

RIVER Group's

“Common Saltmarsh Plants of the Townsville Coastal Plains”

INTRODUCTION

This field guide contains enough information to identify common saltmarsh plants without a hand lens. This guide does not include all plants likely to be seen in saltmarshes. The term ‘saltmarsh’ describes both a habitat type and the plants found there, similar to mangroves.

The flat, low-lying saltmarshes are formed by the even deposition of silts and fine sediments from streams and estuaries as they near the sea. Saltmarshes are found in sheltered estuaries between the landward side of mangroves (marine system) and salt-free land. They have an irregular covering of saltwater caused by higher than normal tides.

Saltmarshes may contain salt tolerant vascular plants (halophytes), as well as mosses, algae and bacteria. Plants within this system are typically found in zones differentiated by any number of factors including depth and length of tide, soil oxygen availability, salt levels and nutrient levels.

A saltmarsh species may show considerable variation due to microhabitat and seasonal factors, with shape, height and colour being the main variables.














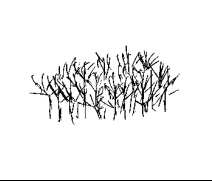


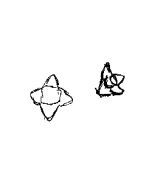


Saltmarshes, along with their associated mangroves play an important role as they increase the range of habitats found in this ecosystem. The high level of organic matter produced from these relatively few species of plants provides a rich supply of nutrients supporting a great diversity of marine life. Saltmarshes also have value in stabilising and reclaiming land.

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Succulent plants – leaves apparently absent				Succulent plants with leaves			
Shrubby Samphire <i>Halosarcia halecnemoides</i>			Thinnest of the <i>Halosarcia</i> found in this area. More upright & shrubby than others. Colour red – green.	Sea purslane <i>Sesuvium portulacastrum</i>			Spreading ground cover. Distinctive pink flowers. Leaves opposite & flat – 30mm.
<i>Halosarcia indica</i>			Forms dense mats along ground. Creeping, stretched habit.	Ruby saltbush <i>Enchylaena tomentosa</i>			Small open shrub – 50mm tall. Flowers & fruits found on the stem at base of leaf. Fruit fleshy green to red.
SALTMARSH QUICK REFERENCE GUIDE				Jelly bean plant <i>Suaeda arbusculoides</i>			Small upright growth. Leaf has a D shaped cross section - flat on one side rounded on other. Fruits at base of leaf on stem.
				<i>Tecticornia australasica</i>			Branches long & thin with swollen clumped ends. Does not attain a red colour. Not as common as <i>Halosarcia sp.</i>
Non-succulent plants with leaves				Grass like			
<i>Limonium solandri</i>			Large leaf arising from base. Plant rosette shaped. Pale pink flowers on long stems.	Salt couch <i>Sporobolus virginicus</i>			Grass – thick ground cover – looks like couch grass.
<i>Dissocarpus biflorus</i>			Small erect herb with grey leaf. Lobed/horned fruit. Tiny red flower.	Rusty sedge <i>Fimbristylis sp.</i>			Clumping grass like growth. Wiry tufting habit. Thin leaves are coppery brown in dry season. Leaves originating from base of plant.

IDENTIFICATION KEY

- a) Grass like.....go to **b**
Not so.....go to **c**
- b) Thick dense mats.....*Sporobolus virginicus* (page 4)
Growing in tufts.....*Fimbristylis spp.* (page 5)
- c) Succulent leaves.....go to **e**
Not so.....go to **d**
- d) Flat daisy like leaves.....*Limonium solandri* (page 13)
Pale grey leaves, hairy stems....*Dissocarpus biflorus* (page 14)
- e) Barrel shape, segmented stems.....got to **f**
Not so.....go to **i**
- f) Thick swollen ends.....*Tecticornia australasica* (page 10)
Not so.....go to **g**
- g) Relatively small stems, upright plant, old stems dry and woody
.....*Halosarcia halecnemoides* (page 6)
Not so.....go to **h**
- h) Straggling ground cover plant.....*Halosarcia indica* (page 7)
- i) Fleshy leaves in pairs, base of leaves wrap around stem and touch
.....*Sesuvium portulacastrum* (page 12)
Not so.....go to **j**
- j) Fleshy leaves flattened on one side (D-shaped), no stripe on stem
.....*Suaeda arbusculoides* (page 8)
Fleshy leaves flattened on one side (D-shaped), new stems have stripes
.....*Suaeda australis* (page 9)
Neither of the above.....go to **k**
- k) Leaves usually rounded and alternate, red fruit.....*Enchylaena tomentosa* (page 11)

Sporobolus virginicus

Salt Couch
(Poaceae)

Overall Appearance

A perennial ground covering grass. The most abundant plant in saltmarsh areas around Townsville.

Usually appears as thick, dense mats and/or tufts in the intertidal zone and often spreads in large areas as a monoculture. Overall colour is grey-green to yellow and is typically greener in the summer months.

Botanical Features

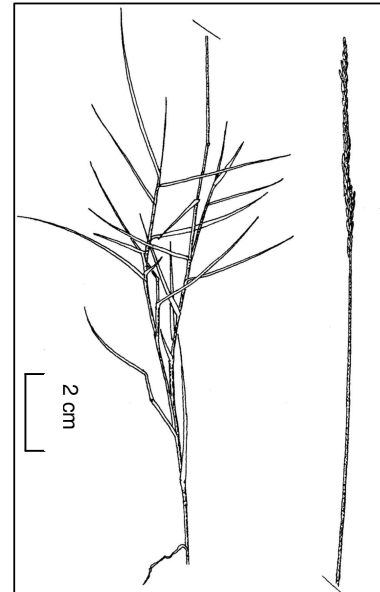
Leaves are opposite and long (3-12 cm) with a fine covering of hair. Leaf sheaths are usually overlapping. Flowers are narrow and spike-like on a stalk 2 - 10 cm long. Flowering period is from December to April.

Other Characteristics

The presence of *S. virginicus* usually defines a saltmarsh zone. It is most easily recognised from a distance as spreading ground cover.

Location and Distribution

Usually found close to watercourses however tends to avoid hypersaline areas. It grows on mudflats, coastal sand dunes and sandy shores just above the high tide mark. Found all over Australia.



Fimbristylis spp.

Rusty Sedge
(Cyperaceae)

Overall Appearance

This is a perennial grass-like plant with leaves originating from a single base. It often appears as a tuft amongst the saltmarsh. There are small seed head structures at the end of wiry stems which have a distinctive coppery-brown colour.

Botanical Features

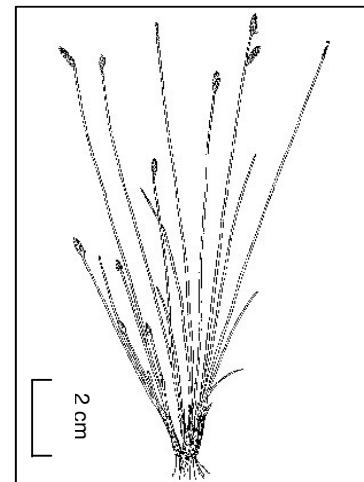
As this plant is a sedge its flowers are borne in an inflorescence. These appear as 'seed heads' at the ends of wiry stems and are rounded in the middle and pointed at the end. Seeds formed are around 1mm in diameter, shiny, smooth and pale to dark brown.

Other Characteristics

Their most obvious distinguishing factor in the field is their coppery brown colour and wiry tufting habit. There are 85 species of *Fimbristylis* in Australia, 25 of which are endemic. *Fimbristylis ferruginea* is one of the more common species for the Townsville coastal plains, however because it is extremely difficult to identify particular species, just record the name *Fimbristylis sp.* Make good field notes and collect a good sample for identification via comparison with herbarium specimens.

Location and Distribution

This species grows in brackish and freshwater swamps, and on saline flats subject to seasonal waterlogging, in areas north from the Sydney region in NSW, QLD, NT, SA, and WA. It is a pantropical species.



Halosarcia halecnemoides

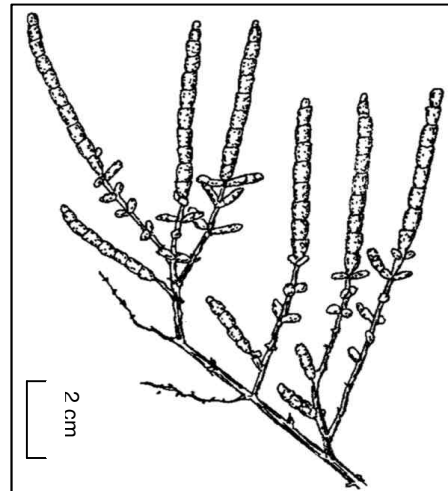
Shrubby Samphire
(Chenopodiaceae)

Overall appearance

The plant is a perennial succulent, erect shrub to 300 mm. It has fleshy, segmented branches arising from a woody stem. Segments are narrowly barrel shaped. In the dry season the segments are deep-red in colour and small (around 2 mm). Generally, during the wet season, the segments swell to 4 – 6 mm in size and become green in colour. The plant has multibranched, woody stems with an obvious “twiggy” appearance

Botanical Features

During November to March, this species bears white to yellow flowers that are 2 – 3 mm in size. The flowers are borne between the last couple of segments on the branches.



Other Characteristics

This species differs from other *Halosarcia* species as it is more upright and shrubby with narrower segments. It can form quite dense, single species communities. There are five recognised subspecies of this plant.

Location and Distribution

Found on flat, highly saline areas, closer to the landward edge of the tidal zone. Also found on inland saltpans and salt lakes. This species is widespread in Australia (except Tasmania).

Halosarcia indica

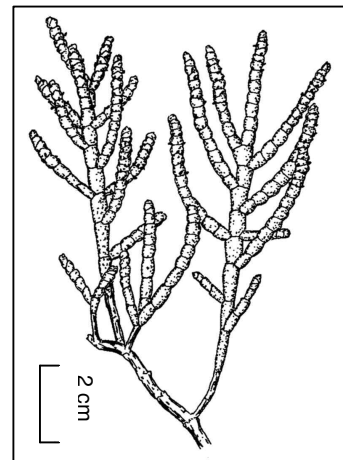
Halosarcia
(Chenopodiaceae)

Overall appearance

This species is a perennial, succulent, decumbent shrub to 200mm and usually appears as a long, creeping ground cover. During the dry season the segments are smaller in size and red in colour. During the wet season, the segments swell to their full size and are green in colour.

Botanical Features

Segments are barrel shaped and are wider than those found on *Halosarcia halecnemoides*. The segments are opposite each other, 2 - 6 mm wide, and may be up to 10mm long. During September to April, this species bears small whitish flowers which are 2 – 5mm in size. These are borne on terminal spikes that are 20 to 50 mm long. When fruiting, the segment from which the spike originates swells, producing bulging fruit.



Other Characteristics

This species forms dense mats along the ground. Stems often root at the nodes. There are two commonly encountered sub-species of this plant which are difficult to distinguish. The main difference between this species and *H. halecnemoides* is that this plant is a ground cover whereas *H. halecnemoides* is more upright and shrubby.

Location and Distribution

Found on flat, highly saline areas. Occurs closer to the seaward edge of the tidal zone throughout coastal Northern Australia

Suaeda arbusculoides

Jelly-bean plant or Samphire bush
(Chenopodiaceae)

Overall Appearance

A low growing perennial herb to 500 mm. A distinctive plant with miniature 'jelly-bean' shaped leaves. Usually has a zigzag stem.

Botanical Features

Leaves are thick, succulent and roughly semi-circular in cross section, 10 - 20 mm in length. Green flowers are borne in the leaf axils. Fruit are rounded to 3.5 mm. Seeds are small (2 - 4 mm) with a transparent seed coat.

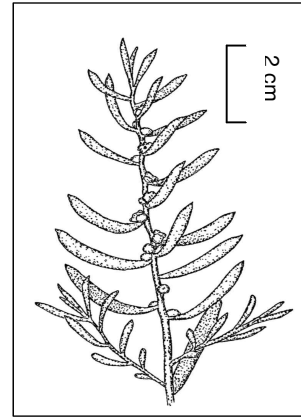
Other Characteristics

Major difference from *S. australis* is that it has smaller, fatter leaves and no stripe on the stem. Unlike *S. australis*, it does not form dense bushes but usually occurs as a single plant. Stores salt in the leaves which wither and drop off as the salt concentration increases.

Location and Distribution

Found on most tropical coastline of Australia, from Western Australia around to Queensland. Occurs adjacent to mangroves, sometimes found penetrating several metres into a dense mangrove stand.

There are five species of *Suaeda* in Australia with only two, *S. australis* and *S. arbusculoides* being endemic. The other three, *S. linifolia*, *S. aegyptiaca* and *S. baccifera* are introduced.



Suaeda australis

Saltbush or Samphire bush or Seablite
(Chenopodiaceae)

Overall Appearance

A low growing perennial herb 500 - 800 mm high with small succulent leaves. Young leaves are soft and green, particularly when found in the shade and are roughly semi-circular in cross section.

Botanical Features

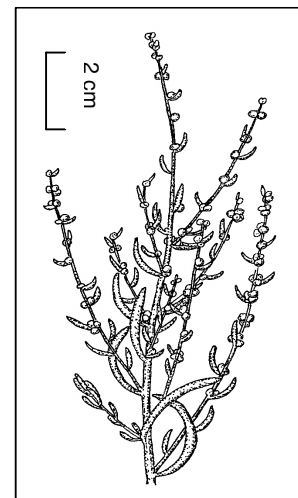
Succulent leaves up to 4 cm long and up to 3 mm in diameter. Stems become woody with age. Flowers are produced in terminal sprays. Small gritty-looking fruit with seeds that are 1mm diameter with glossy, reddish-brown seed coat. Flowers and fruit can be seen from August to April.

Other Characteristics

New, fleshy stems have red and green longitudinal stripes. When it isn't flowering, it looks very similar to *Enchylaena tomentosa* but can be distinguished by a bushier appearance. Leaves can be eaten fresh or used as a cooked vegetable. Stores salt in the leaves and gradually changes colour from green, to yellow, to orange to red as the salt concentration increases.

Location and Distribution

Grows on coastal or estuarine shorelines and is often found behind mangroves. Found all over Australia. There are five species of *Suaeda* in Australia with only two, *S. australis* and *S. arbusculoides* being endemic. The other three, *S. linifolia*, *S. aegyptiaca* and *S. baccifera* are introduced.



Tecticornia australasica

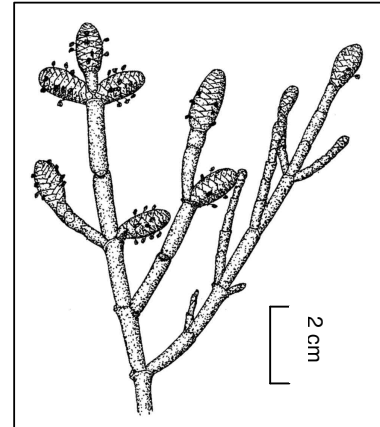
(Chenopodiaceae)

Overall Appearance

Although not one of the more common saltmarsh plants, it is easily recognised by the thick, swollen ends on thinner stems and branches.

Botanical Features

This plant is an annual succulent to 400 mm. Branches contain segments that are long and thin but become swollen and tightly clumped at the end. Small white/yellow flowers are borne in the leaf axils of the swollen segments. Seeds are small (1.5 mm) with a dark brown seed coat. Flowering occurs between June and December and the new seeds usually germinate from March to April.



Other Characteristics

Usually flowers after heavy rain. Being an annual, they die before attaining the deeper red colour of most of the other succulents and retain a turquoise colour for their whole life.

Location and Distribution

Found predominantly on the tropical coasts of Queensland and Northern Territory. It is generally intolerant of high saline areas and prefers seasonal inundation with freshwater.

Enchylaena tomentosa

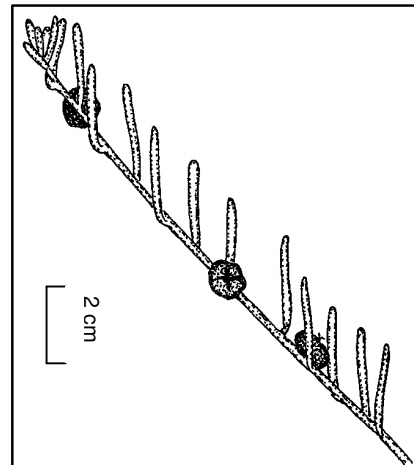
Ruby Saltbush
(Chenopodiaceae)

Overall Appearance

A low growing perennial succulent. Very similar in appearance to *Suaeda australis* but has a more open, straggly look. When it is fruiting it is very distinctive with its small, edible fruits that are deep red in colour.

Botanical Features

Small, open shrub to 500 mm. Leaves are usually round in cross section, 7 – 20 mm in length, and are arranged alternately up the stem. Flowers are small and inconspicuous and found in the leaf axils. Green fleshy fruit, 5 – 8 mm diameter ripening to a distinctive deep red. *E. tomentosa* can set flower or fruit most of the year but typically from spring to summer.



Other Characteristics

As well as the fruit being edible the leaves can also be eaten as a green vegetable. This plant can be distinguished from *S. australis* as it does not have the longitudinal stripes on the new, fleshy stems.

Location and Distribution

Grows on most types of soils from sandy to clay. Not only restricted to saltmarshes but can be found in dry, arid areas as well. Widespread distribution across mainland Australia. Occurs mainly in slightly saline soil.

There are two species of *Enchylaena* endemic to Australia, *E. lanata* and *E. tomentosa*. *E. tomentosa* also has two varieties, *E. tomentosa* var. *tomentosa* and *E. tomentosa* var. *glabra*.

Sesuvium portulacastrum

Sea Purslane
(Aizoaceae)

Overall appearance

This plant has a trailing habit with distinctive red stems up to 3m long. It is most notable for its pink to purple star like flowers.

Botanical Features

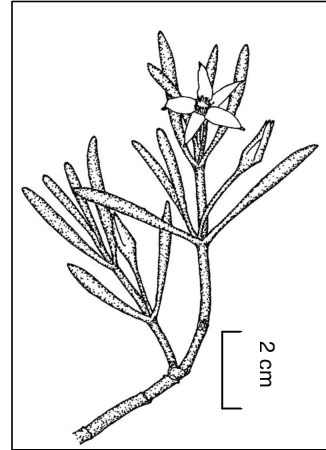
This plant is a perennial succulent ground cover. Leaves are flattened on one side, 30 – 70 mm long and 8 – 12 mm wide. The base of each leaf wraps around the stem. Flowers are small, 8 – 15 mm across and produced singly at the leaf axils. Flowering can occur throughout the year, but typically from February to March. Fruit is an ovoid capsule which splits along a centre line to reveal numerous seeds. Plant roots are produced at the nodes.

Other Characteristics

Used traditionally as a green vegetable. Leaves were repeatedly washed and cooked to remove salt and unpleasant aftertaste.

Location and distribution

Found on landward margins of dunes usually above the high tide mark and mudflats. Also found in association with *Sporobolus virginicus*. *S. portulacastrum* is often found on the tropical to sub-tropical coastlines of Queensland, New South Wales, Western Australia and the Northern Territory. It is also distributed throughout most of the Pacific coastlines.



Limonium solandri

Native Sea Lavender
(Plumbaginaceae)

Overall appearance

Very distinct small clumping plant with leaves arising from a single base. The leaves are thin closest to the ground and widen further from the base similar to an elongated tear drop. May have a "lettuce like" appearance.

Botanical Features

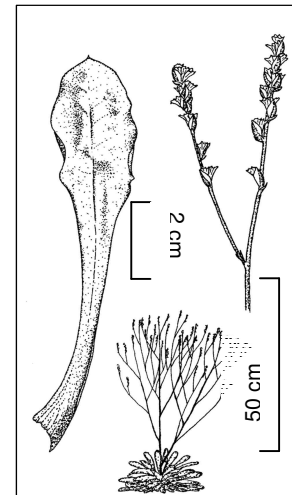
Perennial herb up to 400 mm high. Large flowering stalk up to 3 times the height of the plant with many pale pink flowers on it.

Other Characteristics

Very distinctive plant in the saltmarsh area.

Location and distribution

Commonly found associated with *Sporobolus virginicus* and found along the east coast of Australia including Tasmania.



Dissocarpus biflorus

(Chenopodiaceae)

Overall Appearance

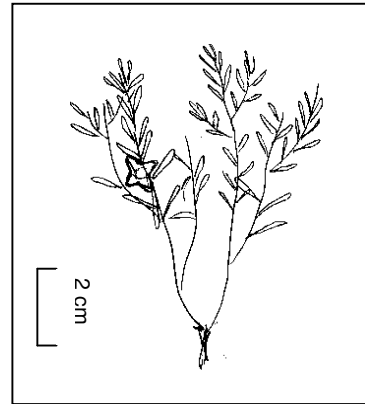
Erect hairy annual or short lived perennial shrub to 400 mm with opposite, semi-circular shaped pale-green leaves.

Botanical Features

Leaves are hairy and up to 10 mm long. Flowers appear in clusters of 2 to 8 in the leaf axil as small woolly balls. Fruit is hairy and has characteristic 'horn like' protrusions arising from the main body.

Other Characteristics

Despite being in the family Chenopodiaceae, it is not obviously succulent in nature. It is most recognisable from its hairy stems.



Location and Distribution

Widespread in drier areas and found across coastal Australia. There are three varieties of *D. biflorus* namely var. *biflorus*, var. *cephalocarpus* and var. *villosus*.

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GLOSSARY

ANNUAL - a plant that completes its life cycle within a single vegetative period. This is beneficial when the plant needs to avoid particular seasons

CAPSULE - a dry enclosing cover surrounding the seeds

DECUMBENT - a shoot or branch which is prostrate for most of its length but with the tip rising upwards

ENDEMIC - restricted to the area described

INFLORESCENCE - a cluster of flowers arising from a similar origin on a stem

LEAF AXIL - the part of a plant where the leaf and the stem join

MONOCULTURE - large area covered by a single species

NODE - the part of a stem from which a new shoot (branches, leaves, flowers etc) arises

OVOID - resembling an oval or elliptical shape

PANTROPICAL - widely spread throughout the tropics

PERENNIAL - a plant which persists for three or more years

PROSTRATE - trailing along the ground

SEGMENT - referring to the succulent plants, an individual part of the branch delineated by nodes at either end

SESSILE – attached by the base, or without any distinct projecting support

SPIKE – an inflorescence with sessile flowers along an unbranched axis

SUCCULENT – a fleshy or juicy plant

TERMINAL - appearing at the end of a shoot or branch