces and allowing to mulch down on site. Follow up required to monitor any re-shooting.

Tip: Lantana seedlings can often be mistaken with native peach *Trema tomentosa*, which has alternate leaves as opposed to paired. Leaf odour can also be used as an indicator by crushing the leaves as lantana has a distinct odour. Lantana is often used as habitat by native fauna, and also when removed can result in even more invasive weeds taking its place, so be mindful when considering the rate at which you are removing this weed and your ability to carry out follow up maintenance. It is also often beneficial to leave lantana on the edges of rainforest remnants to prevent weeds blowing into the open understorey, and in maintaining the moist habitat for ferns by keeping out drying winds.

WOODY WEEDS

Bitou bush

Chrysanthemoides monilifera subsp. rotundata

Origin: Bitou bush was introduced to Australia from South Africa to revegetate and stabilise the dunes after sand mining in many coastal areas along the NSW coastline. Bitou bush has now become very invasive in our coastal ecosystems where it outcompetes and smothers native vegetation.

Identification: Bitou bush is a sprawling evergreen shrub and commonly grows up to 2 meters high.

Leaves are fleshy and green, grow between 3-7 cm in length, are rounded and taper at the base with small teeth on the margins. Younger leaves are often covered in a white cottony down.

Flowers are bright yellow with 11-13 petals approximately 2 cm in diameter, which grow in clusters at the branch tips.

Fruits are green berries which ripen black and each fruit has one seed which is bone-like in appearance and texture.

Flowering and seeding: Seeds ripen from June to September.

Dispersal: Birds and other animals spreading seed. Water, garden waste and by vehicles and equipment.

Control: Seed and fruit should be bagged and removed from site. Hand pull seedlings. Cut and paint more established plants. Branches can be cut into small pieces and left on site to mulch down.

For larger infestations check with your local council, weeds authority or catchment management authority to see if there are any spraying or biological control programs in place. Follow up is necessary.

Note: *Myoporum boninense or* Boobialla is a native often confused with bitou bush. It is similar with fleshy bright green leaves especially in juvenile stages. Make sure you are confident in identifying your weeds. Consult the resources list at the back of this booklet for more information about plant identification.

Large-leaved privet

Ligustrum lucidum

Origin: Native to China and Japan was probably introduced as a hedge plant, but has become invasive in native bushland, along creeks and riparian areas, neglected gardens and wastelands.

Identification: Evergreen shrub or tree growing to around 12 m high. Leaves are dark green with a pale underside, ovate to elliptical in shape with a wavy margin grow 12-13 cm long and 5-6 cm wide and are mildly hairy. Leaves grow opposite in pairs along the stem.

Flowers grow in dense flower heads about 15-25 cm long at the ends of the branches. Flowers are creamy white in colour and have four petals. Fruits as blue/black berries 5-8 mm.

Flowering and seeding: Flowers during summer.

Dispersal: Birds and water spreading seed.

Control: Hand remove or dig out seedlings being careful to remove all of the roots. Use stem injection, frill/chip or cut and paint for larger plants.

Small-leaved privet

Ligustrum sinense

Origin: Native to Asia, this plant has commonly been used as a hedge plant but causes allergies in humans and has become invasive in native bushland and neglected gardens and wastelands.

Identification: Evergreen – semi-deciduous tree growing to around 5 m high.

Leaves are deep green in colour, ovate to elliptical in shape with a wavy margin, grow 2-6 cm long and 1.5-2.5 cm wide and are mildly hairy. Leaves grow opposite in pairs along the stem. Flowers grow in dense flower heads about 5-10 cm long at the ends of the branches. Flowers are creamy white in colour and have four petals. Fruits as blue/black berries.

Flowering and seeding: Flowers late winter to early spring.

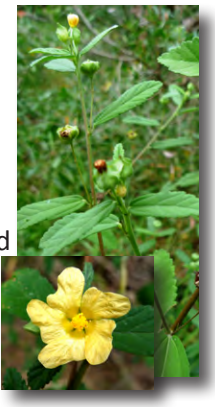
Dispersal: Birds and water spreading seed.

Control: Hand remove or dig out seedlings being careful to remove all of the roots. Use stem injection, frill/chip or cut and paint for larger plants.

WOODY WEEDS

Paddy's lucerne

Sida rhombifolia



Origin: Paddy's lucerne can be found in high rainfall areas of Australia in pastures, gardens and wastelands where there has been some disturbance. This plant can be harmful to human intestines if seeds are consumed.

Identification: Perennial shrub or herb which can grow up to 2 m high, Paddy's lucerne has a strong, deep tap root and a woody stem which is covered in hairs. Flowers resemble a star shape and are pale yellow-orange in colour either growing in 3-4 flowers at the end of the branches, or solitarily. Leaves are a dull green diamond shape and paler on the underside, fruit is a dark brown capsule containing reddish brown to black seeds 5 mm long.

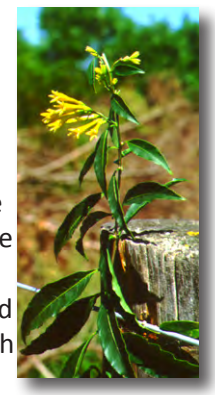
Flowering and seeding: Flowers mainly in the warmer months.

Dispersal: Mechanical spread through slashing and mowing. Poor quality mulch or garden waste, wind and water. Germinates prolifically after fire.

Control: Remove fruits. Hand pull small plants. Cut and paint larger plants.

Green cestrum

Cestrum parqui



Origin: Green cestrum, introduced from South America, has now become naturalised throughout the east coast of Australia and is invasive. All plant parts are poisonous to stock and humans.

Identification: Tall perennial shrub grows up to 3 m high. Leaves are alternate and grow up to 12 cm long and 2 cm wide and have an unpleasant odour when crushed. There is often more than one stem emerging from the crown and younger stems are whitish in colour and older ones are darker, striated at the base and mottled above. The greenish-yellow flowers occur in clusters at the branch ends. Flower tubes are up to 2.5 cm long with five small terminal lobes. Fruit is a purplish-black, oval berry about 1 cm long.

Flowering and seeding: Flowers all year.

Dispersal: Birds spreading seed, new plants produced from suckers, particularly after root disturbance or injury.

Control: Remove all flowering and fruit parts from site. Smaller plants can be hand pulled or dug out but be sure to remove all of the root system. Scrape and paint larger plants. Follow up may be required.

WOODY WEEDS

Wild tobacco

Solanum mauritianum

Origin: Wild tobacco originated from Argentina and is found on disturbed sites, damp areas and in rainforests. Most parts of the plant are poisonous to humans and cattle if eaten, fine hairs on the plant can cause allergic reaction in humans.

Identification: A perennial shrub or small tree up to 4 m high. Stems, branches and leaves are all covered in fine hairs which give a felty texture. Leaves are ovate and reach up to 30 cm long and 15 cm wide and are alternate. Leaves are grey-green and paler on the underside. Stem is a green-grey colour. Flowers are in compact clusters at the ends of the branches, are white-lavender/blue. Fruits (berries about 2 cm across) are covered in hairs and ripen to a dull yellow colour.

Flowering and seeding: Flowering autumn to spring, seeding spring to summer.

Dispersal: Water, birds, dumped garden waste and poor quality mulch. Seed also germinates after fire.

Control: Remove fruit and flowers. Hand pull small plants, use stem injection, frill/chip or cut and paint for larger plants.

Castor oil plant

Ricinus communis

Origin: Castor oil plant is native to Africa and Asia. It spreads over sandy soils, creek banks and gullies, and on highly disturbed land. Seeds are toxic.

Identification: Tall perennial shrub that grows up to 3 m high. It has hollow branches which range from pale green to red to grey. Leaves are large (10–60 cm across) and widely spaced on the branches. Each leaf is divided into 7–9 pointed triangular segments with toothed edges and conspicuous veins. Leaves are glossy, dark reddish-green when young and glossy green when mature. Flowers are crowded in the forks of the upper branches. Fruit (2.5 cm across) is covered with green or red spines.

Flowering and seeding: Flowers late summer.

Dispersal: Water and ripe fruits explode violently and throw the seeds.

Control: Bag and removed fruit/seed from site. Small plants can be hand pulled or dug out. Cut and paint larger plants.

WOODY WEEDS

African boxthorn

Lycium ferocissimum

Origin: African boxthorn is a spiny shrub which has become invasive in bushland and also provides a haven for pest species such as rabbits and foxes. Berries are poisonous to humans if eaten.

Identification: Perennial shrub up to 5 m high with deep extensive root system which can reshoot if left in the ground. Main branches droop and are widely spreading and carry numerous branchlets which end in a spine. The main stem has large spines up to 15 cm long and the branchlets have smaller spines. Branchlets also have clusters of leaves which are surrounded at the base by many small light brown scales. Leaves which grow up to 3 cm long are bright green and succulent, are round at the top and taper at the bottom. Flowers are white to pale mauve and hang from short stalks occurring singularly or in pairs at the forks of the leaves. Fruits are bright orange to red berries 5-12 mm across.

Flowering and seeding: Both mainly occur in summer but can occur all year.

Dispersal: Birds and animals eating fruit.

Control: Hand pull seedlings, use stem injection, frill/chip or cut and paint for larger plants.

Ochna/Mickey Mouse plant

Ochna serrulata

Origin: Ochna is a small shrub which grows up to 1.5 m high. It was introduced from South Africa, and can grow in poor soil conditions and has become naturalised in many bushland areas. Ochna competes aggressively with native plants.

Identification: Ochna has finely-toothed alternate leaves 2.5 to 8 cm long. New leaf growth is bronze, appearing at the same time as the flowers, which have five yellow petals. These fall off leaving the sepals which surround the crown of the fruit and turn bright red as the fruit ripens. Fruit is a black berry when ripe.

Flowering and seeding: Flowers in spring.

Dispersal: Birds, garden waste.

Control: Hand dig out small plants and remove all roots from the soil. Cut and paint or scrape and paint larger plants. Stem injection can also be used.

Norfolk Island hibiscus

Lagunaria patersonii

Origin: Norfolk Island hibiscus is native to Norfolk Island, Australia, but outside its native range has become invasive. Can be found in estuaries and waterways and other coastal vegetation.

Identification: This medium-sized tree has leaves that are evergreen, shiny, leathery, and up to 7.5-10 cm long. They are olive-green on the upper face and are paler grey-green underneath. Flowers are solitary, pink and waxy, with five petals.

Flowering and seeding: Flowers appear in late spring or early summer.

Dispersal: Birds, water.

Control: Hand pull seedlings or use stem injection, frill/chip or cut and paint for larger plants.

Note: Can often be confused with mangrove seedlings in estuaries and creeklines.

Senna/Cassia

Senna pendula var. glabrata

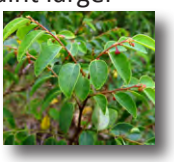
Origin: Native to South America, this evergreen shrub grows 1 to 3 m high, and can be invasive in the understory of coastal vegetation and woodland.

Identification: Leaves are compound with 3-8 pairs of leaflets. There is a raised gland between the lowest pair, or few pairs of leaflets. Flowers are yellow, with protruding curved stamens. Seed pods are cylindrical and bean-like.

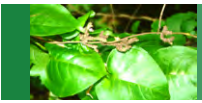
Flowering and seeding: Flowers all year.

Dispersal: Seed in dumped garden waste, water and in contaminated soil. Sometimes by animals. Seed is long-lived (up to 5 years or more) in the soil, and germination is likely to be stimulated by fire. Plants also re-sprout from the roots after fire.

Control: Hand pull seedlings removing entire root system. Cut and paint larger plants.



Note: There are a number of invasive Senna species which can be confused with native Breynia (*Breynia oblongifolia*) which has smaller alternate leaves *(image to right)*, or *Senna acclinis* which has a flat, black seedpod.



VINES AND SCRAMBLERS

Madeira vine

Anredera cordifolia

Origin: Native to South America, Madeira is a fleshy perennial climber (up to 40 m high) which winds its stems around other structures and vegetation. Grows on disturbed sites and fertile soils, is highly invasive, smothers vegetation and is capable of bringing down tree canopies.

Identification: The stems twine around existing vegetation and bare aerial tubers which form clusters high in the vine. Leaves are succulent and shiny and vary from rounded to heart shaped and reach up to 10 cm in length. Flowers grow in long drooping clusters of small white tubular flowers resembling a 'lamb's tail'. Tubers are also found in the ground, and along the stem.

Flowering and seeding: Flowers in autumn.

Dispersal: Vegetatively, stem fragments rooting at the nodes, aerial tubers dropping and new plants growing. Dumped garden waste.

Control: Smaller plants can be hand pulled but all tubers must be dug from the ground. Can use cut and paint and scrape and paint techniques but make sure a tarp is used to catch all dropping aerial tubers. Continual follow up is required.

Turkey rhubarb

Acetosa sagittata

Origin: Originally from South Africa, this climber is highly invasive and can easily smother native vegetation in a short amount of time.

Identification: Stems, up to 10 m long, are strong with reddish ridges. Leaves are arrow head-shaped and flowers grow in small clusters at the ends of the branches and are greenish/purple. The seeds are papery, winged and have a reddish tinge.

Flowering and seeding: Flowers generally grow from late spring to early autumn.

Dispersal: Wind disperses the seeds and tubers will re-shoot from underground.

Control: Remove all flowers from the plant before seeds set. Hand dig out all underground tubers, rhizomes and attached parts to avoid re-shooting, bag and remove from the site. Spraying herbicide can be useful on large infestations.

Note: Can sometimes be confused with native *Convolvulus erubescens.*

VINES AND SCRAMBLERS

Moth vine

Araujia hortorum

Origin: Native to Brazil, this perennial climber can be found along fence lines, rainforests and vine thickets, and is capable of smothering native vegetation. The milky sap can cause severe eye irritation.

Identification: Stems can grow up to 7 m tall and are covered in leaves which grow up to 10 cm in length grow in opposite pairs. Leaves are green with a white underside and roughly triangular in shape. When damaged the stems and leaves excrete a white milky sap. Flowers range in colour from white to pink or violet. Fruit resembles a choko but are pale green and fuzzy in texture. When ripe and dry, the fruits split open releasing many wind-borne seeds on silky hairs.

Flowering and seeding: Flowers generally in summer.

Dispersal: Wind, water.

Control: Remove fruits from site. Sever the base and then dig out the roots, the vine can be left to die in the canopy but where possible it should be taken down and removed from site. Cut and paint or scrape and paint can also be used.

Note: Native look-a-likes include *Marsdenia rostrata* and *Parsonsia straminea.*

Cape ivy

Delairea odorata

Origin: This perennial creeper originally from South Africa, smothers understories and canopies. Leaves are poisonous to mammals, spiders and aquatic life.

Identification: Stems can reach up to 10m covered in leaves arranged singly on alternate sides and can vary in size. Leaves are bright green, shiny and fleshy, are ivy shaped and have 5-7 lobes. Flowers grow in clusters of small yellow daisy-shaped flower heads. The extensive fine root system can produce a new plant from fragments left in the soil.

Flowering and seeding: Flowers from July to September.

Dispersal: Wind, water, birds spreading seed, dumping of garden waste, leaving fragments of plant in the soil which are capable of reproducing or re-shooting.

Control: Hand remove all parts of the plant from the soil or use cut and paint.

VINES AND SCRAMBLERS

Coastal morning glory/mile a minute

Ipomoea cairica

Origin: Coastal Morning Glory is thought to have originated in the tropics of Africa and Asia. This perennial climber is capable of establishing and spreading rapidly, quickly smothering understories and canopies it uses for support.

Identification: Leaves are bright green and deeply divided into 5-7 lobes. Flowers are funnel-shaped and lavender in colour where the throat of the flower is a deeper colour. Stems are long and twining and roots are tuberous where they root at the nodes.

Flowering and seeding: Flowering mainly in summer.

Dispersal: Seed spread by wind and being dropped as the plant spreads.

Control: Cut and paint, or scrape and paint can be used and the vines can either be left in the canopy to die or can be removed by hand. Where possible, remove all roots and take care not to leave parts in the ground as they are capable of re-growing from the tubers.

Blue Morning Glory

Ipomoea indica

Origin: Native of the tropics, this perennial climber is capable of establishing and spreading rapidly, quickly smothering understories and canopies.

Identification: Leaves are broad and heart-shaped, sometimes in 3-5 lobes and are approximately 7 cm in length. Flowers are funnel shaped and blue-mauve in colour growing in groups of 3-12. Stems can grow up to 7 m long.

Flowering and seeding: Flowers most of the year.

Dispersal: Seeds are not that common in Australian varieties so the plant is spread mainly by garden dumping and spread of existing plantings.

Control: Hand remove roots from the soil and remove as much vine as possible from the canopy and remove from site. Heavy mulching has proven effective on some sites where it prevents regrowth coming back up. Cut and paint, as well as scrape and paint can also be used.

VINES AND SCRAMBLERS

Fishbone fern

Nephrolepis cordifolia

Origin: Native to south east Queensland, Fishbone fern has become naturalised outside its native range and in many areas acts as an invasive groundcover.
Identification: Stems grow in a clumped manner from a central core. Fronds resemble a fishbone in structure, and are covered in tiny brown spots on the underside of the fronds which release spores. The plant has a dense rhizome network under the surface with water tubers attached.
Dispersal: Spores are dispersed by wind, water and the plant can also enter bushland through garden waste dumping.
Management: Manually dig out the plants removing the entire root system. Bag and remove from site.

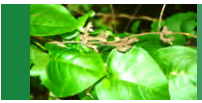
Trad

Tradescantia fluminensis

Origin: Native to South America, this succulent creeping plant easily establishes in moist soils and spreads through native vegetation in a thick carpet-like cover.

Identification: Leaves are fleshy and shiny with parallel veins. Each leaf has a sheath at the base which is covered in small hairs. Flowers are small and white with three petals.
Flowering and seeding: Flowers are produced mainly in spring.
Dispersal: Trad reproduces via stolons, seeds and tubers.
Control: Hand remove where possible, although this is time consuming and much follow up is required to remove regrowth. Some groups have had success with rolling thickets of trad like a mat and creating elevated piles they allow to mulch down on site. Groups rotate the pile to assist with accelerated decomposition and make sure the plant is not in contact with the soil. Herbicide use can be effective but care needs to be taken to consider surrounding vegetation and proximity to waterways.

Note: Native look-a-likes (right) *Commelina cyanea* has blue flowers, and can also be confused with *Aneilema* species, which also have white flowers.



VINES AND SCRAMBLERS

Bridal creeper

Asparagus asparagoides

Origin: Native to South Africa, bridal creeper invades and smothers canopies and understories of many coastal vegetation communities.

Identification: Stems are long and wind around vegetation or scramble along the ground. They range from 1-3 m in length and can be slightly woody at the base. Leaves grow alternately along the stem, are bright green, thin and glossy, are 1-7 cm long and have around seven parallel veins. Flowers are white and bell-shaped and grow singularly or in pairs along the stem. Fruit is bright orange to red berries. Roots are dark, cylindrical branching rhizomes bearing pale, fleshy tubers which become entwined together forming a dense mass about 5-10 cm deep in the soil. The stems arise from the rhizomes.

Flowering and seeding: Flowers appear in early spring.

Dispersal: Birds, animals, water, garden dumping.

Control: Hand pull and dig out the rhizomes. All underground material should be removed and follow up will be required.

Note: Leaves can be confused with native wombat berry *(Eustrephus latifolius).*

Asparagus fern/basket fern

Asparagus aethiopicus

Origin: Introduced from Africa, asparagus fern invades many coastal areas, and survives well in sand dunes, shallow-soiled headlands and rainforests.

Identification: Asparagus fern has long prickly stems which can reach up to 2 m long, and are covered in slender spiny leaves light green in colour. Flowers are small (up to 8 mm in diameter), and cream in colour. Fruit ripens from green to bright red berries. The plant has an extensive underground system of tubers which do not reproduce but hold starch and water. The starchy crown is the reproductive part.

Flowering and seeding: Flowers then fruits from August to September but this can be variable.

Dispersal: Garden waste, birds, animals, water.

Control: Crowning can be carried out. Fruit and flowers must also be bagged and removed from site but tubers can be left as they will not reproduce.

VINES AND SCRAMBLERS

Balloon vine

Cardiospermum grandiflorum

Origin: Native of tropical America, West Indies and Africa, this herbaceous climber grows via extensive tendrils which eventually smothers native vegetation. Commonly found in waterways, along roadsides, disturbed sites and along forest edges.

Identification: Leaves are green and grow from a leaf stalk and then divide into three leaflets which further divide into three again. The edges of the leaflets are irregularly toothed. Flowers have four petals and are white and in clusters where the stalk of the flower head ends in a pair of tendrils. Fruits are the distinguishing feature of the plant growing as inflated capsules with six ribs which are 4-8 cm in length and covered in short hairs. Stems are rusty in colour and covered in hairs.

Flowering and seeding: The plant flowers most of the year.

Dispersal: Wind, water, dumping of garden waste.

Control: Cut and paint during spring/summer, or hand removal can be used to remove roots and vines from the ground and canopy. Bag and remove all fruit from site.

Note: Native slender grape *Cayratia clematidea* is almost identical to balloon vine except for the fruit.

White passion flower

Passiflora subpeltata

Origin: Originally from Brazil, this climber invades forest edges, roadsides, and disturbed sites. It is potentially poisonous to humans and livestock. This plant is capable of smothering native vegetation.

Identification: This thin-stemmed climbing vine has broad, pale green leaves with three lobes. Leaves are hairless and tendrils grow from the vine beneath each leaf. Flowers are white and large and fruit is smooth and oval shaped which are generally bluish green in colour.

Flowering and seeding: Flowers spring to summer.

Dispersal: Fruit and seed spreading.

Control: Hand pull and be sure to dig out the entire crown. Cut and paint or scrape and paint can also be used.

Note: There are a number of native Passifloras. *Passiflora herbertiana* has similar leaves.

VINES AND SCRAMBLERS

Japanese honeysuckle

Lonicera japonica

Origin: Eastern Asia and Japan. Invades forest edges and disturbed sites.

Identification: This woody vine growing up to 25 m tall grows as a thick ground cover over existing vegetation. Leaves grow in opposite pairs and are approximately 7.5 cm long and 3.5 cm wide. Flowers are tubular and grow in pairs around 3.5 cm long and vary in colour from cream to orange and fruit is in the form of blue/black berries.

Flowering and seeding: Flowers in spring and autumn.

Dispersal: Birds.

Control: Remove all fruit from the plant. Cut and paint, or scrape and paint can be used.

Cat's claw creeper

Macfadyena unguis-cati

Origin: Originally from tropical America, introduced to Australia as an ornamental plant.

Identification: Cat's claw creeper has a vigorous root and tuber system. The vine has leaves which have two leaflets and a three clawed tendril (the cat's claw) which grows between them. Flowers are bright yellow and bell-shaped. Fruit is in the form of long, narrow and flat pods containing many seeds.

Flowering and seeding: Flowers appear in spring.

Dispersal: As the plant grows and spreads, seed is dispersed from pods.

Control: Cutting and leaving the vines in the canopy will result in the vines above the cut dying. Remove any seed pods where possible. Hand remove roots and be sure to remove all tubers.

Small infestations can be hand pulled, cut and paint combined with scrape and paint can be used.

HERBACEOUS AND OTHER WEEDS

Prickly pear

Opuntia spp.

Origin: Prickly pear, native to America and the Caribbean region, is commonly found along roadsides, in native coastal bushland and can survive in dry infertile areas.

Identification: An erect fleshy shrub to around 1-2 m high. Lower segments may be thickened and trunk-forming on older plants while flattened upper segments are up to 40 cm long and up to 25 cm wide. Flowers are yellow and about 6 cm wide. Fruit is egg-shaped and purple when ripe and edible. Small bristles are found in clusters on segments and fruit, these bristles readily attach to skin and are difficult to remove.

Flowering and seeding: Flowers in summer.

Dispersal: Spread by seed, birds, or vegetatively by segments that root where they contact the ground.

Control: Plants can be removed by severing at the base and digging out the root systems. All plant parts should be removed from site.

Fireweed

Senecio madagascariensis

Origin: Native to South Africa, fireweed is found along roadsides, and farmland, but also is found growing on dunes and headlands.

Identification: Fireweed is an annual or a short-lived perennial. Leaves are alternate, dark green with serrated margins, and are usually 2–6 cm long. The flowers are bright yellow, daisy-like with a diameter of approximately 2 cm, and produce up to 100 seeds each. Often this plant is confused with native fireweed, but the weed can be distinguished with its 13 flower petals and 21 bracts (the narrow green structures surrounding the flower head *see image)*. Natives will commonly only have 15-18 bracts.

Flowering and seeding: Flowers spring to autumn.

Dispersal: Wind and machinery or vehicles.

Control: Hand pull entire plant and root system and remove from site. Herbicide use can be effective by spraying large infestations.

Crofton weed

Ageratina adenophora

Origin: Crofton was introduced from Central America. It is now commonly found invading roadsides, pastures, riparian areas and bushland edges. Often seen growing alongside mist flower (see below). This plant is poisonous to horses.
Identification: This perennial weed grows up to 2 m tall, has a woody root stock with branching stems which will take root if in contact with the soil. Leaves are bright green, broad and trowel-shaped up to 7.5 cm long and 5 cm wide and are toothed. Flowers are white and in small dense heads at the ends of branches. Seeds are thin, long, angular and black with fine white hairs at the tip.
Flowering and seeding: Flowers appear in spring.
Dispersal: Seed via wind and water run off.
Control: Hand removal or digging out the roots is effective. For larger woodier plants cut and paint can be used.

Mist flower

Ageratina riparia

Origin: Originally from Mexico, mist flower was introduced to Australia as an ornamental. It is now found commonly in damp areas, riparian areas and clearings in rainforest and pasture. Can be toxic to stock. This weed is often found invading creek lines and waterways with crofton weed (see above).
Identification: Low-growing, perennial herb around 1 m high. It has numerous branching purple cylindrical stems which produce roots at the joints where they touch the ground. Leaves are deep green, opposite, around 7.5 cm long and 2.5 cm wide, toothed along the edges and tapered at each end. Flowers are white (similar to those of crofton weed) and in dense heads at the ends of the branches. Seeds (2 mm long) are slender, angular and black, with fine white hairs at the tip.
Flowering and seeding: Flowers mainly in winter and spring.
Dispersal: Seed via wind and water run off.
Control: Hand removal or digging out the roots is effective. Spraying recommended herbicide can be effective with large infestations.

HERBACEOUS AND OTHER WEEDS

Fleabane

Conyza spp.

Origin: Originally from America, fleabane is usually found invading disturbed sites, bushland edges and roadsides and can tolerate poorly drained areas.
Identification: There are around three main types of species of Conyza common to Australia. Fleabane is an annual herb growing up to 2 m in height which forms a rosette first and then an erect stem. Leaves are generally soft, hairy and coarsely toothed with a single stemmed flower stalk with flowering heads. Flower heads are fluffy and white around 1 cm wide and seeds are achenes (a hard dry fruit containing a single seed) approximately 5 mm long with a tuft of fine hairs.
Flowering and seeding: Flowers appear in summer.
Dispersal: Wind and water run off.
Control: Bag seed heads and remove from site. Hand pull smaller plants or dig out tap root. Fleabane will reshoot and germinate after fire so follow up is required where seed may have been left in the soil.

Purple top

Verbena bonariensis

Origin: Native to South America, this weed mainly invades paddocks, but can also commonly be found along roadsides and bushland margins. This plant can be toxic to animals.
Identification: Erect annual herb growing up to 3 m high. Stems, square shaped and leaves are covered in hairs. Leaves are a dark green, are long and narrow with toothed margins. Flowers are usually slender and purple on cylindrical flower heads at the end of the branch.
Flowering and seeding: Mainly flowers October to January, but can vary.
Dispersal: By seed, wind, water run off and machinery and slashing when in seed.
Control: Cut off flowering seed heads, bag and remove from site. Hand pull or dig out tap root and leave on site to mulch. Follow up removal of any seedlings will be required.

HERBACEOUS AND OTHER WEEDS

Mother of millions

Bryophyllum delagoense

Origin: Introduced from Africa and Madagascar, this succulent perennial grows up to 1 m high and is well adapted to dry conditions and survives well in drought, on gravelly sandy soils and is commonly found along fence lines, roadsides, at rubbish tips as well as along creeks and rivers where flooding has occurred. All parts of the plant are poisonous.

Identification: Stems are pinkish-grey and leaves are a pencil shaped pale green-brown with patches of dark green. Leaves also have a shallow groove along the upper surface and up to seven projections at the tip of each leaf which drop off and form new plants. Flowers form in a cluster at the top of the stem and droop as orange-red tubes.

Flowering and seeding: Flowers from May to October.

Dispersal: Vegetatively with parent plants producing plantlets along the leaf edges which drop in the surrounding area. Seeds are also produced and can remain viable in the soil for many years.

Control: Hand pull, taking care of dropping plantlets. Bag and remove from site.

Blackberry nightshade

Solanum nigrum

Origin: Native to Europe, Asia and North Africa.

Identification: Annual short-lived perennial shrub approximately 80 cm high with green-purple stems which are broadly branching. Leaves are oval shaped with tips that come to a rounded point and are around 3-8 cm long and 2-5 cm wide. Margins are undulating. Flowers are star shaped and white with a violet tinge, a yellow centre and have five petals. Fruit forms as a green berry ripening to a purple/black.

Flowering and seeding: Flowers spring to summer.

Dispersal: By seeds dropping and dispersal by birds.

Control: Remove all fruiting parts and hand pull or dig out roots leaving on site to mulch down. Larger plants can be removed using cut and paint. Follow up will be required to remove any new seedlings.

HERBACEOUS AND OTHER WEEDS

Formosan lily

Lilium formosanum

Origin: Formosan lily, originally from Taiwan, has become naturalised throughout Australia and is commonly found along roadsides, bushland margins and gardens.

Identification: Growing up to 1.5 m high, stems are dark green covered in long narrow leaves which can reach up to 20 cm in length. Flowers are white and trumpet-shaped with three large petals laid over three smaller petals which give it a star-like appearance. Outsides of flower can have a pink tinge.

Fruiting and seeding: Mainly throughout summer.

Dispersal: Seeds, bulbs and bulb scales spread by wind, water, and garden waste.

Control: Remove flower from site before seed sets. Hand dig all underground parts of plant. Follow up will be required.

Fennel

Foeniculum vulgare

Origin: From Europe and Western Asia, fennel is commonly found along roadsides, riverbanks or around the edges of pasture or native bushland. Fennel can form very dense infestations.

Identification: An erect perennial herb, grows 1-2 m high and has zigzagging stems. The leaves are bright green and feathery divided into fine thread-like segments. Flowers are small, yellow and form in branching umbrella shaped heads.

Flowering and seeding: Flowering mainly in summer.

Dispersal: Seed is spread by water, wind, machinery and vehicles, and in contaminated soil.

Control: Hand pull or dig out small plants, remove all parts of the roots. Slashing before seeding of large infestations may be effective combined with spot spraying.

Note: This plant is edible so where infestations have been treated with herbicide, it is advisable to use a dye or signage to notify the public who may be using the plant for this purpose.

HERBACEOUS AND OTHER WEEDS

Dune onion weed

Trachyandra divaricata

Origin: Native to South Africa, dune onion weed commonly invades dunes along the coast.

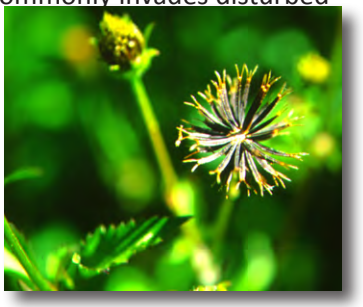
Identification: Erect tuft or sprawled herb up to 70 cm high. Often lays sprawled on ground when not in flower. Leaves are long green, succulent and glossy. Flowers are white with brown central stripe on petals. Fruit capsules are red/brown to brown/black.

Flowering and seeding: Flowers late winter to spring.

Control: Plants can be dug out by hand. Remove all fibrous rhizomes that form a cluster where the leaves meet at the base.

Cobbler's pegs/farmer's friends

Bidens pilosa



Origin: Native to tropical America, this annual herb commonly invades disturbed sites, roadsides, bushland edges, and prefers moist soils.

Identification: An erect, slender and branching plant growing up to 1.5 m in height. Stems are angled with four points and leaves are opposite and sparsely hairy with 3-5 compound leaflets. Flowering most of the year, flowers are bright yellow heads which produce long black barbed seeds. One plant can produce between 3000 and 6000 seeds which can remain viable for up to 5 years.

Flowering and seeding: Flowers and seeds through most of the year.

Dispersal: Barbs of seeds stick to animal fur, clothing and are also dispersed by wind and water.

Control: Cut and bag any seeding heads and remove from site. Hand pull when soil is moist or larger woodier plants can be dug out removing roots or cut and paint method can be used. Stems can be left on site to mulch down. Follow up will be required to break seed cycle on site.

Note: Bidens is often confused with native *Sigesbeckia australiensis* which has a similar overall structure, and yellow flowers.

GRASSES

Nutgrass

Cyperus rotundus

Origin: This tufted perennial is extremely tough. It invades coastal vegetation.

Identification: Grows up to 60 cm tall, stem is three-angled. Has 3-8 rays, with 3-8 spikes, rusty-brown in colour. Flowers are greenish. Initially the plant forms white, fleshy rhizomes which grow upward in the soil, then form a bulb-like structure from which new shoots and roots grow. From the new roots, new rhizomes grow. Other rhizomes grow horizontally or downward, and form dark reddish-brown tubers (resembling nuts) or chains of tubers.

Flowering and seeding: Flowers through summer.

Dispersal: Spreads via tubers in the soil.

Control: Hand dig out of the ground making sure to follow and remove the entire root system, tubers and bulbs. Follow up may be required.

Kikuyu

Pennisetum clandestinum

Origin: Native to east Africa, kikuyu is used commonly for lawns and pastures but can easily become an escapee and invade surrounding areas. Can form dense mats in dunes and other native vegetation, and can dominate the groundcover and climb onto small shrubs.

Identification: Perennial grass creeper, stems can grow up to 3 m or more with shooting nodes. Leaves are light green up to 30 cm long, 5-8 mm wide, and covered in hairs. Flowers are small and hidden in the sheath.

Flowering and seeding: Flowers from autumn to spring.

Dispersal: Spreads by creeping, spread on machinery, garden waste.

Control: Trace runners back to the main root system and hand dig out removing as much as possible. Can be spread over low plants to die. Follow up should be carried out. Kikuyu can also be shaded out by canopies once new vegetation has established. For larger infestations, spraying herbicide can be effective. Consult your local council or weeds authority for further advice on herbicide use.

GRASSES

Panic veldt grass

Ehrharta erecta

Origin: Native to South Africa, ehrharta will rapidly colonise an area, outcompeting native groundcovers. It will grow almost anywhere even in shady positions, and especially likes moist conditions.
Identification: Leaves are soft, smooth and hairless, often a paler shade of green than surrounding grasses. The seed head, usually erect, grows 6-20 cm long. The seed head can be seen above the grass and the seeds are green and oval-shaped.
Flowering and seeding: Flowers in spring and summer, but can seed all year round.
Dispersal: Wind, water and small birds.
Control: To eradicate this grass thoroughly, regular hand removal is required. Remove all parts from soil.

Giant guinea grass

Megathyrsus maximus (syn. Panicum maximum)

Origin: Native of Africa and Asia (Yemen), perennial grass growing up to 2 m high, invades dunes, disturbed sites and roadsides and prevents natives re-establishing.
Identification: Grass has short stout rhizomes covered with hairy scale-like leaves. Leaf blade (18 mm wide) is long, narrow and finely tipped, hairless to hairy with tubercle-based hairs, ligule 1.5–6 mm long. Lower panicle branches always in whorls. Seed head matures to an open panicle about 60 cm long. Seeds are oblong in shape and are often purple in colour. Spikelets are 2.5–4 mm long, hairless or covered with soft hairs.
Flowering and seeding: Flowers all year round in some areas, and summer and autumn in cooler areas.
Dispersal: Spreads by seed and slowly via rhizomes and plants rooting from lower nodes.
Control: Hand remove by digging out entire root system with mattock.

EMERGING WEEDS/ GARDEN ESCAPEES

Some of the below species (native and introduced) are starting to emerge and become invasive in the Illawarra region, in particular in coastal vegetation. Keep an eye out for these species in your area and carry out appropriate control measures or notify your local weeds authority or local council. See resources section for a list of resources to aid you in the identification of these weeds.

Golden wreath wattle - *Acacia saligna*
Glory lily - *Gloriosa superba*
Montbretia - *Crocosmia x crocosmiiflora*
Creeping groundsel - *Senecio angulatus*
Sea spurge - *Euphorbia paralias*

Leaf Morphology

RESOURCES/REFERENCES

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Websites

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NSW Industry & Investment
www.dpi.nsw.gov.au/agriculture/pest-weeds/weeds
Illawarra District Noxious Weeds Authority
www.southerncouncils.nsw.gov.au
South Coast Weeds www.esc.nsw.gov.au/weeds/
CSIRO www.csiro.au/science/invasiveplants.html

For Pictorial Plant Glossary - www.weeds.org.au/plantglossary.htm

REGIONAL CONTACTS

Local Councils

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CARING FOR OUR COUNTRY

NSW GOVERNMENT

Southern Rivers CMA CATCHMENT MANAGEMENT AUTHORITY