

Coastal Plant Pocket Guide

*Northern Agricultural
Region, Western Australia*



Welcome to the second edition of the Northern Agricultural Catchments Council (NACC)'s Coastal Plant Pocket Guide.

This edition supersedes the printed version published in 2012 and includes an expanded list of both native and weed species commonly encountered along the coastal zone of Western Australia (WA)'s Northern Agricultural Region (NAR). This edition also includes information on propagating native species and controlling invasive weeds, along with revised information on traditional Aboriginal plant uses.

This smartphone application (app) aims to increase community awareness of some of the more common plants growing on the coastal strip of the NAR, between Guilderton (Moore River mouth) and Kalbarri (Murchison River mouth). The coastal environment is exposed to variable, and at times extremely harsh climatic conditions. Daily, monthly and seasonal wind, wave and tidal patterns cause changes to the shape of the beaches and dunes, and deposit, move and remove sediment, sea wrack and debris.

Coastal plants are adapted to these harsh conditions, with different species tending to grow on specific parts of the coastal dunes and cliffs. These plants help stabilise the dunes by slowing the wind speed and trapping the sand, while their root systems hold and shape the dunes. Coastal plants have interesting features to aid their survival in these harsh, saline conditions, for example leaves may be succulent to hold water, leathery or hairy to reduce moisture loss, or grey to reflect light and heat; flowers tend to be small and difficult to see; seed bearing fruits are variable and may be edible and spread by wildlife, dispersed by wind or water, explosively dispatched by the parent plant (as is the case with *Acacia rostellifera*), or alternatively fall close to the parent plant.

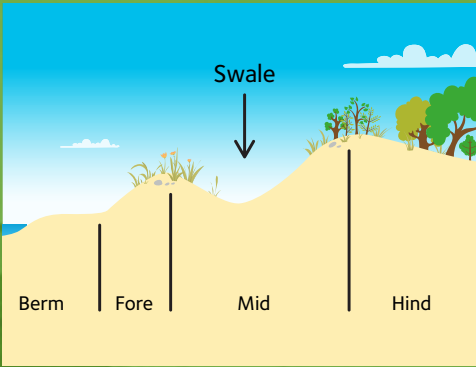


Dune Information

Dunes are buffers between marine and terrestrial environments, provide important habitat for plants and animals, and help to protect urban infrastructure and farmland. Berms form on the beach close to the high water mark as a temporary first line of defence against the elements. Here seed is deposited in the beach wrack or sand by wind or birds, with only highly salt and wind tolerant plant species able to survive. These plants must often tolerate being partially smothered by sand. Berms are likely to be removed in the first severe storm. The front face of the fore dunes is also under constant attack by wind and weather. The species that tolerate these conditions are limited to a few saltbushes, succulents and Spinifex grass, all of which thrive in the salt laden air and the nutrient poor lime and silica sands. These plants stabilise the sand with their root systems and the way they grow dictates the dune shapes. Their branches reduce wind speed and sand blast to create gentler microclimates.

The mid dunes and hind dunes have been stable for comparatively longer and their sands have been enriched with humus from dead plants. Mid and hind dunes are also enriched by nutrients supplied by the sea air and legumes (peas and wattles). These hind dunes and swale areas are better protected from wind, blowing sand and salt spray, and there are more nutrients and moisture for plant growth. These areas create varied microclimates which support different species of plants, promoting the growth of more shrub and tree species. There may be taller shrubs, although they tend to be bent over or 'wind pruned' by the prevailing southerly winds. Trees are rare on the WA coastline and are limited to sheltered areas on limestone cliffs or in the swales of the hind dunes.

Protecting dune vegetation is critical for maintaining a stable dune system. If dune vegetation is disturbed or destroyed, there is high risk of erosion and the creation of blowouts. Disturbance is caused by people or animals trampling through and crushing the bush, by vehicles driving over (or parking on) vegetation, or by fire. Where sand is left exposed wind will carry it, and a blowout will develop and become a mobile dune.



This diagram is intended for representation purposes only. Reference transects of floristics and vegetation structure in high conservation value areas of the Western Australian coastal strip (including Geraldton and Kalbarri) have been developed as part of the Surveying Western Australia's Land Edge (SWALE) project, and are available on the FloraBase website: florabase.dpaw.wa.gov.au/swale

Propagation

Revegetation of degraded coastal areas is undertaken by many community groups and organisations. Coastal plants are generally propagated from either seeds or cuttings and propagation techniques for common revegetation species in the NAR are included in this guide. It is important to use 'local provenance' seeds or cuttings, collected from plants located in their natural environment as close as possible to the revegetation site. This ensures that revegetation plants are most likely to be genetically similar to those that have successfully evolved in the surrounding environment and therefore have the best chance of survival in that location. A cautionary note: revegetation works have been carried out in NAR coastal areas for many decades and plants surviving from these early plantings may not be local provenance. Whenever possible, make use of "local knowledge" to avoid collecting seed from previous revegetation works.



When propagating native plants at home for natural area regeneration it is important to keep in mind the risk of introducing weeds and plant diseases from your garden to the bush. Most commercial plant nurseries that supply native plants for bush regeneration have certification to ensure their stock is disease-free. To reduce this risk in home-grown native plants it is important to use pots that have been thoroughly cleaned and are free of old soil, to use commercial native plant potting mixes rather than soil from your garden, and to maintain native seedlings and cuttings well away from other garden plants. Remove any germinated weeds prior to planting out and continue to monitor the revegetation site for weeds.

All Western Australian flora are protected under the Wildlife Conservation Act 1950. This includes all parts of the flora such as roots, seeds, spores and flowers. A licence must be obtained from the Department of Parks and Wildlife (DPaW) before collecting seed or any other parts of plants. Licences can be for educational or scientific purposes or for commercial purposes. Once a licence has been obtained, each licence holder must register with the relevant DPaW region from which collection is intended. Before a Crown land licence is issued for commercial purposes, the applicant must demonstrate that they have an area from which they can harvest flora, including written approval from the landholder or relevant government agency.

Weed control

Invasive weeds can take-over native plant habitat, reducing biodiversity and altering the structure of dune systems. Many weed species are shallow rooted and easily exclude native species whose deeper rooted systems help bind dune sands. Some weeds only become established in areas where sand has been disturbed whilst others are more aggressive and displace native vegetation in undisturbed habitats. This guide includes many coastal weeds common in the NAR and their control methods.

There are a number of methods for controlling weed plant species. Practicing integrated weed management, where several methods are utilised over a period of time, are generally more successful than relying on one method alone. Herbicide resistance can also be an issue in some species.

In some situations weeds may be well established and the only vegetation providing physical stability. Additionally, trying to control weeds may not always be feasible or appropriate. Assess carefully whether weeds are displacing native taxa, or possibly having other impacts at the site, prior to considering any control program. Read the manufacturers' labels and material safety data sheets before using herbicides. For further information consult the Australian Pesticides and Veterinary Medicines Authority to determine the status of permits for your situation or state. Always obtain permission from the landowner before conducting weed control works.

Symbols guide

Location



Habit




Other



* indicates weed species

Red-Eyed Wattle





Red-Eyed Wattle

Acacia cyclops
Family: Mimosaceae

Description

Red-Eyed Wattle can grow either as a dense shrub in areas exposed to strong winds, or a small tree up to 4 m in height. The leaves, or phyllodes, grow 4-8 cm in length and 6-12 mm wide. There are 3-5 prominent veins ending in a small hook. Its bright yellow globular flowers are arranged in groups of 2 or 3 and occur from September to March. The thick and leathery flattened seed pods are greyish-brown and 4-12 cm long. The pod twists and splits when dry, opening to reveal up to 15 dark brown to black shiny seeds surrounded by a brilliant red aril. The tangle of pods stay on the tree long after the seed has been released.

Propagation

Pour very hot water (95°C) over seeds and soak in this water overnight, or lightly scarify with fine sandpaper. Germination ranges from 13 to 42 days.

Distribution

From Geraldton to east of Esperance in coastal dunes where the plant is often solitary in fore dunes, or forms dense thickets in mid or more stable dunes and in dune swales. It also occurs in South Australia.

Note


An important species in restoration programs, Red-Eyed Wattle can be sensitive to wind burn in exposed sites. It will grow rapidly and reliably to provide habitat and, as a legume, adds soil nutrients through the nitrogen-fixing bacteria in its roots. When not in flower, this species can be confused with the Summer-Scented Wattle (*Acacia rostellifera*). The two taxa can be distinguished by folding a leaf between your finger and thumb – *A. rostellifera* will snap cleanly in two, whereas *A. cyclops* will crease but not snap. *A. cyclops* may produce semi-succulent leaves in response to salt exposure that do snap, therefore it is important to test leaves from the leeward side of the shrub to avoid this issue.



Red-Eyed Wattle
Acacia cyclops
Family: Mimosaceae

Aboriginal Use

The hard, black seeds were ground to produce a chalky white powder which was used when baking. The gum exuded from the stem was also eaten. When crushed, the green seed pods release a sticky juice which, when mixed with water, was used to make a form of sunscreen, insect repellent and a treatment for eczema. Bardi grubs, which burrow in the stems as larvae, are also a sought after as a nutritious food.



Dune Moses



Native



Shrub



Fore dune



Mid dune



Hind dune



Limestone
cliffs



Dune Moses

Acacia lasiocarpa

Family: Mimosaceae

Description


Dune Moses is a small, dense, ground-hugging shrub up to 1 m in height, and is one of the few Australian acacias with leaves and not phyllodes on the mature plants. The stems are hairy. The divided leaf is bipinnate with each leaf having 2-6 pairs of leaflets and distinctive rolled margins. There are two spines in each leaf axil. The globular bright yellow flowers brighten the coastal heath between June and October. The flat, black-brown seed pod is up to 40 mm long and 5 mm wide and holds 10 or more seeds. The margins of the pod are thickened.

Propagation

Pour very hot water (95°C) over seeds and soak in this water overnight or lightly scarify with fine sandpaper. Germination varies from 8 to 27 days.

Distribution

Dune Moses occurs in sheltered positions in fore dunes and mid dunes from the Murchison River, Kalbarri, south to Bunbury. It also occurs on limestone outcrops where it is protected by swales or by other heathland or shrubby species.



Summer-Scented Wattle



Native



Tree



Shrub



Aboriginal
usage



Fore dune




Mid dune



Hind dune



Limestone
cliffs



Summer-Scented Wattle

Acacia rostellifera

Family: Mimosaceae

Description

Summer-Scented Wattle is a dense shrub or tree up to 6 m in height. The wattle leaves, or phyllodes, grow 6-10 cm in length and have a small hook at the tip. The round flower heads are yellow and appear infrequently between July and December. The seed pod is flat and constricted between the seeds. Seeds have a very short orange aril. Summer-Scented Wattle spreads by suckering and the shallow root system helps to bind the sand.

Propagation

Pour very hot water (95 °C) over seeds and soak in this water overnight or lightly scarify with fine sandpaper. Germination is between 7 and 13 days.

Distribution

A very common species in the NAR, Summer-Scented Wattle is found on fore dunes to hind dunes and limestone from Shark Bay to Augusta. There are separate populations from Bremer Bay to Israelite Bay.

Note

Summer-Scented Wattle is useful for revegetation as each plant can produce up to 50 suckers from horizontal roots. It is sometimes considered a 'nuisance' species in urban fore dune settings as it quickly grows large, blocks views, covers tracks and pathways and tends to exclude other species.

Aboriginal Use

The gum was used as an edible resource.



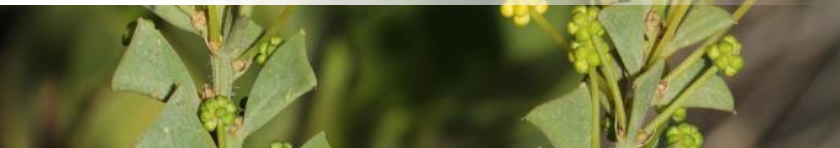
Angle-Leaved Wattle



Angle-Leaved Wattle

Acacia truncata

Family: Mimosaceae



Description

This usually dense, domed shrub grows from 0.5-2.3 m high. It can have a more open form where exposed to strong winds and can occasionally grow to 3 m in protected swales. This plant has distinctively wedge-shaped leaves with a conspicuous upturned spine (stipule) at the base of each leaf. *A. truncata* has yellow flowers between June and September. The curved seed pods are compressed, grey-black and up to 6 cm long. Each pod contains up to 15 small black seeds.

Propagation

Pour very hot water (95 °C) over seeds and soak in this water overnight or lightly scarify with fine sandpaper. Germination can range between 11 and 31 days.

Distribution

A. truncata grows in skeletal sandy soils, coastal limestone or mid dunes, between Dongara and Busselton.

White-Stemmed Wattle



Native



Tree



Shrub



Hind dune



Limestone
cliffs

White-Stemmed Wattle

Acacia xanthina

Family: Mimosaceae



Description

White-Stemmed Wattle is a large upright shrub or small tree, 2-4 m in height. Young bark is smooth or pale green and as the plant ages the bark turns grey and fissured. The leaves, or phyllodes, are blue-green in colour with two longitudinal veins, one of which is more central and prominent than the other. The round yellow flower heads mature between August and October. The seed pod is brown with constrictions between seeds. Each seed has a pale aril.

Propagation

Pour very hot water (95 °C) over seeds and soak in this water overnight or lightly scarify with fine sandpaper. Germination consistently takes 19 days.

Distribution

White-Stemmed Wattle occurs infrequently between Fremantle and Shark Bay, on coastal dunes and adjacent limestone ridges.

Prickle Lily





Prickle Lily

Acanthocarpus preissii

Family: Asparagaceae

Description

Prickle Lily is a grass-like tufted shrub, which grows in a tangled mass, up to 1 m in height. It sends out underground stems that can establish daughter plants up to 30 cm from the parent plant. The narrow, rigid leaf is 50 mm long and has a very sharp point. The small white flowers have a brownish mid-rib and are sweetly scented. The blooms occur briefly between April and August in clusters on arching stems. The yellow to beige spherical, rough coated fruits are up to 10 mm in diameter and have three lobes. One to three orange-brown smooth round seeds are released around December, and are wind-blown and naturally scarified by sand.

Propagation

Although widespread and locally common, seed propagation is difficult. Propagation requires a process whereby the seeds are exposed to variable temperatures prior to sowing. Seedling emergence takes up to six weeks, with further germination over a period of weeks.

Distribution

This species is restricted to the WA coastline, from Exmouth southwards to Augusta and beyond to Windy Harbour, occurring in a wide range of soils from sand to sandy clays and on rocky sites. Prickle Lily is able to survive in a range of habitats from fully exposed to protected swales, and even deeply shaded sites. It also occurs inland where limestone dominates and there are several similar species with finer leaves.

Dysentery Bush, Sea Box



Native



Shrub



Hind dune



Limestone
cliffs



Aboriginal
usage

Dysentery Bush, Sea Box

Alyxia buxifolia

Family: Apocynaceae



Description

Dysentery Bush is an erect, rigid shrub that may be compact 0.5 m, or spreading 1-3 m in height. The thick, shiny dark green oval leaves are grouped around the stem at intervals to form rigid whorls. They are 1.5-3 cm long. The small, star shaped flowers are white or cream with a tube that has an orange tinge, like miniature Frangipani flowers to which they are related. The 1 cm flowers appear between June and November. The orange-red, bead-like fruits are up to 8 mm in length and can be found growing singly or in pairs.

Propagation

Cuttings can be successful however this species grows slowly and takes a long time to mature in pots. Alternatively, try soaking seed in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours. Germination takes 51-90 days.

Distribution

Dysentery Bush is widespread, occurring in diverse soil types from sand and limestone to laterite and clay. It occurs from the coast near Shark Bay to east of Esperance, and inland to arid areas near the Goldfields. It has also been found in south eastern Australia.

Note

The seeds are eaten by emus.

Aboriginal Use

The bark was used as a bush cure for dysentery.

Coast Angianthus



Native



Shrub



Fore dune




Mid dune



Hind dune



Limestone
cliffs



Coast Angianthus

Angianthus cunninghamii
Family: Asteraceae

Description


Coast Angianthus is a low growing, bushy shrub 0.2-0.5 m in height. The small leaves are felted and white to grey in colour. The disc-type yellow flowers are arranged in compound, spherical heads and appear between January and August and again in November and December, depending on the location.

Propagation

Try sowing very shallowly (on the surface) as the seeds need light to germinate. This approach works for other species within this genus. Germination should take between 7 and 20 days.

Distribution

Coast Angianthus occurs on coastal limestone and sand dunes intermittently along the whole of the coastline, from Perth north as far as Karratha.



Yellow Tailflower





Yellow Tailflower

Anthocercis littorea
Family: Solanaceae

Description

Yellow Tailflower is an erect shrub, 0.6-3 m in height that often branches from the base. The rounded leaves are up to 4 cm in length and are thick and fleshy. The yellow tubular flowers open out to star-shaped petals and are 1.5-2.5 cm in length. They have brown, maroon or purplish stripes inside the tube. The flowers appear between June and October. The fruit is a small, purple-black capsule, up to 5 mm long that splits to release small, brown, long-lived seeds.

Propagation

Soak in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours. Germination takes between 18 and 38 days.

Distribution

This is a short-lived coloniser species which emerges soon after disturbance, such as after roadside grading or fire, and occurs in locally dense stands. It is found along the WA coast and inland, extending from Shark Bay to Israelite Bay, growing in mid and hind dunes and swales. Yellow Tailflower grows in limestone derived and white siliceous sand dunes and on near-coastal sandplains.


Note

The flower may be poisonous if ingested.



Grey Saltbush





Grey Saltbush

Atriplex cinerea
Family: Chenopodiaceae

Description

The Grey Saltbush is a silver-grey, low sprawling shrub 0.2-1.5 m in height. The silver leaves are 2-4 cm long and elliptic in shape with a scaly sheen. Male and female flowers appear on the same or separate plants during spring. The flowers are indistinct and can be cream, yellow, pink or grey. The male inflorescences are dense clusters arranged in spikes 5-10 mm in diameter. Clusters of female flowers are found in the leaf axils. The 6-10 mm long fruits are produced within distinctly winged, roughly diamond-shaped smooth grey bracts.

Propagation


Grey Saltbush can be effectively propagated from cuttings taken throughout the year. Cuttings root within four weeks and grow rapidly. They can be rooted directly into pots for transfer to restoration sites. Growing from seed can be very successful. Collect bracts containing large, plump seeds and soak in a cloth bag, changing water 3-4 times daily, for 7 days to remove salt. Bags can be hung in the toilet cistern provided they don't interfere with the mechanism. Sow the softened seed bearing bracts, and expect germination 11-26 days after sowing.

Distribution

Grey Saltbush is an important stabiliser of fore dunes and mid dunes and does best when protected from strong winds. Its distribution extends beyond the NAR from Carnarvon throughout the south-west coastline to the Great Australian Bight. Grey Saltbush also occurs inland on salt marshes. Populations are present in South Australia, New South Wales, Victoria and Tasmania.

Aboriginal Use

The leaves and seeds are edible but were cooked or roasted first. The crushed leaves were used to treat insect bites, scratches and burns.



Coast Saltbush



Native



Shrub



Fore dune



Mid dune



Hind dune



Limestone
cliffs

Coast Saltbush

Atriplex isatidea

Family: Chenopodiaceae

Description

The silvery-leaved Coast Saltbush is an erect shrub, up to 2.5 m in height, with scaly white branches. It is a conspicuous plant in dune vegetation. The large, thickened oval-shaped leaves are up to 10 cm in length and 5 cm wide with a loose, scaly crust coating the surface. The Coast Saltbush usually flowers from March to June, but flowers have been recorded from December. The male flowers form erect spikes or branching inflorescences, about 4 mm in diameter, which usually protrude inconspicuously above the leaves. The female flowers are leafless panicles. Fruits are enclosed in two triangular shaped bracts 4-10 mm long, each with two horns.

Propagation

Coastal Saltbush is readily propagated from cuttings and can be struck directly into pots. Growing from seed can be very successful using the same method described for *A. cinerea*. Germination takes 9-47 days.

Distribution

Found intermittently on fore dunes through to hind dunes and limestone areas along the NAR coastline and beyond, from Onslow to Israelite Bay. Coast Saltbush is highly resistant to salt and drought and is very effective in areas with significant sand drift.

Note

Coast Saltbush is a more robust, erect species with much larger, whiter leaves than Grey Saltbush.

Feather Speargrass





Feather Speargrass

Austrostipa elegantissima
Family: Poaceae

Description


This tufted decumbent perennial grass arises from an underground stem (rhizome) and ranges from 35 cm to 2 m in height. Its size depends upon the support provided by nearby vegetation. Its leaves are 5-15 cm long and are often hidden amongst the surrounding foliage. Feather Speargrass becomes conspicuous in the coastal vegetation when it produces its fluffy grey flowers on long stalks between August and January. The long silky hairs give an almost shimmering effect. The bristle (awn) on the tips of the seed head aids seed burial and wind dispersal.

Propagation

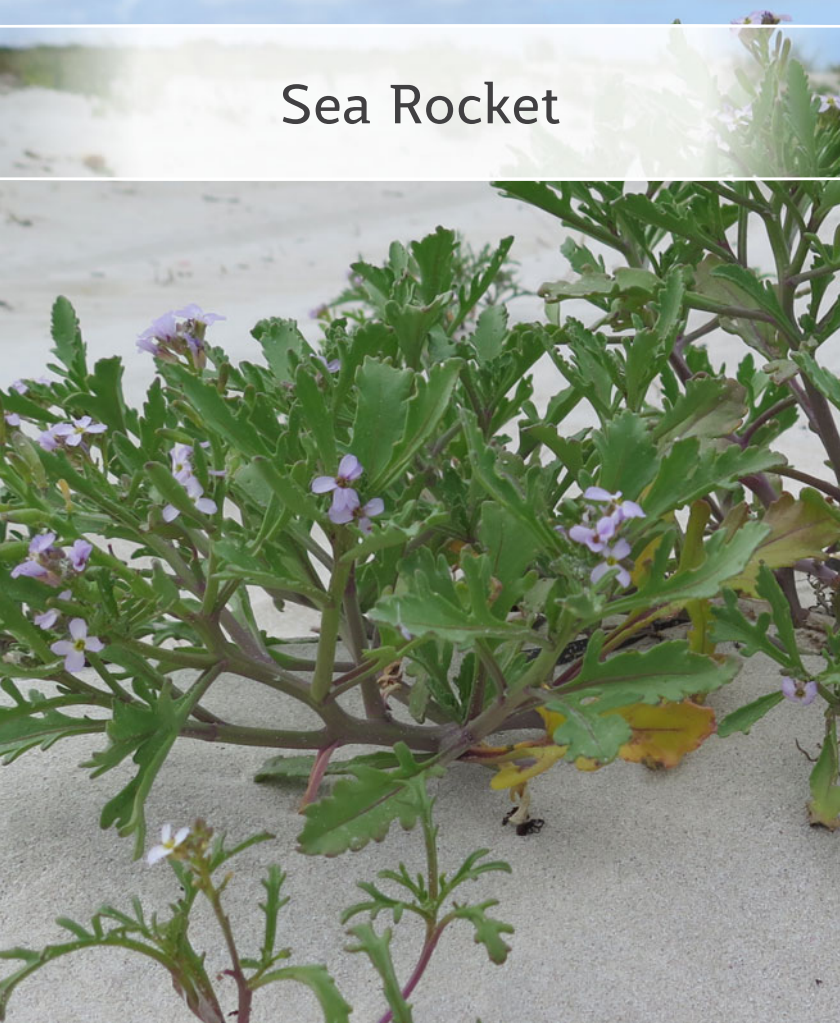
Collect seed that separates easily from the plant and sow into seed trays. Germination should occur within 8 days. Germinants should be pricked out when 1 cm tall. This grass should be planted beside an established, medium to large shrub layer to protect it from winds and grazing.

Distribution

Feather Speargrass tolerates diverse soil types including sand, loam, clay and granite and has some tolerance of salt. It is widespread in mid dunes and in limestone areas, though usually in small numbers, and is found in all temperate coastal regions in Australia.



Sea Rocket



Weed



Ground
cover



Fore dune



Mid dune

Sea Rocket

**Cakile maritima*

Family: Brassicaceae



Description

Sea Rocket is a succulent, low growing annual weedy herb 0.2-0.5 m tall, often with stems growing horizontally. Its greyish green, deeply divided leaves may be lanceolate or deeply lobed and 4-8 cm in length. Sea rocket has white, pink, mauve or purple flowers, with petals 8-14 mm long. They can flower throughout the year and have the least flowers in winter. The fruit is a 12-27 mm long silicula (seed pod) divided into an upper and a lower segment, resembling a rocket. The silicula has two blunt lateral horns on the lower segment, which is almost as wide as the upper segment.

Distribution

Sea Rocket is a common primary coloniser of seashores, beaches and mobile sand dunes from Shark Bay to Eucla. It is often the only plant found on beaches seaward of the fore dune and assists the formation of the berm.

Control

Hand weed small populations every 8-10 weeks, if alternative sand stabilisers are present. Spot spray with glyphosate at 1 % with an appropriate surfactant at flowering to reduce seed set.

Coastal Pigface



Native



Ground
cover



Fore dune



Mid dune



Hind dune



Limestone
cliffs



Aboriginal
usage



Coastal Pigface

Carpobrotus virescens
Family: Aizoaceae

Description

Coastal Pigface is a succulent, creeping perennial with stems that take root at nodes when they contact the sand. Its three-sided fleshy and rigid leaves are up to 8 cm long and 1.5 cm wide. Coastal Pigface flowers are large and deep pink in colour, with many narrow, spreading petals. The fleshy, juicy fruit is up to 4 cm long and 1.5 cm wide and ripens to a red-purple colour. The fruit contains numerous fine black seeds.

Propagation


Coastal Pigface can be readily propagated from seeds or cuttings taken throughout the year. Sow seeds into trays for later pricking out. Plant cuttings in pots or directly into moist soil in restoration sites. Cuttings planted directly into revegetation sites may be subject to attack by scale insects - white oil can be used to treat small infestations of scale insects, for example in a domestic garden setting. Coastal Pigface used in revegetation is very palatable to rabbits and therefore requires protection.

Distribution

Coastal Pigface is common on fore dunes and mid dunes in exposed and disturbed sites throughout the region. Populations are known between the Murchison River and Israelite Bay. It is important to ensure correct identification and not confuse this taxa with the introduced *Carpobrotus edulis*, which has yellow or pink flowers and is often grown in gardens.

Note

Early settlers nicknamed Coastal Pigface the 'hottentot fig' in reference to the small size of the plant, and fruit which resembles a fig.





Coastal Pigface
Carpobrotus virescens
Family: Aizoaceae

Aboriginal Use

The fruit is eaten raw. Even though the leaves can be salty or astringent and unpleasant tasting, they may have been used to sustain life due to their high water content. They were eaten steamed or roasted whilst the juice from the raw leaves was used to treat burns, scalds and stings.

Dodder Laurel



Native



Climber



Mid dune




Hind dune



Limestone
cliffs



Aboriginal
usage



Dodder Laurel

Cassytha racemosa
Family: Lauraceae

Description

This parasitic perennial herb and twining climber has racemes of green, white or yellow flowers for most of the year. Dodder Laurel produces a globular fleshy berry. It is commonly found on *Daviesia*, *Eucalyptus* and *Triodia* as well as on coastal plains and dunes.

Propagation


Currently unknown.

Distribution

This taxa is known from Exmouth to the Great Australian Bight and can be locally abundant. The ecological role played by Dodder Laurel is not understood. Care needs to be taken with identification as this species can be confused with the climber *Comesperma integerrimum*, which grows in similar habitats but has a ridged stem.

Aboriginal Use

The fruit is edible and was probably eaten as a snack as it is too small to be used as an emergency food resource.



Buffel Grass



Weed



Grass



Mid dune



Hind dune

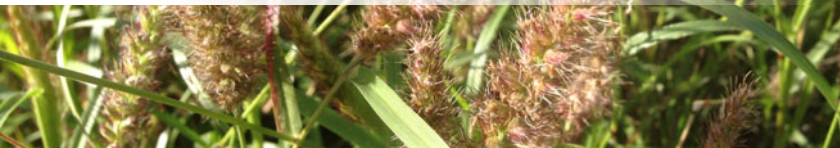


Limestone
cliffs

Buffel Grass

**Cenchrus ciliaris*

Family: Poaceae



Description

Buffel Grass is usually a perennial that grows up to 1 m tall. It produces short rhizomes. The leaf sheaths are somewhat rough and hairy and completely surround the hairy leaf blades 3-25 cm long and 4-10 mm wide. The jointed stems of the grass that carries the inflorescence is bent like a knee and 1-15 cm tall and 1-4 mm in diameter, with a wiry appearance. Its purplish flower heads are solid, upright cylindrical inflorescences up to 14 cm long, with clusters of burrs which have numerous soft bristles pointing towards the tip, and one bristle longer than the others.

Distribution

Buffel Grass was introduced to WA from India and Africa for pasture in areas with long dry seasons and for erosion control and is therefore widespread, with populations north from Perth to the Kimberley and east to the WA border. It is a weed of sandy soils and its burrs can damage animals and contaminate wool.

Control

Cut out and physically remove entire plants and seedlings if small populations are present. If spraying, Verdict 520® 60 mL/10 L plus wetting agent, or spot spray with 1 % glyphosate six weeks after heavy rain. Follow up with seedling control. While its burrs are less sticky than Burrgrass *Cenchrus echinatus* it is necessary to avoid translocating burrs on clothing, particularly socks and shoes, when walking through infestations.

Burrgrass, Walkaway Burr



Burrgrass, Walkaway Burr

**Cenchrus echinatus*

Family: Poaceae



Description

Burrgrass is recognised by its prickly/spiky burrs. It is an annual grass that grows up to 90 cm tall with leaf blades 2-25 cm long. The junction between leaf-sheath and the blade is a simple fringe of hairs. The solid green inflorescence is up to 10 cm long and has oval shaped burrs, 2 or 3 in a cluster, with stout, spreading bristles that are densely hairy along the margins. The burrs also appear tinged purple at the tip.

Distribution

Common in Geraldton, there are pockets of this weed from Jurien Bay, south to Mandurah, north from Leeman to Shark Bay, inland in the Central Ranges, Gibson Desert, Great Sandy Desert and the Kimberley.

Control

Prevent seed set. Manually remove small infestations and isolated plants. Spray with Verdict 520® 5 mL/10 L (250 mL/ha) plus wetting agent, or spot spray with 1 % glyphosate during active growth or following heavy rain. Follow up with seedling control. Avoid translocating burrs on clothing, particularly socks and shoes, when walking through infestations.

Note

Burrs on Burrgrass are pricklier, spikier and more easily picked up than those on Buffel Grass.

Fountain Grass





Fountain Grass

**Cenchrus setaceus*

Family: Poaceae

Description

This plant was formerly known as *Pennisetum setaceum* and is a robust, tussock forming perennial. Fountain Grass grows to about 1 m tall with creeping underground stems (rhizomes). The leaf blades are 15-30 cm tall and 1-3 mm wide. Fountain Grass produces a plume-like cylindrical spiked inflorescence up to 30 cm long, with numerous long feathery purple bristles in the spikelets and flowers sporadically throughout the year depending upon rain events.

Distribution

Fountain Grass is known from Jurien Bay to Northampton and inland to Mullewa, with isolated populations near Denham.

Control

First bag the seed heads. Dig out small infestations, slash in winter and/or spray with 1 % glyphosate plus penetrant in spring to autumn. Follow up with seedling control and treatment until regrowth ceases. Regrowth following fire is more susceptible to herbicide, so bushfire events offer an opportunity to control this weed.

Slender Clematis



A close-up photograph of Slender Clematis flowers. The flowers are white with yellow centers and have a distinctive feathery, curled awn. They are clustered together on green stems with narrow, lance-shaped leaves. The background is dark and out of focus.

Slender Clematis

Clematis linearifolia
Family: Ranunculaceae

Description


This delicate climber can rise to 3 m from a cluster of deeply buried finger-like tubers. These tubers help to withstand drought conditions. Its leaves have three linear lobes, are narrow and lance-shaped and 3-6 cm long by 1-2 cm wide. Sometimes mistaken for a parasite, Slender Clematis scrambles and becomes entwined with shrubs and sometimes overtops them. Star-like white to cream flower clusters occurring between July and October provide a spectacular display. The seed ripens in the flower and each flower becomes topped with 30 or more brown seeds which have a distinctive feather-like curling awn that looks like a silky hair.

Propagation

Slender Clematis should germinate in 21-80 days without treatment, provided fresh seed is sown immediately following collection from the plant. The seed can be sown directly into seedling pots or pricked out of seedling trays. Bamboo supports or similar are necessary to guide stems onto nearby supporting plants.

Distribution

Slender Clematis is widespread throughout coastal areas in temperate Australia and found from Shark Bay to Cape Naturaliste. The fine, feather-like attachment on the seed aids wind dispersal. Slender Clematis is tolerant of sand, coastal limestone and sand dunes but should be planted into established planting sites on the wind-protected side of shrubs.



Grey Cottonhead





Grey Cottonhead

Conostylis candicans
Family: Haemodoraceae

Description

This distinctive tussocky plant is a grass-like herb that arises from a compact underground rhizome to reach a height of 5-40 cm. Its linear leaves, up to 10 cm long, are silvery-grey and softly hairy. Grey Cottonhead has densely clustered yellow flowers on 30 cm long stems between July and November. Seeds are small and brown and are produced in abundance usually in December or January.

Propagation

Seeds should be soaked in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours. Seedlings can be pricked out after 6-8 weeks and grown on for transplanting to restoration sites in winter. Germination takes between 9 and 36 days.

Distribution

Grey Cottonhead is widespread and locally common in near-coastal areas from Geraldton to Bunbury. It tolerates sand, sandy loam, limestone and coastal sand dunes but prefers semi-protected areas in fore dunes, through to mid dunes and low heath.

Note

In natural situations, this species re-sprouts after fire. Insects attack this plant significantly in revegetation sites resulting in very low seed production.



Couch



Weed



Grass



Fore dune



Mid dune



Hind dune



Limestone
cliffs



Couch

**Cynodon dactylon*

Family: Poaceae

Description

Couch is a mat forming perennial grass that can spread up to several metres across with creeping underground stems (rhizomes) and wiry overground stems (stolons). It can take root at the joints of the stolons (nodes). It often climbs over other vegetation up to 1 m above the ground. Couch has an erect, often purplish, inflorescence with 3-6 widely spreading spikes up to 6 cm long, in a windmill-like formation.

Distribution

It is a cosmopolitan species that is widely grown as a tough lawn.

Control

The most effective herbicides are those that are applied at a very low concentration while the plant is actively growing in warm weather, to ensure both the underground and overground stems are killed. Grass specific herbicides such as Fusillade® can be very effective in sensitive bushland areas. Targeted control is critical to minimise non-target damage to native grasses. Spray Fusillade® 5 mL/L plus wetting agent in a 10 L backpack in late spring/summer and then again in autumn, or apply glyphosate 1 %. Follow-up is always required. Treatment can be particularly effective after fire. Solarisation and its opposite, shading out, can also be effective. Take care not to confuse this weed with native Marine Couch, *Sporobolus virginicus*, whose flowers remain as a spike rather than opening to a windmill-like formation.

Geraldton Rose



Native



Shrub



Hind dune



Limestone
cliffs



Geraldton Rose
Diplolaena grandiflora
Family: Rutaceae

Description


Geraldton Rose is an erect shrub up to 3 m in height. The ovate, leathery, 2-5 cm long leaves are dark shiny green above and covered in tiny hairs beneath, giving a silvery white appearance. The very distinctive pink-orange-red flowers appear from May to October and are 2-5 cm in diameter. The showy flowers can be upright or hang like a pendulum. They have a cluster of red stamens in the centre, surrounded by pinkish-red bracts. Each hard-coated seed is held within the floral head by two bracts. Seed ripens and falls soon after flowering, so plants need to be monitored to ensure successful collection.

Propagation

Cuttings can be effective. Soak seed in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours. Germination takes 20-38 days. Plant in lime rich soils for successful revegetation.

Distribution

Geraldton Rose is the most spectacular of the several species of *Diplolaena* which occur on sand and over limestone between Shark Bay and Dongara, with an isolated population on Cape Range, Exmouth Peninsula.



Pyp Grass



Weed



Grass



Fore dune



Mid dune



Hind dune



Limestone
cliffs

Pyp Grass

**Ehrharta villosa*

Family: Poaceae



Description

Pyp Grass is a perennial with cane-like stems 1-1.5 m high and long creeping underground stems (rhizomes). The margins of the lower leaves are rough and can be wavy towards the base. The flowering stems are erect or loosely arching with swollen purplish joints. The inflorescence spikelet is up to 16 mm long.

Distribution

Historically used for sand dune stabilisation, this weed occurs in localised patches from Geraldton to the Leeuwin-Naturaliste Ridge, with a couple of populations near Albany and one in Kalgoorlie.

Control

Spray with Verdict 520® 10 mL/ 10 L (500 mL/ha) or glyphosate 1 % plus penetrant, during active growth and before flowering. Verdict 520®, a chemical brand with the active ingredient Haloxyfop, is registered as a spray treatment for post-emergent control of a wide range of grass weed species and has been previously used by NACC for Pyp Grass control with good success. When spraying, care must be taken not to impact native grass species such as *Spinifex*. Control by spray application is limited by the ability of the plant to absorb the chemical. The Department of Agriculture and Food WA (DAFWA) advises that maximum uptake occurs at the base of the actively growing leaves before the waxy cuticle has developed. This weed is often spread via rhizomes in contaminated fill or earth-moving machinery – the latter should always be cleaned down following operation in infested sites.

Barrier Saltbush



Native



Shrub



Mid dune



Hind dune



Limestone
cliffs



Aboriginal
usage



Barrier Saltbush

Enchylaena tomentosa

Family: Chenopodiaceae

Description

This prostrate to erect shrub ranges from a ground cover to 0.6 m high. The succulent leaves are finely hairy, lack stalks and are needle-like, 7-20 mm long. Inconspicuous yellow to greenish flowers occur between May and September and are located in the leaf axils. They are only 1-1.5 mm wide and lack petals. The fruit is fleshy, slightly flattened and 3-5 mm in diameter. The fruit starts green, ripens to yellow, orange or red, then dries black. It lives in a variety of soils, often saline and is an excellent revegetation selection.

Propagation

Barrier Saltbush is easily propagated from cuttings taken in spring or early summer. Alternatively seeds can be used but need to be removed from the fleshy covering by rubbing carefully. Fresh berries can be squashed between finger and thumb and directly sown. Expected germination of fresh berries is 7-14 days. This currently underutilised species makes an excellent understorey plant in revegetation projects and it thrives in diverse coastal habitats. Its rapid growth, copious seed production, ease of propagation and drought resistance are all beneficial traits.

Distribution

Barrier Saltbush is widespread across WA.

Aboriginal Use

The fruit is edible and was eaten as a snack; or squeezed and made into juice and drunk. It was only used when ripe and fully coloured. Ripe fruit was also used for face painting, to colour hair and as a dye. The leaves are edible but must be boiled to remove the bitter taste and eaten in small quantities, due to its high oxalate content.

Tar Bush, Emu Bush



Native



Shrub



Mid dune



Hind dune



Limestone
cliffs



Aboriginal
usage

A close-up photograph of the Tar Bush (Eremophila glabra) showing its characteristic silvery-grey, elliptical leaves and bright orange-red tubular flowers with prominent stamens. The background is a soft-focus green.

Tar Bush, Emu Bush

Eremophila glabra
Family: Myoporaceae

Description

Tar or Emu Bush is a variable shrub spreading or upright to 1.5 m in height. The elliptic leaves are an attractive silver-grey or green colour and up to 6 cm long. Young leaves are covered in tiny silvery hairs. The tubular flowers are up to 3 cm long. Flowering occurs between July and January with colour variations including red, orange, yellow, green and brown. The fruit is circular and less than 1 cm in diameter.

Propagation

This species is difficult to germinate from intact seed. Cuttings taken in spring and early summer are more successful.

Distribution

Tar Bush is found on coastal limestone, sands, clays and mid dunes of the west coast and islands off WA between Onslow and Bunbury, and extensively on saline inland areas. It is also known on the south coast from Albany to the WA border.

Aboriginal Use

Flowers were sucked for the sweet nectar.



Desert Spurge



Native



Shrub




Mid dune



Hind dune



Aboriginal
usage



Desert Spurge

Euphorbia tannensis
Family: Euphorbiaceae

Description

Euphorbia tannensis is an erect, neat, small shrub less than 1 m tall with narrow leaves up to 3 cm in length. Tiny green or yellow flowers appear in January, or from April to September. The green globular fruits are segmented and 2 mm in diameter. The stem and leaves exude a white sap.

Propagation

Further research is required, however seed typically germinates between 14 and 55 days for related species.

Distribution

Occurs on the coastal dunes from Leeman north to the Kimberley and scattered through to the arid inland regions of WA. It appears extensively in bushland soon after fire in near coastal areas.

Note

There are several introduced *Euphorbia* species naturalised on the coastal strip. *Euphorbia tannensis* appears to be the only indigenous species. The milky sap of many *Euphorbia* species is poisonous causing a skin rash and eye damage, or even blindness.

Aboriginal Use

The white milky sap from the stems of this plant was used to dot white designs on the body. This plant is a sex totem, symbolising the female sex for the central desert region Aboriginal people.



Geraldton Carnation Weed



Weed



Ground
cover



Fore dune



Mid dune



Hind dune



Limestone
cliffs

Geraldton Carnation Weed

**Euphorbia terracina*

Family: Euphorbiaceae



Description

Geraldton Carnation Weed is a perennial herb that ranges in height from 20 to 80 cm, and can be taller. It is characterised by many-branched woody stems that are often reddish near the base. The linear to lance-shaped leaves are 1-4 cm long with finely serrated margins. The leaves are more oval on flowering branches. Their unique inflorescences are called cyathia and resemble a single flower, although they have multiple male components around a solitary female flower. In Geraldton Carnation Weed these cyathia are yellowish-green and occur in winter and spring. The fruit is a capsule that splits into three segments at maturity.

Distribution

Sandy and calcareous soils from Jurien Bay to Northampton and from Lancelin south, with other populations around the coast and inland.

Control

For large infestations spot spray with the herbicide metsulfuron-methyl 0.1 g/15 L or metsulfuron-methyl plus 1 % glyphosate in winter before flowering. Follow-up with hand removal for at least five years.

Note

The milky sap of many *Euphorbia* species is poisonous causing a skin rash and eye damage, or even blindness. Brushcutting of infestations is not recommended as vapours can also cause respiratory problems. Protective clothing, including eye protection, must be worn and work undertaken only in short periods and on cool days.

Broom Ballart



Native



Tree



Shrub



Mid dune



Hind dune



Limestone
cliffs



Broom Ballart

Exocarpos sparteus

Family: Santalaceae

Description


This open shrub to small tree grows to 4 m tall and is a hemiparasite that gains some of its nutrition from the roots of nearby plants. The branches are usually leafless and hang in a weeping form. It has tiny dull yellow, green or white flowers on a swollen 7-15 mm spike between February and October. The flowers result in 1-3 fruit per spike with part of the flower stalk expanding to become a 4-6 mm long fleshy, semi-flattened circular base that turns red as the seed matures. The terminal component becomes a 4-5 mm long, hard and slightly elongated, darker red and shiny coated seed. The two components create the overall effect of a two toned red fruit.

Propagation

This taxa is difficult to propagate except with good quality seed sown directly into pots. There is some evidence that soaking seed in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours can assist. Germination takes 63-149 days. Planting the seedling out with a host species helps.

Distribution

Broom Ballart occurs in the lee of mid and hind coastal sand dunes and sand plains throughout the south-west and scattered through the inland desert sand dunes. Other isolated populations occur from Carnarvon to Exmouth. It is common across a variety of habitats including white sand over limestone in mid dunes, and amongst other vegetation in red sand and laterite. It does not do well in highly wind and salt exposed areas.



Knotted Club-Rush





Knotted Club-Rush

Ficinia nodosa

Family: Cyperaceae

Description

The Knotted Club-Rush is a rhizomatous sedge standing up to 1 m tall with densely tufted and stiff, cylindrical stems. This grass-like plant has a rounded leaf that forms a sheath over the base of the stem. The leaf length varies depending upon water availability, as does the form of the plant. In dry zones, it is upright and rigid and in wetter and/or shaded areas the leaves are often more spreading. The small brownish flowers occur in dense globular heads up to 2 cm wide and are attached to the sides of the stem at intervals. Flowers appear throughout summer and release dust-like seeds.

Propagation

Grows readily from seed sprinkled lightly over the surface of a seed-raising mix, lightly tilled and carefully watered. Germination should occur within 2-3 weeks and seedlings can be pricked out at the 3 leaf stage. Plants are easily divided and transplanted in autumn/winter and spring provided there is good soil moisture and the tops of the plants are pruned back.

Distribution


Knotted Club-Rush is widespread and can be locally common on the beach, fore dunes, swales, mid coastal sand dunes and in sandy pockets over limestone from north of Geraldton to Esperance. It is thought to be widely distributed throughout temperate regions in the southern hemisphere.

Note

Early settlers used to pick the fruit for jam. It was formerly known as *Isolepis nodosa* and *Scirpus nodosus*.

Aboriginal Use

Women and children collected and ate this fruit seasonally. It tastes slightly acidic like a currant.



Gazania



Weed



Ground
cover



Fore dune



Mid dune



Hind dune



Limestone
cliffs

Gazania

**Gazania spp.*

Family: Asteraceae



Description

These daisies are hairy, clump forming perennial herbs up to 30 cm in height. Their 4-10 cm dark green leaves are lance-shaped and sometimes divided into lobes. The underside of the leaves is usually covered in white hairs, as is the base of the plant. Gazanias have variable flower colours with 6-12 cm diameter flower heads. Usually they have yellow, orange or red ray florets (the small central discs in the daisy) with dark or black bases (sometimes with a white dot) and yellow to orange rings of petal-like blades around the central floret. They can flower all year, mostly in spring and summer. The fruits are tiny and are topped by narrow scales and hairs.

Distribution

Gazanias were introduced from Southern Africa as showy garden plants, and have spread via seed and the dumping of garden waste. Most weed populations are found in the Perth metropolitan area and north to Cervantes with other populations known at Leeman and Geraldton. The weed is now appearing along roadsides and in bushland in all the southern states of Australia. Seed production is prolific and wind-blown seed may be dispersed far from their source. Plants can re-grow from their bare tuberous roots.

Control

Tough drought resistant hybrids have been developed by nurseries making control even more urgent. It is important to eradicate this weed while populations are small. For small infestations pulling out with hand tools can be effective, provided that the roots/rhizomes are removed to prevent re-growth. Mowing is not effective unless repeated regularly close to ground level. Grazing normally provides control, however native animals tend not to eat them as they have little



Gazania

**Gazania spp.*

Family: Asteraceae

nutritional value. Cultivation is effective but rhizomes will transplant in wet conditions. Foliar spraying until just wet with a registered systemic herbicide mix of 50 mL glyphosate (450 g/L) in 10 L water into the heart of the rosette can be effective. If the weed is amongst native grasses, use a broadleaf specific herbicide such as metsulfuron-methyl at 0.1 gm / 10 L plus wetting agent, or 4 gm Lontrel®750 plus 25 % wetting agent. Spray when the plants are actively growing - usually in autumn or spring. The flower heads should be removed and bagged prior to disposal, as even the detached flower heads may mature to produce masses of viable seed.

Native Wisteria



Native



Climber



Mid dune



Hind dune



Native Wisteria

Hardenbergia comptoniana

Family: Fabaceae

Description

Native Wisteria is a vigorous climbing plant with branches up to 10 m long which twine around the stems of other plants. The tri-foliolate leaves have 3-5 glossy green leaflets. The pea flowers are violet or purple and appear in winter and spring. The firm and leathery cylindrical seed pod starts green and turns black, and can be up to 5 cm long and 1 cm thick. Within the pod, the green seeds turn hard and black when fully mature.

Propagation

Soak seeds in very hot water (95 °C) for approximately 2 minutes. Germination can range from 8 to 37 days. Local provenance plants should always be used for revegetation projects as some commercial cultivars of this species are highly aggressive primary colonisers with a tendency to smother other vegetation.

Distribution

Native Wisteria occurs on the coastal dunes in the southern part of the NAR, south from Dongara and as far east as Albany.



Spiny Rush



Spiny Rush

**Juncus acutus*

Family: Juncaeeae



Description

Spiny Rush is a dense tussock forming rush with rigid, sharply pointed blue-greyish leaves and 2-4 mm wide erect flowering stems 30 cm to 1.6 m high. The leaves arise at varying angles giving it a distinctive dome shape. The 4-13 cm long flower clusters are located at the ends of the stems with a sharply pointed modified leaf (bract), and can occur at different heights throughout the plant. As the seeds ripen, the seed heads/fruit tend to turn from reddish-brown to black. The fruit is a three-celled 4-6 mm capsule and the seeds are 1.2-2 cm long with a tail at each end.

Distribution

Spiny Rush is widespread in waterlogged, low-lying and often saline areas and is becoming increasingly widespread throughout degraded waterways in the NAR around Northampton, Geraldton, Irwin, and around the Hill River catchment. More extensive populations occur through the Central Wheatbelt and isolated populations near Albany and Esperance. It is naturalised in all other Australian states and New Zealand.

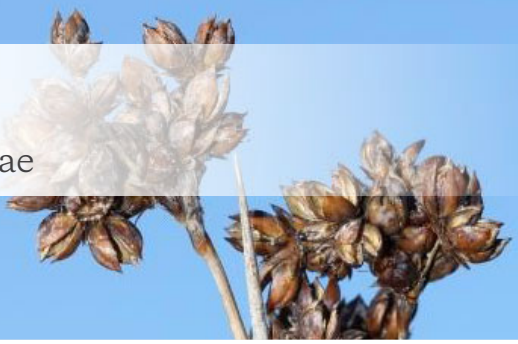
Control

First remove and bag all flowering and seed bearing heads. Dig out isolated plants. Alternatively, in wet areas spray 2 % glyphosate plus wetting agent in late summer/autumn when surface water is not present. In dry conditions apply in spring/early summer. Repeat application 6 weeks later. Burning plants after they have been stressed by herbicide can increase kill rate. Combination of two or more methods might be the best approach for control. When removing plants, consider the possibility of erosion. Mechanical removal can be effective, however machinery must be washed down on-site to prevent the spread of seeds in mud attached to vehicles. Animals also contribute to the spread of seeds.

Spiny Rush

**Juncus acutus*

Family: Juncaeeae



Note

It is important to ensure that the correct species is being targeted for control as there are a number of native rushes that are superficially similar. These include *Juncus kraussii* (Shore Rush) that has an open weeping inflorescence rather than the tightly bunched appearance of the Spiny Rush and the capsules are much smaller at 2.5-3 mm. In addition these two species are known to hybridise. Spiny Rush has much sharper leaf tips than Shore Rush.

Spiny Rush was accidentally propagated and planted on the lower Chapman River 16 years ago, and although most seedlings were removed soon after occasional plants are still being found and removed.



Coast Sword-Sedge



Native



Ground
cover



Fore dune




Mid dune



Hind dune



Aboriginal
usage



Coast Sword-Sedge

Lepidosperma gladiatum
Family: Cyperaceae

Description

The Coastal Sword-Sedge is a vigorous perennial grass-like herb or sedge that forms clumps up to 1.5 m in height. It sends out underground stems from which new plants grow. The leaf is dark green, up to 1.5 m long and 25 mm wide. The brown-yellow flowers occur on spikelets in clusters 1 cm long from November to January. The fruit is a small oval shaped nut.

Propagation


Good viable seed can be difficult to collect and fruiting bodies from the previous season should be selected. The previous seasons' fruits tend to be located lower in the plant, with seed dry and plump. Shrivelled seed is not viable. When good seed is available, germination takes between 53 and 72 days. Germination can be close to 100 % or nothing. Rhizome division is more reliable provided divisions occur at segments containing at least two years' growth (located by counting back from the lead shoot). Planting divisions directly into pots can be efficient for use in rehabilitation projects.

Distribution

Coast Sword-Sedge occurs on the coast in the southern part of the NAR from Leeman south and its range extends to Esperance/Cape Arid. It is tolerant of full sun to shade, in frontal exposed sites on fore dunes, or swales and peaks of mid dunes.

Aboriginal Use

This species was primarily used to make rope and string and the leaves were plaited to make baskets. The base of the stem was boiled to treat colds and part of the base was eaten raw or roasted.



Coastal Teatree, Victorian Tea-tree





Coastal Teatree, Victorian Tea-tree

**Leptospermum laevigatum*

Family: Myrtaceae

Description

Coastal Teatree is a shrub to small tree up to 5 m in height, with flaky bark. Its 15-30 mm grey-green oblong leaves are alternately arranged. The leaf can also be narrowly oval with a small point at the tip. The white flowers are 15-20 mm across with five oval petals. Coastal Teatree flowers from late winter to early summer. The 6-8 mm cup-shaped fruit is deciduous and wrinkled.

Distribution


While this taxa is native along the coast from southern New South Wales to south-eastern Victoria, it is a significant weed in Western Australia. In the NAR, its current distribution is patchy around Geraldton, Warradarge and near Jurien Bay, with other populations around Lancelin and Guilderton, mostly in white or grey sand. This taxa also tolerates loam.

Control

Hand pull seedlings. Fell mature plants when not seed bearing. Re-sprouting has been recorded in some areas. Where re-sprouting has been observed, apply 250 ml Access® in 15 L of diesel to the bottom 50 cm of trunk (basal bark). Control works best in winter to early spring. Follow up monitoring is essential. Avoid using trimmings of this species for brushing or mulching as seed can be released when the fruit capsules dry.

Note

Take care not to confuse the weed with the similar local species *Leptospermum oligandrum*, which is less robust and has smaller fruits.



Cushion Bush



Native



Shrub



Fore dune



Mid dune



Limestone
cliffs



Cushion Bush

Leucophyta brownii

Family: Asteraceae

Description

Cushion Bush is a neat, dense, rounded shrub growing up to 0.4 m in height and 1 m wide. It has scale-like leaves covered in tiny hairs, which give the plant its silvery-white appearance. The hairs reflect heat and reduce the rate of transpiration. Dense terminal yellow flower heads appear in groups of three throughout the year in response to rainfall, with the flowers fading to white.

Propagation

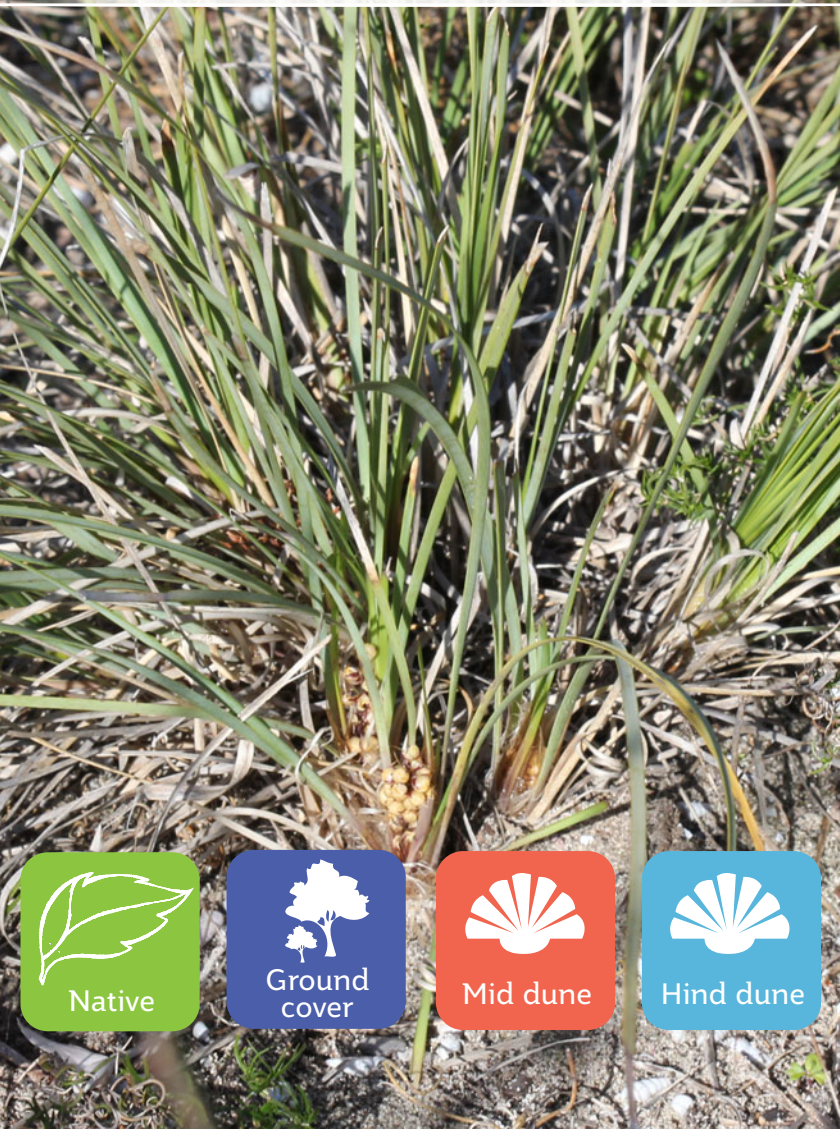
Easily grown from tip cuttings taken at any time of the year. Ensure plants are of a suitable size before transplanting to site as the stems are fragile and prone to damage, particularly if not hardened off.

Distribution

Cushion Bush is found on fore dunes and exposed limestone areas from Greenhead south, east to Esperance and to Victoria.



Maritime Mat Rush



Native




Ground
cover



Mid dune



Hind dune



Maritime Mat Rush

Lomandra maritima
Family: Asparagaceae

Description


Maritime Mat Rush is a grass-like plant that forms small clumps up to 60 cm in height and 20 cm wide. The long narrow leaves are flat and 1-2 mm wide. Purple and yellow flowers occur from August to October and grow on stems that are much shorter than the leaves. Male and female flowers are found on separate plants.

Propagation

Difficult to propagate, however some limited success has been achieved using divisions of mother plants that have been maintained under nursery conditions. Divide the plant into segments containing one or two shoots and plant directly into pots ready for transfer to the restoration site.

Distribution

Maritime Mat Rush is found along the stable mid dunes and areas protected from sand drift in the NAR - from north of Geraldton to Dongara, around Jurien Bay, then from Lancelin to Bunbury. There are isolated populations around Shark Bay.



African Boxthorn



Weed



Tree



Shrub



Fore dune



Mid dune



Hind dune



Limestone
cliffs



African Boxthorn

**Lycium ferocissimum*
Family: Solanaceae

Description

African Boxthorn is a rigid, densely branched perennial shrub that can grow to 5 m high and to 5 m across, but which more typically grows to 3 m by 3 m. The stems are smooth and silver-grey when young and become brown and fissured as they mature. Long spines (up to 150 mm long) grow from the main stems, and their minor branches and branchlets end in thorns that range between 20 and 150 mm long. The thorns become sharper as they dry through the summer. Their leaves are quite fleshy, oblong shaped, up to 40 mm long and grow in clusters. They can be highly variable depending upon the amount of direct sunlight they receive, growing larger in well-shaded areas and small in bright sunlight. Their flowers are approximately 10-12 mm diameter and hang from the leaf axils on stalks, singly or in pairs. The colour ranges from white to lilac. Flowering and seed setting typically occurs in summer but can happen any time. The berry-like fruit ranges from 5 to 12 mm long and is green at first before ripening to an orange-red berry with a prominent calyx. Each fruit can produce 20-70 seeds.

Distribution

This Weed of National Significance is scattered along the south-west WA coastline including Shark Bay, Geraldton, Abrolhos Islands and Perth areas. Populations are starting to establish in the Central Wheatbelt, the Goldfields, Bremer Bay, Esperance and Eucla.

Control

Boxthorn will regrow from roots unless treated with herbicide. Hand pull or dig out small plants. Mechanical removal using machinery (such as a Ditch Witch) when actively growing but not fruiting, followed by cutting and immediately painting of the roots with undiluted glyphosate has proven effective. Burn the stockpiled material where possible. In areas lacking native vegetation and where access is limited, spraying entire mature plants with a 1 % glyphosate solution plus

African Boxthorn

**Lycium ferocissimum*

Family: Solanaceae



wetting agent is effective. Apply herbicide when the plant is actively growing in cooler months. Cutting and painting of each mature stem with a 50 % or undiluted glyphosate also works, however this method has significant occupational safety and health issues in gaining access to the trunks of this spiny plant. Ensure post-control residue is not left in public areas.

Note

Leaves and fruit contain toxic alkaloids. African Boxthorn was introduced from South Africa as a garden or hedge plant in the mid-1800s and has become very invasive, being spread by native and feral animals. Because African Boxthorn does not flower or fruit until the plant is at least two years old, this offers an opportunity for containment. Considerable investment has been made in the NAR to contain this weed. Ensure correct plant identification as *Nitraria billardiarei* and *Rhagodia preissii* subsp. *obovata* can look superficially similar, particularly in juvenile plants, but neither of these plants have spines.

Tangling Melaleuca



Native



Tree



Shrub



Mid dune



Hind dune



Limestone
cliffs



Tangling Melaleuca

Melaleuca cardiophylla
Family: Myrtaceae

Description

This erect to spreading shrub ranges from 0.4 to 2 m high and up to 3 m wide and has papery, flaking bark. Its common name is derived from its growth habit, with its interwoven branches forming intricate, tangled arrangements. Its leaves are alternate along the stem, heart-shaped with a sharp tip. They are usually 4-9 mm long and 2.5-8 mm wide. It has creamy white flowers with bundles of 8-12 mm long bent stamens. The flowers grow along branches in dense or open clusters often limited to one side of the stem. Flowering occurs between July and January. Large, grey, globular woody capsules up to 10 mm diameter are held on the parent plant, with the oldest seed nearest to the trunk. The capsules have a crown-like arrangement of calyx lobes. Tangling Melaleuca grows on white, grey or brown-red sand, limestone ridges and outcrops, and sand dunes.

Propagation

This species grows readily from seed. Cut lengths of stem bearing last year's, or older, woody capsules, place them in a paper bag and store them in a warm sunny place until the seeds are released. Mix the tiny seeds with clean Brickies Sand and use a spice jar to sprinkle the mixture evenly over seedling trays in late summer or early autumn. Germination is expected 11-34 days after sowing. Prick out at the 4-6 leaf stage. Cuttings also work. Direct seeding may be possible by brushing with branches holding the seed bearing capsules.



Tangling Melaleuca


Melaleuca cardiophylla
Family: Myrtaceae

Distribution

Tangling Melaleuca is known to occur from the northern Perth suburbs to the Exmouth Gulf, Barrow Island, and one inland population near Mount Augustus. It favours limestone and stabilised mid dunes and is most easily established where protected from salt spray and direct winds.

Note

It is a very tough, adaptable plant that tolerates most soil types and semi-dry to temperate conditions.



Chenille Honeymyrtle



Native



Tree



Shrub



Mid dune



Hind dune



Limestone
cliffs



Aboriginal
usage

Chenille Honeymyrtle

Melaleuca huegelii

Family: Myrtaceae



Description

Chenille Honeymyrtle is a medium, dense shrub or tree to 5 m high, depending on soil depth and wind exposure. Mature trees have rough, flaking bark. Very small, smooth, triangular leaves 2-5 mm in length, and about half the width, clasp the stem and are attached beneath the stemless leaf. The flowers form candle-like spikes up to 10 cm long between November and January, and rarely as early as September. The flowers are white to pale purple, pink, or lilac in colour with new leaf growth protruding from the ends of the spikes. The 3-4 mm woody fruits are clustered together to form dense cylinders along the branches. Up to 50 clusters can occur along the stem. New growth continues through the woody cylinder, which is retained for many years after flowering.

Propagation


Chenille Honeymyrtle is readily propagated by its very fine seed, which are released when the fruiting capsules open, often in response to the stem dying or due to fire. Propagation is the same for this species as for *M. cardiophylla*. As there are separate populations, using local provenance material is important.

Distribution

Chenille Honeymyrtle occurs intermittently on shallow soils over limestone on the mid and hind dunes along the NAR coast and between Shark Bay and Augusta.

Note

A similar shrub, *M. cardiophylla* (Tangling Melaleuca), has broader leaves, cream flowers, and larger, rounded woody fruits.




Chenille Honey Myrtle

Melaleuca huegelii

Family: Myrtaceae

Aboriginal Use

Leaves were used for medicinal purposes, they were either sucked, chewed, crushed or inhaled to treat head colds and flu. Green leaves were also used for smoking ceremonies because of their pleasant aroma. The flowers were also important sources of honey; which was either sucked directly from the flower or the blossoms were soaked in water to create a sweet drink.



Rottnest Tea Tree



Native



Tree



Shrub



Fore dune



Mid dune



Hind dune



Limestone
cliffs

A close-up photograph of the Rottnest Tea Tree (Melaleuca lanceolata) showing its characteristic spikes of small, white, tubular flowers. The flowers are arranged in dense, elongated clusters. The background is slightly blurred, showing more of the plant's green foliage and additional flower spikes.

Rottnest Tea Tree

Melaleuca lanceolata
Family: Myrtaceae

Description

The Rottnest Tea Tree is a shrub or tree with rough dark grey bark, growing up to 8 m in height, often with a dense canopy. Leaves are small and alternate, up to 15 mm in length and 2 mm wide. The inflorescence is a spike with white or cream flowers, 10-15 mm long. These spikes grow towards the end of the current season's growth and can appear throughout the year, mostly between January and September. The 3-4 mm long, globular woody capsules typical of this species are produced in series, with each year's seed being retained in the brown coloured, woody fruit for many years after flowering.

Propagation

This species grows readily from its fine seed. Seed release and propagation is the same for this species as for *M. cardiophylla*. Germination occurs 15 -64 days after sowing.

Distribution


Within the NAR, there are small populations of Rottnest Tea Tree near Kalbarri, although it is more common south from Geraldton to Jurien Bay where it once formed dense stands on the coast. Other populations are located near Lancelin, then from Perth south to Augusta. The Rottnest Tea Tree can be found in isolated pockets along the coast from Shark Bay to the border of South Australia and inland through the Central Wheatbelt and Goldfields. While favouring limestone ridges, coastal cliffs and dunes, it also occurs in sheltered positions in the hind dunes, on salt flats and near salt lakes. Without protection, plants become wind pruned. In order to encourage the formation of trees, rather than shrubs, plant several specimens close together.



Rottnest Tea Tree
Melaleuca lanceolata
Family: Myrtaceae

Note

Rottnest Tea Tree is a very useful plant for revegetation, although it has been known to escape from regeneration projects into bushland beyond its natural range.



Coastal Honeymyrtle



Native



Shrub



Mid dune



Hind dune



Limestone
cliffs



Aboriginal
usage

Coastal Honeymyrtle

Melaleuca systema

Family: Myrtaceae

Description

The Coastal Honeymyrtle is an erect to spreading bushy shrub 0.5-2 m high, but often 1.2 m where wind pruned. The crowded to scattered, narrow-linear, very narrowly obovate or needle-like leaves are arranged spirally on the stem and may be recurved. New growth can be hairy and, as the leaves and stems mature, hairs are reduced to some short hairs overlain with a few longer silky hairs, or entirely smooth. Coastal Honeymyrtle has dense, globular, pale yellow to cream flowers either in February and March or August to December. These 12-20 mm diameter heads are produced both terminally (on the tips of the branches) and in the axils and often have an oily, musty odour. Small, grey, urn-shaped, woody fruit capsules 4-5 mm in diameter grow in irregular clusters. Coastal Honeymyrtle grows in sand over laterite, yellow-orange sand over limestone, coastal stabilised dunes and rocky limestone.

Propagation

This species grows readily from very fine seed and germinates 8 -31 days after sowing. Propagation is the same for this species as for *M. cardiophylla*.

Distribution

Occurs on the coast from Walpole north to Shark Bay with two isolated inland populations.

Note

A very useful plant for rehabilitation projects in full sun and away from strong direct winds and salt. Planting on the leeward side of established plants is most effective. Previously known as *M. acerosa*.

Aboriginal Use

Drinks were made from the nectar; and wood and stems were used for implements and to construct shelters.

Iceplant



Weed



Ground cover



Fore dune



Mid dune



Hind dune



Limestone cliffs



Iceplant

**Mesembryanthemum crystallinum*

Family: Aizoaceae

Description

Iceplant is a robust, succulent, annual herb which spreads to 1 m. The whole plant is covered in large, glistening inflated hairs that look like beads or ice. The young leaves are spoon-shaped and 2-12 cm wide, with undulating edges. The leaves are often tinged pink and survive for very few months. The flowers are creamy-white and often pink-tipped with numerous petal-like staminodes, appearing from spring and summer. Numerous black seeds are only released from a hemispherical capsule after rain, when they rapidly germinate.

Distribution


Iceplant is a coloniser and rapidly covers bare ground on disturbed dunes and saline flats. It extends from Cape Range, Carnarvon, Shark Bay, and Northampton to south of Dongara and around Fremantle. New populations are being identified inland and beyond Esperance.

Control

Hand remove isolated plants through spring and early summer. Logran® at 12.5 g/100 L plus penetrant Pulse® between June and September is considered very effective, with little off-target damage in coastal heathlands. Spot spraying with 0.5 % glyphosate or Lontrel® 10 mL/ 10 L (500 mL/ha) can also work.

Note

Iceplant is a native of South Africa and has become a serious weed throughout southern Australian states. Salt released by the plant into the surrounding soil inhibits germination of other plants often resulting in expanding areas of Iceplant-only infestations.



Blueberry Tree



Native



Tree



Shrub



Aboriginal
usage



Fore dune



Mid dune



Hind dune



Limestone
cliffs

Blueberry Tree

Boobialla Myoporum insulare

Family: Scrophulariaceae



Description

This dense, multi-branched shrub can grow to 5 m high, but is typically low and spreading in exposed locations. Depending upon salt and wind exposure, the leaves can be soft or thick, fleshy and tough and range in size from 25 to 75 mm long and 7 to 21 mm wide. Blueberry Tree flowers occur in clusters of 2-5 set in the leaf axil and are 4 mm across. Flowers are white with purple dots and a distinctive hairy throat. Blueberry Tree flowers from July to December or in January and February. The white fruit is round and juicy, purple when ripe and about 4 mm in diameter, with a hard woody seed inside.

Propagation

Blueberry Tree can be difficult to grow from seed. Either sow directly and leave to age in soil for up to one year or soak fruit in water for 3-4 days, remove flesh, dry the seed and then sow in trays. Seedlings emerge sporadically over an extended period and can be carefully pricked out. Cuttings are more reliable than seed. Once hardened off, plants must be grown in full sun to ensure active healthy growth.

Distribution

Blueberry Tree is found in the white-grey sand in mid dunes and limestone soils along the west coast from Augusta to Shark Bay, and on the south coast of WA from Albany to west of Eucla. There are several similar shrub species of *Myoporum* growing on riverine and other inland environments.

Aboriginal Use

The fruits are juicy and were eaten raw, although some find them salty and bitter with an unpleasant aroma.

Tree Tobacco



Weed



Shrub



Mid dune



Hind dune

Tree Tobacco

**Nicotiana glauca*

Family: Solanaceae



Description

Tree Tobacco is an erect spindly shrub to 6 m high. It has alternately arranged, tough, blue-green leaves that are oval to broadly lance-shaped. The yellowish-green tubular flowers are 20-40 mm long and surrounded by bell-shaped segments (calyx) in short dense clusters. Tree tobacco can flower all year, however typically it flowers in spring. The fruit is a capsule (7-13 mm long) surrounded by a persistent calyx.

Distribution

Currently known from about twenty sites, including Cape Range and Shark Bay, in addition to populations within the Perth metropolitan area. In the NAR it occurs from Geraldton to just south of Dongara, often along roadsides.

Control

Hand remove small infestations, ensuring removal of all root material. Use cut stump application of 50 % glyphosate or apply 250 mL Access® in 15 L of diesel to basal 50 cm of stem (basal bark) between March and May or September and November.

Note

Tree Tobacco is toxic to livestock and humans and becomes prolific after flooding events. It can re-sprout after prolonged drought but is generally killed by fire. Tree tobacco can hybridise with the native *Nicotiana* species.

Nitre Bush, Coastal Grape



Native



Shrub



Fore dune



Mid dune



Hind dune



Aboriginal
usage



Nitre Bush, Coastal Grape

Nitraria billardierei

Family: Zygophyllaceae

Description

Nitre Bush is a very large, spreading, rigid shrub up to 2 m tall and 3-4 m wide. It is often intricately branched. The green or yellow leaves are narrow (2.5-7 mm wide), fleshy, tough and 10-29 mm long. They can be highly succulent depending on the level of salt exposure. The white flowers are 8 mm across with 3-4 mm long petals that have a few hairs at their apex. Flowering is between September and November. The grape-shaped fleshy fruit is 10-20 mm long and about half as wide, and ripens from green to purple but can turn red or yellow. It grows in sand and limestone on coastal plains, dunes and cliffs.

Propagation

Cuttings from newly matured wood are the most reliable. Layering is also effective by cutting a small nick under a branch and pinning the cut to the ground until roots form. Seeds collected direct from the plant have low germination, however, seagulls eat large quantities of ripe berries and seed that has passed through a seagull's gut tends to germinate readily. Collecting seed-filled seagull faeces from night roosting sites, such as boat decks, jetties and piers near fruiting plants (generally during summer), can provide large quantities of viable seed (wear rubber gloves when handling this seed). Germination is likely 22-50 days after sowing.

Distribution

Nitre Bush is common on the coast between Geraldton and Perth. Isolated populations also occur at Cape Range, Shark Bay, Leeuwin-Naturaliste Ridge and in localised patches from Two People's Bay east to Esperance. Populations are found inland around salt lakes.



Nitre Bush, Coastal Grape

Nitraria billardierei

Family: Zygophyllaceae

Note

Nitre Bush is an effective sand stabiliser as it has an extensive fibrous root system, making it important in the formation and retention of large dunes, especially fore dunes. The fruit is also known to be eaten by emus. This taxa can be superficially similar to the aggressive weed, African Boxthorn *Lycium ferocissimum*, but lacks the thorns.


Aboriginal Use

The olive-like fruit either red or purple in colour, has a sweet, slightly salty taste and was a valuable addition to the diet.



Beach Evening Primrose





Beach Evening Primrose

**Oenothera drummondii*

Family: Onagraceae

Description

Beach Evening Primrose is a densely hairy, grey-green perennial herb to about 60 cm high. It has rosette leaves 6-15 cm long, narrowly lance-shaped and often shallowly lobed. Beach Evening Primrose has lemon-yellow flowers 5-7 cm across that become orange with age. The cylindrical seed capsule is densely hairy and 3-5 cm long.

Distribution


Beach Evening Primrose occurs around Geraldton, Jurien Bay, and on the Swan Coastal Plain as far as Busselton, with isolated populations near Denham, Walpole and Esperance.

Control

Control of this weed in the seedling stage is important, as older plants are resistant to herbicide. It is relatively tolerant of glyphosate. Hand remove small populations in areas that are not susceptible to erosion. Spot spraying with Chlorsulfuron 0.4 g/10 L plus spray oil is effective between July and October.

Note

A garden escapee, Beach Evening Primrose is presently most common close to populated areas.



Coastal Daisy Bush



Native



Shrub



Mid dune



Hind dune



Limestone
cliffs



Aboriginal
usage



Coastal Daisy Bush

Olearia axillaris

Family: Asteraceae

Description

Coastal Daisy Bush is an erect, many-branched shrub, covered in a fine soft material – giving it a grey-white or grey-green appearance. Bushes are highly variable in size, ranging from 30 cm to 2 m tall. Coastal Daisy Bush has a distinctive coastal aroma. The alternate leaves are 12-18 mm long and 2-3 mm wide with white or grey on both surfaces, or smooth above and grey felt-like below. Prolific but minutely small, white and yellow flowers grow in dense heads terminating in short lateral shoots. Flowering occurs between March and August in response to rainfall events. The seeds have a fine feather-like appendage and are released 2-3 weeks after flowering. Seeds that release easily are ready for collection.

Propagation

Cuttings are effective at any time of the year. The seed usually germinates readily 8-24 days after sowing.

Distribution

Coastal Daisy Bush occurs on fore dunes, mid dunes and limestone cliffs of the WA coastline, south from the Pilbara coast to Esperance. It copes with fully exposed and sheltered locations.

Note

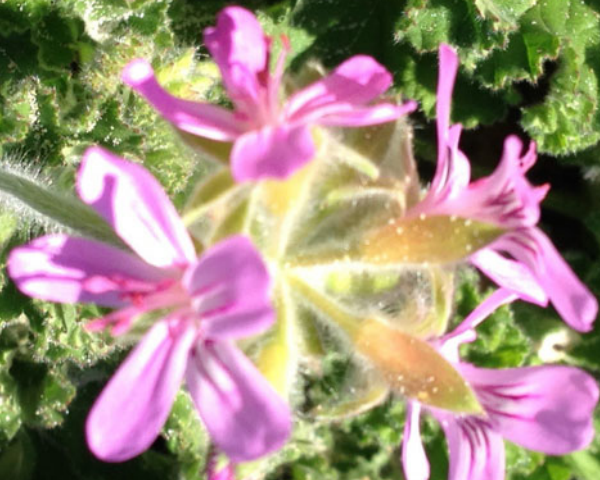
Coastal Daisy Bush is one of the most common and widely distributed species along the coastline, probably due to the seed appendage that aids wind dispersal. It is known in all other southern Australian states. The leaves have a pleasant scent when crushed and were used as an herb in cooking by early European settlers.

Aboriginal Use

The crushed leaves were used as an insect repellent.



Rose Pelargonium



Weed



Ground
cover



Fore dune



Mid dune



Hind dune



Limestone
cliffs



Rose Pelargonium

**Pelargonium capitatum*
Family: Geraniaceae

Description

Rose Pelargonium is an aromatic, softly-hairy shrub to about 1 m high. It has semi-succulent stems and can have tuberous roots. The oval to heart-shaped leaves are deeply lobed, often with wavy margins which contain tiny pointed teeth. Flowers tend to be clustered in an umbrella-like shape, their colour varying from white to deep pink or purple. The upper petals are usually larger and marked with dark spots and veins. Rose Pelargonium tends to flower in winter through to summer. The fruit forms a beak shape when green (similar to a stork's bill) with five segments, each with a hairy, curved bristle-like tail, which separate at maturity.

Distribution


Apart from a population just north of Jurien Bay, this weed occurs in disturbed areas around settlements from Lancelin south to Windy Harbour and along sections of the south coast of WA. It grows well in coastal sand dunes and limestone.

Control

Hand pull isolated plants taking care to remove the entire stem, as it can reshoot from below ground level. Spot spray Metsulfuron-Methyl 5 g/ha plus Pulse® between June and October. Rose Pelargonium can be easily controlled after fire. Glyphosate is relatively ineffective.

Note

Native *Pelargonium* can be distinguished by its undivided or very shallowly divided leaves that also have the tiny rounded teeth on the margins. The flower clusters are looser than on the Rose Pelargonium. Native *Geranium* has deeply dissected leaves and usually only two flowers together. These species are found only in the south of NAR and south of Perth.



Coast Banjine





Coast Banjine

Pimelea ferruginea

Family: Thymelaceae

Description

Coast Banjine is an erect, many-branched, often dome-shaped dense shrub, to 80 cm in height and up to 2 m wide. It has distinctively arranged leaves in four vertical files, with alternate pairs perpendicular to the former. Its oval leaves are dark glossy green on the upper surface, 6-11 mm long and 3-4.5 mm wide. The dense terminal pale to deep pink flower heads are up to 3 cm across, with four prominent leaf-like bracts below. In good seasons the plants are almost completely covered in flowers in clusters at the ends of the branches and are very conspicuous. The flowers are seen from early spring through to summer. They occur in grey-white sand, coastal sand dunes and rocky headlands of both limestone and granite.

Propagation

Cuttings of firm, current season's growth usually strike reliably when taken at the onset of active growth. The cuttings require bottom heat and careful management in the transplant stage, as plants are sensitive to root damage when removed from the tubes. Coast Banjine may be grown from seed but germination is unreliable. Soak in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours. Germination takes 14-64 days.

Distribution

Coast Banjine is known from Cliff Head, south of Dongara, to east of Esperance in stable mid dunes and swales, limestone soils and sometimes granite.



Tangle Daisy



Tangle Daisy

Pithocarpa cordata
Family: Asteraceae



Description

This tangled to spreading 0.5-1.5 m perennial shrub tends to die back each summer and resprout when opening rains occur. It has dense, cobwebby, fine white hairs on the underside of its oval to heart shaped leaves and can have sparse hairs on the green upper surface, resulting in leaves with a two colour appearance. The leaves are 20-70 mm wide and 15-20 mm long. Radiating, white to yellow flower heads occur on open, widely angled and inter-tangled branches above the leaves between October and April. The branched inflorescence persists after the short-lived flowers are finished. The fruit is tiny and has soft spines.

Propagation

Cuttings can be taken at any time of the year and grow very rapidly. Cutting propagation needs to be late enough to avoid root-bound plants.

Distribution

Tangle Daisy is widespread from Dongara to Albany in mid dunes and limestone, growing among and through other shrubs and sedges. It is often scattered through coastal heathland in white grey sands. Tangle Daisy grows rapidly in sheltered locations and can adapt to a wide variety of soil types.

Note

This species was formerly known as *Ozothamnus cordatus*.

Seed collection for the genus *Ozothamnus*

Collect ripe seed with flower heads direct from or under the bush. Difficult to clean so sprinkle with insecticide and store in jars. Some species have best germination in first year, others should be stored up to 6 months. Sow seed on surface and cover lightly.

Coastal Mock Orange



Native



Tree




Shrub



Mid dune



Hind dune



Coastal Mock Orange

Pittosporum ligustrifolium
Family: Pittosporaceae

Description


Coastal Mock Orange is a single trunked shrub or small tree up to 5 m tall. It has narrow leaves 20-85 mm in length and 6-16 mm wide that are sometimes hairy on the underside. The solitary, or clusters of 2 or 3, white or cream flowers appear from June to August, and are borne in the axil of the leaf. The flowers are up to 10 mm across. The fruit is orange and divided into 2 or 3 sections. They contain many 2 mm diameter dark red, irregularly shaped seeds which are shed when the ripe fruit splits. Coastal Mock Orange tolerates diverse soil types from grey soils to clayey sand, calcrete, sandstone, granite, laterite and limestone.

Propagation

Untreated seed should germinate in 27-74 days following sowing. Cuttings also work well. There are a number of forms within this species, so selecting local provenance is important. In some populations plants appear to have suckered.

Distribution

Found in disconnected populations on WA's coastal dunes and ridges, as well as in wet depressions, and along riverbanks and limestone between Kalbarri and Cape Naturaliste. Several similar species grow inland in moisture gaining sites such as at the base of granite rocks.



Coastal Poa





Coastal Poa

Poa poiformis
Family: Poaceae

Description

This fine leaved tussock or clumped grass ranges in height from 0.15 to 0.9 m high. Arising from a central base, its blue-grey, rough, flat leaf blades are 20-90 cm long and 0.4-2 mm wide. They are hairless with a short membranous ligule at the junction of the leaf base and the leaf sheath. The stems are sometimes slightly swollen at the base. During October and November, the pale green to yellow flowers are borne on a many-branched inflorescence 5.5-30 cm long and 1-6 cm wide. Each flower is attached to the inflorescence by a stem (pedicel). The seed head is open and spreading, with the variable length lower branches occurring in pairs and originating from a common point. The spikelets tend to be grouped at the end of each branch. The seed is about 1.2 mm long.

Propagation


Seed or limited division of mature plants, with up to four clumps per large plant, when there is adequate soil moisture. Pruning divided plants to 15 cm helps their survival.

Distribution

Coastal Poa is known from the Abrolhos Islands, around Dongara, south along almost the entire coast to east of Esperance, on ocean foreshores, estuaries, dunes and cliffs. There are some inland populations. It is widespread through the Eastern States of Australia.

Note

Coastal Poa is highly under-utilised in rehabilitation projects and sourcing good seed can be problematic.



Climbing Mulla Mulla



Native



Shrub



Mid dune



Hind dune



Climbing Mulla Mulla

Ptilotus divaricatus
Family: Amaranthaceae

Description

Climbing Mulla Mulla is a prostrate to scrambling shrub, ranging between 0.3 and 1.5 m in height. It has rigid branches with long narrow leaves 10-45 mm long and 1.5-5 mm across, and diverse showy flower heads in either creamy-white or pink-purple. These globular flower heads are 20-30 mm in diameter and cover the plant between August and February, making for a striking show. The sepals that protect the flowers are 10-14 mm long and covered in fine, multicellular hairs with swellings at their base, making the lower half of the flower look densely woolly. They grow in sandy soils and laterite.

Propagation


In nature, the seed is distributed by wind and germinates readily. Soaking seed in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours can result in germination 10-16 days later.

Distribution

Climbing Mulla Mulla occurs intermittently on the coast between Leeman, Exmouth and Port Hedland. Other isolated populations occur south of Mandurah, while numerous populations exist in the north-east Wheatbelt and further inland.

Note

Its growth form, rapid growth and ability to spread makes Climbing Mulla Mulla useful for weed exclusion.



Berry Saltbush



Native



Shrub



Fore dune



Mid dune



Hind dune



Aboriginal
usage



Berry Saltbush

Rhagodia baccata

Family: Chenopodiaceae

Description

Berry Saltbush is a variable spreading shrub ranging from a low groundcover (0.3 m) to 2 m high. Its leaf form is variable depending upon the micro-climate and can be fleshy where exposed to high wind and salt spray. The leaves range from 10 to 40 mm long and 3 to 8 mm wide with an under surface covered with flour-like powder. It has small insignificant cream, yellow or green flowers in broad, cone-shaped panicles that are up to 15 cm long and 10 cm wide. Flower production can occur twice a year, between February and May and again between October and December. The berry-like globular fruit is vibrant red when ripe and contains a single black seed. It grows in white-grey sand, on sand dunes and rocky coastal areas (both limestone and granite).

Propagation

Berry Saltbush is readily and easily propagated from cuttings taken at any time of the year. Cuttings taken in warm conditions root easily. Tubestock should be ready in 3-4 months (when 15 cm tall) and must be hardened off appropriately. Soaking seed in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours can assist. Germination takes between 18 and 46 days.

Distribution

Small populations occur between Geraldton and Dongara and either side of Cape Range. Berry Saltbush is widespread and common along the coastline in fore dunes and mid dunes from Jurien Bay to Cape Arid, often in sites exposed to high wind and sand drift.



Berry Saltbush

Rhagodia baccata


Family: Chenopodiaceae

Note

It is a useful stabilising pioneer plant that can provide habitat for fauna and other plant taxa relatively quickly. It is useful for weed reduction. Protection from rabbits is necessary.


Aboriginal Use

The leaves were used cooked, these are succulent and tender. The berries are edible but bitter.



Red Berry Saltbush





Red Berry Saltbush

Rhagodia preissii subsp obovata

Family: Chenopodiaceae

Description


Red Berry Saltbush is a compact or spreading shrub growing up to 2 m in height in coastal dunes and limestone. The grey to green, succulent leaves are approximately 40 mm long, 15-20 mm broad, obovate (broader near the apex than near the stem), and arranged in opposite pairs on the stem. There are separate male and female plants. The inflorescence is a cluster of small cream or yellow flowers, occurring from March to June. The fruit, which is spread by birds, is a juicy red berry, 3 mm in diameter, with a small black seed.

Propagation

This species is readily propagated from cuttings taken at any time of the year. Cuttings root easily if taken during warmer conditions. It can be difficult to grow from seed, but soaking the seed in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours can help, with germination possible within a month. Collect the red fruits, wash them to loosen the flesh then place them in calico bags and hang them to dry in the sun. Spread in trays and cover with a light soil layer.

Distribution

Red Berry Saltbush grows in fore dunes and mid dunes from Greenhead to Shark Bay and is tolerant of high impact wind and mobile sand conditions. Juveniles of this species are often confused with African Boxthorn, however *Rhagodia* has no sharp spines.



Coast Roly-Poly



Native



Ground
cover



Fore dune



Aboriginal
usage



Coast Roly-Poly

Salsola species
Family: Chenopodiaceae

Description

Coast Roly-Poly is a very bushy, spiny plant up to 1 m in height with tough stems. The bright green, fleshy leaves are round and needle-like being 10-30 mm long and 2-3 mm wide. They fuse with the fleshy tough stem and become spiny when the plant dies. Coast Roly-Poly flowers are small and pinkish-green, with three wing-like floral leaves in a loose spike. At maturity, the stem breaks off and the whole plant is tumbled by the wind, spreading seeds on the beach and fore dune. Growing on the berm and fore dune areas these plants are an effective sand trap and dune stabiliser.

Propagation

Coast Roly-Poly are easily produced from seed. Using gloves, carefully cut dried, seed laden stems. Hold the stems over a wide container and hit with a stick or bamboo stake to remove the seeds.

Distribution

Coast Roly-Poly is found occasionally on the coast between Perth and the Kimberley and throughout inland arid WA.


Note

Taxonomy of this species remains uncertain. It was previously considered to be a weed however recent research suggests that it is a widespread native plant. Further research is required, however it is considered very useful as a primary coloniser and stabiliser, and may have a particular use for trapping sand and discouraging pedestrian access in eroded fore dune paths.

Salsola australis is the current name listed on Florabase, replacing *S. tragus* and *S. kali*.

Aboriginal Use

The leaves and shoots of *Salsola tragus* were eaten after being boiled. The decoction is reputed to have been used as a diuretic and for de-worming.



Quandong



Native



Tree



Shrub



Mid dune



Hind dune



Aboriginal
usage

Quandong

Santalum acuminatum
Family: Santalaceae



Description

Quandong is a many-branched large shrub or small tree, growing up to 7 m in height with sickle-shaped, green, leathery leaves. The leaves are variable 45-115 mm long and 5-14 mm wide and are initially soft and pliable, becoming leathery with age. The small, fragrant, star-shaped, yellow-green flowers appear at the tip of the branches from October to March. From the 50 or so flowers, a single round fruit develops that is 25-30 mm in diameter. This edible, fleshy, spherical fruit is initially green and turns red when ripe. Inside the fruit is a large, hard, wrinkled stone which contains a large nut. Quandongs tend to grow in thickets and can sucker from an extensive horizontal root system to form a dense stand.

Propagation

The main technique for propagating this plant is to gently crack the woody nut and bury it beneath a suitable host such as *Acacia* species, so the top of the seed is just exposed. It must be kept moist. Soaking the seed in a 0.1 % solution of gibberellic acid for 24 hours can improve the reliability, and result in germination 26 to 44 days later.

Distribution

Quandong is often found with Summer-Scented Wattle (*Acacia rostellifera*) along stabilised mid dunes between Shark Bay and Augusta, and inland throughout south-west WA and into the arid zone. It is also found on gravelly plains, granitic outcrops and creek beds. Quandong can tolerate a range of soil types including white, grey, yellow-brown or red sand, clay loam and lime sand.

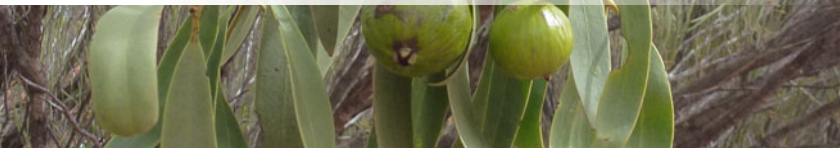
Note

This plant is hemi-parasitic and its host may be an adjacent shrub or grass, therefore it is important not to weed around Quandong, as the host plant may be lost. As there are many forms of Quandong,

Quandong

Santalum acuminatum

Family: Santalaceae



it is important that only local seed is used. Under suitable weather conditions, it is possible to directly sow seed beneath existing trees. The ripe fruit can be used to make jam. The seed kernel is edible after roasting and very high in energy, protein and fat whilst the fruit is high in vitamin C, water and carbohydrates.

Aboriginal Use

The firm fleshy fruit around the stone was eaten when red and ripe. The dried flesh was often stored for future use. Fresh seed kernels contain a toxin principle which may decay over time or be destroyed by roasting, hence fresh seed kernels were rarely eaten and instead the seeds were roasted on coals until blackened and resembling "shoe polish". Seeds contain 70 percent oil and are said to burn like candle nuts. The oil was also used as a cosmetic to smooth the skin of the face and body. After roasting, the seed kernels (or nut) were ground for use on cuts and sores and as an anti-inflammatory to relieve pains, swellings, bruises, sprains and backache. Pounded leaves were applied to boils, sores and for gonorrhoea. The seeds were used as beads or marbles by children.

Thick-Leaved Fan Flower



Thick-Leaved Fan Flower

Scaevola crassifolia

Family: Goodeniaceae



Description

Thick-Leaved Fan Flower is a sprawling, very sticky, erect shrub that forms dense mats on low dunes, where it is an important sand stabiliser. Leaves are variable depending upon proximity to the ocean, but are often circular to paddle-shaped 30-75 mm long and 10-33 mm wide. The vibrant green leaves have finely toothed margins that appear serrated. The scented flowers, found mainly from July to December or in January and February, are pale blue or white in colour. They are shaped like an open five-fingered fan and are 7-10 mm long. Thick-Leaved Fan Flower seed is a very small, dry, rounded nut within a thin, flattened spherical fruit 2.5 mm wide and 1.5 mm long. The fruit is green initially and ripens through yellow to orange.

Propagation

Cuttings taken in early summer can be struck directly into the pots to be used in revegetation projects. Seed can be heated in an 80 °C oven for three hours, then soaked in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours. Germination takes 24-65 days following this treatment. It is important that seedlings are sun-hardened before planting out.

Distribution

The Thick-Leaved Fan Flower is common on the coast in the NAR region and beyond, from 80-Mile Beach at Broome to the Nullarbor, although the populations are discontinuous. They grow in sand, on coastal dunes, sand plains and also limestone cliffs.

Thick-Leaved Fan Flower

Scaevola crassifolia

Family: Goodeniaceae



Note

Thick-Leaved Fan Flowers are useful fore dune colonisers for both exposed and protected sites. They can tolerate some sand burial. Provenance cuttings are important to maximise success, as is snail control where the White Italian Snail (*Theba pisana*) is prevalent. There are several other blue or white flowered *Scaevola* species that occur on the hind dunes and inland in this region including *S. globulifera*, *S. nitida*, *S. lautus* and *S. thesioides*. All share the definitive characteristic of flowers shaped like open five-fingered fans.



Variable Groundsel



Variable Groundsel

Senecio pinnatifolius
Family: Asteraceae



Description

The Variable Groundsel is a highly variable, small shrub to 0.35 m tall, with alternately arranged leaves that have stem-clasping ear-shaped lobes at their bases. The leaves can be slightly fleshy or thickened in the near-coastal environment. The yellow flower head is a typical daisy with a bright yellow, central disc floret surrounded by 8-14 total ray florets (the outer petals of a daisy). The entire flower is about 20 mm across and surrounded by whorls of black-tipped bracts. The flowering period is between August and January. The fruit is an achene surrounded by white spreading hairs.

Propagation

Variable Groundsel grows readily from seed and should germinate in a month.

Distribution

Variable Groundsel is recorded on the coast from Onslow, including off-shore islands, to the eastern states with numerous inland populations within WA.

Note

Variable Groundsel tends to colonise after disturbance. It can be annual or perennial. There are some subspecies, so use of local provenance seed is important. The species is often naturally abundant and frequently recolonises coastal areas unaided. Germination is dependent upon rainfall events, with dense stands of the species germinating in dunes following good rainfall.

Beach Spinifex



Native



Grass



Fore dune



Mid dune



Hind dune



Aboriginal
usage



Beach Spinifex

Spinifex longifolius
Family: Poaceae

Description

Beach Spinifex is a salt tolerant, hardy tussock to spreading perennial grass. It has trailing stems growing on the surface or rhizomes buried in the sand on fore dune systems, where it is an important pioneer sand stabiliser. Beach Spinifex has a more tufted appearance in stabilised dunes. The leaves are smooth, long, narrow, grey-green, and flexible but rigid. Common dimensions are 15-30 cm long and 1.5-3 mm wide. They are grooved on the upper surface and rounded and green on the under surface. Male and female plants are usually separate. The male spikelets are borne in yellow-brown, flat inflorescences, less than 10 cm in diameter, on erect stems. The female flowers form larger spherical heads, up to 25 cm in diameter. Flowering occurs between July and January.

Propagation

The flower heads detach from the parent plant and are windblown, tumbling over the dunes until they are trapped and buried in the sand where they germinate between 20 and 42 days later, depending upon rainfall. This can be achieved artificially by collecting and breaking up heads and direct seeding small clumps of about 10 spines each, such that the spines stick out of the sand. This technique is best in late summer to early autumn. Alternatively, break up the seed head and spear individual seeds into a tray. Seeds have low viability, however collecting dry seed heads still attached to plants, immediately downwind (i.e. to the north) of a male plant will maximise viability. Rhizome divisions comprising 15-20 cm long vertical shoots taken from actively growing plants, can be planted directly into moist soil or struck in pots containing standard potting mix. Plant deeply to ensure good root development and production of lateral rhizomes. Cuttings taken at any time of the year strike well if planted into a free-draining potting mix.

Beach Spinifex

Spinifex longifolius
Family: Poaceae

Distribution

Beach Spinifex is a common species found on the highly exposed fore dunes under high wind, salt spray and mobile sand conditions, as well as through mid and hind dunes on the west coast of WA between Augusta and the Kimberley. This makes it an important species in coastal restoration projects.

Note

Ensure plants are buried deeply leaving only the green shoots exposed at planting-out time. A similar species, *Spinifex hirsutus*, grows from Perth to the south and has shorter hairy leaves.

Aboriginal Use

The juice from young growing tips or young stems was squeezed and dripped into the eye to relieve soreness. If not enough juice was obtained, the shoots were hammered and soaked in water and the infusion used. A cooled decoction of crushed stems and new shoots was used as a body wash for skin sores or burns, or was swallowed for internal pains. The grass was chewed and the juice used to relieve mouth soreness.



Female flower head

Male flower head

Marine Couch





Marine Couch

Sporobolus virginicus
Family: Poaceae

Description

This perennial rhizomatous grass can form thick mats with dense scaly rhizomes and can also be tussock forming. Marine Couch is 0.1-0.5 m high with Couch (*Cynodon dactylon*)-like leaves that are thin and up to 50 mm long. The leaves often inroll under drought conditions. Inconspicuous green-purple flowers rise in a single spike (unlike weedy Couch varieties, whose flower stalks open into windmill-like whorls). Flowering can occur all year, subject to rainfall. It grows on white, yellow or brown sand, clay and peat, often on saline fore dunes, tidal flats and salt marshes.

Propagation


Like all rhizomatous grasses, Marine Couch can be easily propagated from rhizome or shoot divisions taken at any time of the year, although it tends to be more successful during early summer when the plant is in active growth. Divided plants can be placed directly into moist soil in restoration sites or propagated in pots.

Distribution

Recorded in parts of the NAR between Northampton and Dongara, a cluster around Jurien Bay and then from Moore River, south to beyond Esperance. There are also populations north from Shark Bay through to the Kimberley and most of the Australian coastline. It also occurs in coastal and salt-affected areas inland.

Note

Marine Couch is an under-utilised species for rehabilitation on fore dunes, tidal flats and salt marshes, and provides a good option for stabilisation of coastal systems.



Basket Bush



Native



Tree



Shrub



Mid dune



Hind dune



Limestone
cliffs

Basket Bush

Spyridium globulosum

Family: Rhamnaceae



Description

Depending on the level of salt wind exposure, Basket Bush varies from a robust, fast-growing, many-branched and erect, dense shrub up to 3 m tall, to a low-growing and heath-like shrub around 0.6 m high. It is characterised by soft, egg-shaped, rounded leaves that are 15-50 mm long and 10-25 mm wide. The leaves often inroll when drought-stressed and are green above and white beneath, with a fine felt of white hairs. Basket Bush has tiny flowers, in very densely woolly terminal to sub-terminal heads, with each flower up to 2 mm across. They appear from June to September. The seeds are minute and orange-brown.

Propagation

Soak seeds in very hot water (95 °C) for about 2 minutes. Germination occurs within 29-54 days.

Distribution

Basket Bush is widespread and common along the WA coast on mid dunes or sheltered fore dunes and coastal limestone from Geraldton, south to the Great Australian Bight. It also occurs on off-shore islands. Basket Bush copes with some wind and salt exposure but performs better where protected initially.

Pebble Bush



Native



Shrub




Mid dune



Hind dune



Aboriginal
usage



Pebble Bush
Stylobasium spathulatum
Family: Surianaceae

Description

Pebble Bush is a neat, erect shrub up to 2 m in height. The green leaves are 3-4 cm long and 1 cm wide with an indented tip. The black buds, 2-3 mm in diameter, produce small flowers, characterised by quantities of pollen held on drooping stamens. The hard, woody, ball-shaped fruits, up to 15 mm in diameter, give the plant its common name.

Propagation

Pour very hot water (95 °C) over the woody fruits and soak overnight. Seeds should germinate 21-79 days after sowing.

Distribution

Pebble Bush occurs on the coast from south of Dongara, north to Shark Bay and occasionally beyond. It also occurs throughout the Kimberley and the Pilbara.

Aboriginal Use

The nuts from this plant were used to make necklaces and other ornaments.

Cockies' Tongues



Native



Tree



Shrub



Hind dune



Limestone
cliffs



Cockies' Tongues

Templetonia retusa
Family: Fabaceae

Description

Cockies' Tongues is a multi-branched, erect and rounded shrub between 0.3 and 2 m high. Height varies with soil depth and protection from the prevailing wind and salt spray. It has 20-30 mm long leathery leaves, with an incised apex making them almost heart-shaped at the tip. The very large, usually red, pea flowers are produced in the leaf axils and have a long, narrow petal bent back on the calyx, and two long wings with a keel - giving the appearance of a cockatoo's head. The flowers, up to 4 cm in length, have other colour variants including apricot, and occasionally yellow or cream. It flowers prolifically and briefly between April and August, when the whole shrub appears red. The 6-10 ripening seeds are held in a long, flat, black pod up to 50 mm long. The pod has rib-like bumps over the seeds.

Propagation


Collect ripe seeds from black pods. Pour very hot water (95 °C) over seeds and soak overnight. Germination can range from 6 to 47 days.

Distribution

Cockies' Tongues occurs on lime rich soils from Geraldton to Esperance and can also grow on gravels and clay soils, where it may fail to flower. It does best in sheltered areas.


Note

This plant is easily confused with Pebble Bush *Stylobasium spathulatum* when not in flower, as leaves of both have an indented tip. It can re-grow from underground rootstock following fire.



Shrubby Samphire





Shrubby Samphire


Tecticornia halocnemoides
Family: Chenopodiaceae

Description

Shrubby Samphire is a succulent, salt tolerant plant that grows as a spreading or erect shrub up to 60 cm high. Its smooth, fleshy stems appear articulated (jointed), with each segment about 2.5 mm long, with distinctive swollen red ends to the stems. The branchlets lose their succulence and have small leaf lobes without any incisions or teeth. The leaves of the Shrubby Samphire are much reduced, making the plant appear leafless. The inflorescence is terminal (occurring at the apex), 2-8 cm long and about 3 mm diameter, with flower clusters separate, or with neighbouring parts in contact. The flowers are free from each other and from the bracts. The outer floral whorl is three-lobed, with large lateral lobes and a small median lobe. The flowering period occurs between November and April. The hard reddish-brown seed is about 1 mm in diameter with wart-like ribs protruding around the margins. The seeds have a thin, brittle coating. Fruitlets break away from the spike once mature.

Propagation

Shrubby Samphire's flowering time varies across the NAR, so monitoring will assist with timing seed collection, as use of fresh seed is best. The material is sown from winter to spring. Mulch or cut up the flower stalks and soak for 8 hours, changing the water 2 or 3 times to remove salt. The seed is tiny so filters are needed. Soaking the mix in smoke water for 24 hours is the next step. The material may be dried, or left wet, and sown. The treated material should be spread on top of the soil, pressed down for good seed-to-soil contact and covered with a layer of gravel. The trays should be kept moist by watering once or twice a day. Germination may be slow over several weeks. An alternative technique to trial is breaking segments off and dipping them in gibberellic acid, before replanting and lightly covering the sections in-situ.



Shrubby Samphire


Tecticornia halocnemoides
Family: Chenopodiaceae

Distribution

Shrubby Samphire occurs across WA, on damp saline flats and along rivers. It also occurs in the eastern states. It can be highly salt tolerant.

Note

Most of the photosynthesizing function is within the leaves. This genus was formerly known as *Halosarcia*. Juvenile *Tecticornia indica* can be confused with this species, however *T. indica* is a robust shrub that can grow up to 2 m tall. The fleshy red new shoots are likely similar to the majority of samphires, which can be pickled, blanched or eaten raw.



Sea Spinach



Weed



Ground
cover



Fore dune



Mid dune



Hind dune



Limestone
cliffs



Sea Spinach

**Tetragonia decumbens*

Family: Aizoaceae

Description

Sea Spinach is a vigorous, prostrate or scrambling herb with thick, pale, furry stems. It is typically 0.1-0.3 m high and up to 2 m wide. The curved leaves are succulent and rough, 1-6 cm long and 5-30 mm wide, and grow off many branches. They can be semi-succulent. The small yellow flowers have four lobes and grow on short stalks in clusters of 3 or 5, between March and November. Each flower is up to 10 mm in diameter. The seed is held in a four winged, leathery fruit.

Distribution


Sea Spinach has become naturalised through the coastal and estuarine sand dunes along the south-west coast of WA, from Northampton to Margaret River and Walpole to Bremer Bay. It can be a prolific weed in white sand.

Control

Sea Spinach has underground tubers which aid its drought and salt tolerance, and this feature can make hand removal difficult. Logran® at 12.5 g/100 L plus penetrant Pulse® between June and September may be effective with little off-target damage in coastal heathlands. Spotspraying with 0.5 % glyphosate or Lontrel® 10 mL/ 10 L (500 mL/ha) can also work. Beware of the increased risk of erosion when controlling this plant in fore dunes.

Note

Its growth pattern and ability to trap sand has changed the shape of the dunes and its invasive nature has smothered and limited the growth of local species.



Bower Spinach



Native



Climber



Mid dune



Hind dune



Aboriginal
usage

Bower Spinach

Tetragonia implexicoma

Family: Aizoaceae



Description

Bower Spinach is a prostrate climbing herb with branches up to 0.5 m in length and 2 m wide. The succulent leaves are 2-6 cm long, 5 mm wide, and arranged in whorls around the long stems. The fragrant flowers are about 6 mm long and star shaped. These yellow flowers occur throughout the year. The globular red-brown fruit is succulent and up to 8 mm in diameter, holding 1-3 pale brown seeds. This characteristic makes it easy to distinguish from the weed species, Sea Spinach - *T. decumbens*.

Propagation

Use fresh seed and remove the flesh before sowing. Bower Spinach can also be easily propagated from cuttings, using local provenance and being careful with hygiene to avoid disease.

Distribution

Bower spinach occurs along the NAR coast in separate populations. There are populations throughout the dune system from Dongara, north to Shark Bay, near Jurien and around Guilderton. Other populations occur around the Perth metropolitan area to Mandurah, along the Leeuwin-Naturaliste Ridge, and on the south coast from Walpole to the Nullarbor.

Aboriginal Use

The new stems, leaves and last four to five centimetres of the growing tip were eaten. However, they must be blanched first to remove soluble oxalates. The fruit has a small stone and is sweet, juicy and slightly salty.

Sea Wheatgrass



Weed



Grass



Fore dune



Mid dune

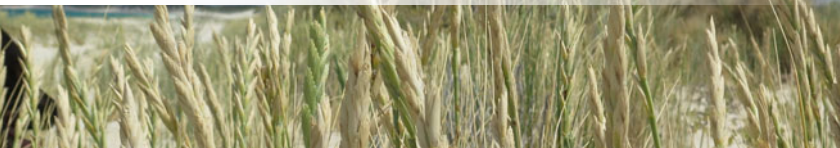


Hind dune

Sea Wheatgrass

**Thinopyrum distichum*

Family: Poaceae



Description

This creeping grass spreads by strong underground stems (rhizomes) and has leaves to 0.5 m tall. Its inflorescence is a dense, erect, green panicle of spikelets to 15 cm long, off the main axis. The yellow or green flowers typically occur in October or November. As the common name implies, the general appearance of Sea Wheatgrass is similar to that of cultivated wheat.

Distribution

It is a weed of coastal sand dunes and other sandy sites and has spread from where it was originally introduced as a sand binder. It is present around Geraldton and there are a small number of populations north of Perth.

Control

Preventing the expansion of populations of this weed is considered a priority. There is limited direct information relating to this taxa, however, grass specific herbicides such as Fusillade® are likely to be effective in sensitive bushland areas. Targeted control is critical to minimise non-target damage to native grasses. Spray Fusillade® 5 mL/L plus wetting agent in a 10 L backpack in late spring/summer and then in autumn or glyphosate 1 %; follow-up is always required. Spraying can be particularly effective after fire. Be prepared to manage erosion and revegetate immediately after removal of this grass from fore dunes.

Coastal Bonefruit, Mouse Poo



Native



Ground
cover



Fore dune




Mid dune



Hind dune



Limestone
cliffs



Coastal Bonefruit, Mouse Poo

Threlkeldia diffusa

Family: Chenopodiaceae

Description

Coastal Bonefruit is a salt-loving, spreading shrub up to 0.4 m in height and occasionally to 1 m high. The narrow, grey-green, succulent, oblong leaves grow to 3 mm in length along many branches. The leaf colour changes to red-brown during the dry, summer months. The tiny, insignificant, tubular shaped green flowers are produced in the leaf axils in October or November. Succulent, 2 mm long, purple or black fruit is produced during the summer and looks like mouse poo, hence the local common name.

Propagation


Seed germinates within 6-9 days following sowing.

Distribution

Coastal Bonefruit is common on all WA coastal areas except the Kimberley and the Warren region including off-shore islands. There are some populations on inland saline flats. It grows well in white/grey sand over limestone and clay.

Note

Enchylaena tomentosa is similar in appearance but has red or yellow berries that are 2 mm in diameter.



Coastal Thryptomene





Coastal Thryptomene

Thryptomene baeckeacea
Family: Myrtaceae

Description


Coastal Thryptomene is a dense, neat, rounded shrub which can grow to 2 m in height along coastal cliffs and on sand dunes. The almost circular or oblong leaves are 1-2 mm long with oil glands on the under surface. Between July and September, Coastal Thryptomene shrubs are covered in 3-5 mm diameter flowers, with the stamens located between the petals, opposite the sepals. These purple-pink or white flowers create a stunning display.

Propagation

It can be difficult to grow from seed but soaking the seed in smoke water at 1:10, 1:100 or 1:1000 dilution for 24 hours can help, with germination possible within three months. Tip cuttings taken in spring can strike well, provided hormone rooting powder is used.

Distribution

Coastal Thryptomene grows in isolated populations only on coastal sand over limestone and sand dunes, mainly between Geraldton and Exmouth, with some inland occurrences on lateritic breakaways.



Dune Onion Weed



Weed



Ground cover



Fore dune



Mid dune



Hind dune



Limestone cliffs

Dune Onion Weed

**Trachyandra divaricata*

Family: Asphodelaceae



Description

Dune Onion Weed is a perennial herb that grows in a clump with leaves between 0.35 and 0.70 m long. It superficially resembles an onion but lacks the characteristic odour. This weed produces two types of hairless leaves from its base. The inner ones are flat, smooth and linear (strap-like) up to 70 cm long, while the outer ones are sheaths to 35 mm. It produces flowering stalks that are repeatedly and widely branched, up to 70 cm in length. The white flowers have six white or pale lilac petals 4-14 mm long. Each petal has green or purplish veins, a brown central stripe and often a pair of yellow spots near the base of the petal. Flowering occurs in spring, between August and November. The fruit is a brown globular capsule with up to 200 fleshy capsules per flower. Within each fruit are 12 red-brown to black pyramid shaped seeds. This weed can grow in white or grey sand and is common in coastal dunes, along roadsides on calcareous sandy soils and in pastures.

Distribution

It is widespread through the lower south-west from Geraldton to Albany.

Control

For small populations, the entire plant can be dug out prior to seed production. It is important to ensure no roots are left in contact with the soil. Wick-wiping using 5 g of metsulfuron-methyl (600 g/kg) or 500 mL of glyphosate (450 g/L) plus 2.5 mL wetting agent per litre of water is useful in sensitive areas. Apply before flowering. Selective hand spraying with 0.4 g chlorsulfuron (750 g/kg) plus 25 mL wetting agent in 10 L of water is effective when the plants are actively growing. Digging the plant into the soil (tilling either by hand or mechanically) in summer when the soil is dry is effective, provided wind erosion is not an issue and follow up seedling treatment occurs.

Dune Onion Weed

**Trachyandra divaricata*

Family: Asphodelaceae




Note

Dune Onion Weed is toxic to horses, and looks similar to Onion Weed (*Asphodelus fistulosus*), which has hollow cylindrical leaves up to 40 cm and also lacks the oniony smell.



Golden Crownbeard, Dongara Daisy





Golden Crownbeard, Dongara Daisy

* *Verbesina encelioides*

Family: Asteraceae

Description

Golden Crownbeard is an erect, annual herb to 1.5 m high. A well-branched silvery greyish-green plant, it has mostly alternate, nearly triangular leaves that range from 4 to 10 cm long. The leaves have three veins, coarsely toothed margins and an unpleasant odour. The underside of the leaves and its stalks are densely hairy. It bears yellow-orange flower heads, similar to small sunflowers, on long stalks mainly in summer and autumn. The hemispherical flower heads are up to 5 cm across and have three-toothed rays. The oblong fruit is dark brown.

Distribution


There are limited populations throughout WA, although it appears to be spreading rapidly. Preventing spread from known populations is very important. Most populations occur between Northampton and just south of Dongara, with other infestations in the Wheatbelt, and it has recently spread around Perth. Two populations are present around Broome and there are three isolated populations in the Goldfields. It is highly adaptable and can cope with a range of soil types.

Control

This plant is a prolific seeder and flowers and buds should be removed and bagged before seed set. Tordon® or other products with the active ingredient aminopyralid are effective on an eight-weekly basis with no impact on native grasses, while 140 mL glyphosate mixed with 0.1 gm Metsulfuron-Methyl e 2.5 mL wetting agent can be effective.

Note

This plant is poisonous to livestock and is common on disturbed ground, sometimes colouring hectares of roadside solid yellow. Golden Crownbeard is being investigated for potential commercial medicinal value.



Conclusion

The coastal environment provides many benefits that contribute to our community's wellbeing. Coastal dunes are our best protection against storms, waves and coastal erosion. Coastal plants play an important role in maintaining this environment. Above ground, plants act as windbreaks to slow the damaging wind; their foliage also catches and stores sand for feeding back into the beach system, while providing habitat for birds, reptiles and insects. Below the surface, plant roots stabilise the sand to further prevent dune erosion. Coastal plants are extremely sensitive to the impacts caused by pedestrians and off-road vehicles. The NAR's hot and dry climate exacerbates these human impacts. Many communities around the world who have failed to protect their coastal environment now spend considerable public funds attempting to prevent coastal erosion with substantial infrastructure works such as sea walls, groynes and breakwaters.

It is therefore the responsibility of the entire community to assist in protecting our precious coastal environment. You can help our coast by:

- Remaining on designated tracks.
- Playing on the beach and not in the dunes.
- Assisting with beach clean-up and tree planting days, or becoming involved in a coastal community group.
- Avoiding driving in the dunes or on the beach; enjoy a walk instead.

We hope that this pocket guide has increased your appreciation of the coastal environment's diversity, and helped you to gain a better understanding of the indigenous coastal plant species that have adapted to survive and protect our important coastline.



Glossary

Achene: A small, dry fruit produced by many species of flowering plants

Aril: a fleshy, usually bright exterior covering or appendage of some seeds that develops after fertilisation as an outgrowth from the ovule stalk

Awn: A stiff bristle

Axil: Angled space at the meeting point of stem and leaf

Berm: A long-shore mound on the upper beach formed by the deposition of material, often by wave action creating a temporary dune

Bipinnate: A leaf having the leaflets (pinnae) on each side of a common axis

Blowout: Sandy depressions in a sand dune ecosystem caused by the removal of sediments by wind

Bracts: A small specialised leaf associated with a flower or inflorescence or fruit

Branchlet: A small branch or division of a branch

Burr: A rough, prickly case surrounding seeds

Calyx: The sepals of a flower which lie outside or under the petals

Compound: A leaf or flower composed of many leaflets or flowers on a common stem

Cyathia: An inflorescence comprising fused bracts enclosing several greatly reduced male flowers and a single female flower

Decumbent: Reclining on the ground with ascending apexes or extremities

Fissured: Featuring many long cracks or splits.

Fruitlet: An immature or small fruit



Glossary

Harden off: A horticultural term referring to the process of gradually acclimatising plants to full sunlight following propagation under shade cloth

Hemi-parasitic: A plant that grows by attachment to another plant to obtain some of its nutrition

Hemispherical: Partially spherical

Inflorescence: A collective term for a cluster of flowers

Lanceolate: A leaf shaped like a lance head

Leaf sheaths: The basal part of a grass leaf that encircles the stem

Leaflets: Separate part of a compound (divided) leaf

Ligule: A thin outgrowth at the junction of leaf and leafstalk of many grasses

Lobed: A leaf with deeply indented margins

Local Provenance: Seeds, cuttings or plants sourced from locations as close (in terms of geography and habitat) as possible to the location where they are to be used for revegetation purposes.

NAR: Northern Agricultural Region

Panicle: a loosely branching cluster of flowers

Pedicel: A stem that attaches a single flower to an inflorescence

Phyllodes: A winged leaf stalk which functions as a leaf

Prick out: A horticultural term referring to the transfer of recently germinated seedlings to individual containers

Raceme: An inflorescence having stalked flowers arranged singly along an elongated unbranched axis, with the flowers at the bottom opening first

Recurved: Curved backward or inward

Rhizome: Underground stem



Glossary

Rhizomatous: Having a rhizome

Scarify: To make scratches or small cuts in the outer seed covering

Silicula: Fruit (pod) of the family Brassicaceae that is less than three times as long as it is wide

Sepal: A usually separate, green part that surrounds the flower bud and extends from the base of a flower after it has opened

Solarisation: Exposure to the sun

Spikelets: A group of small flowers on sedges and grasses

Staminodes: A sterile stamen having no fertile parts

Stamen: The pollen producing male part of a flower

Stipule: A small leaf-like appendage to a leaf, typically growing in pairs at the base of the leaf stalk

Stolons: A creeping horizontal plant stem or runner that takes root at points along its length to form new plants

Succulent: Juicy, thick and fleshy – usually describing leaves or stems

Surfactant: A substance which reduces the surface tension of a liquid


Swale: A sheltered, low lying area usually in the hind dunes

Taxa: The taxonomic group of an organism, such as the family, genus, or species of plants

Tilling: Cultivating/turning over of the soil

Weed: An introduced plant that has naturalised and invaded an area and grown where it is not wanted

Whorls: More than three plant parts (for example leaves or stems) arranged at the same level on a stem



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NACC Project Staff: Sarah Samulkiewicz-Taylor, Mic Payne, Felicity Beswick, Philippa Schmucker, Hamish Longbottom and Vanessa McGuinness.

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