Plants of the Esperance Beaches and Dunes

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Beaches and dunes are very challenging places for plants to live. They have to grow in very sandy soil that doesn't contain much of the nutrients that they need to survive and grow (that's why our beaches are so white). When it rains, the rainfall soaks through the sand quickly, so that water that is needed by the plants is in nearly always in short supply. In addition, they are exposed to strong salty winds blowing in from the ocean, which blast the plants with sand. Both the beach and the dunes can change rapidly, as wind blows sand around and storms cause erosion of the beach. As a result plants can be rapidly buried by blowing sand.

The area closest to the beach is the most difficult of all, and in order to grow there plants have to be really hardy. The dune areas behind the beach are more stable, allowing some nutrients to build up in the sand, and the dunes provide some protection from the salty winds. Life here is not quite as difficult as on the beach, so a greater variety of plants are able to grow.

Plants of the Beach

Most of the plants that grow on the beach have tough leaves that help them to retain the water that they are able to extract from the soil and store in their stems. They cope with shifting sand by using underground stems to spread quickly if start to become smothered. Hairy Spinifex produces its seeds in a ball-shaped bundle which then blows away along the beach like a tumbleweed.

Species with Cultural Significance

Nyungar Name: Kerbein
Common Name: Coastal Sword Sedge
Scientific Name: *Lepidosperma gladiatum*
Uses: Leaves pulled from the center of the plant have a white fleshy end that can be eaten all year round.
The leaves were used to create eel traps, fish traps, dilly bags, mats and weaving baskets.
(Pictured in figure 1.2 below)

Nyungar Name: Bain
Common Name: Coastal Pigface
Scientific Name: *Carpobrotus virescens*
Uses: Food source for Wudjari People - the white to light pink fruit is eaten in the Djilba, Kambarang and Birak (Sep to Jan) seasons.
Medical use of the leaf is for insect bites and sun burn.
(Pictured in figure 1.4 below)

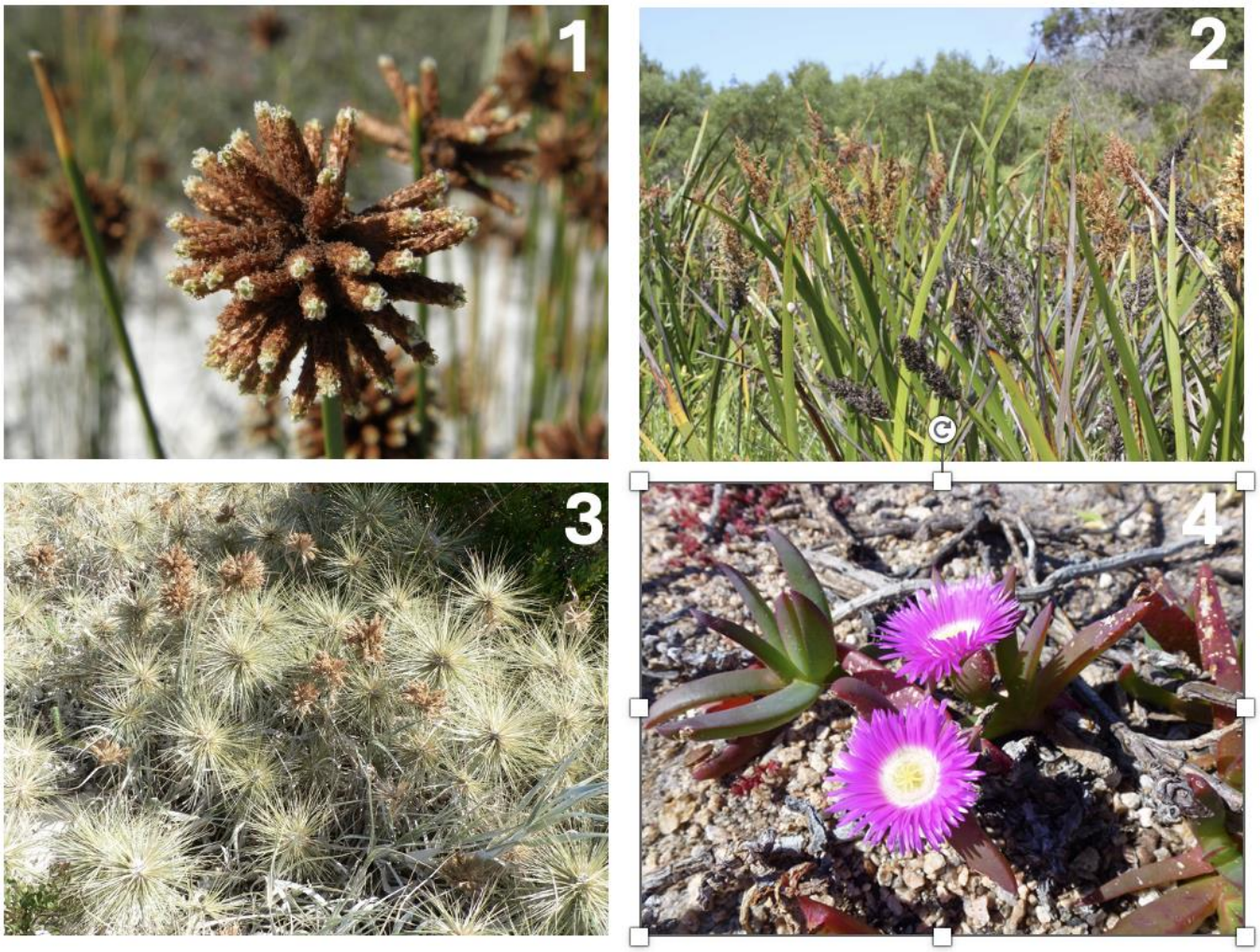

Figure 1. Some tough plants of the beachfront. 1—Knotted Club Rush.*Ficinia nodosa.* 2—Coastal Sword Sedge *Lepidosperma gladiatum*. 3—Hairy Spinifex *Spinifex hirsutus.* 4—Coastal Pigface *Carpobrotus virescens* -

In places where the beach is more sheltered, some large shrubs or small trees are able to grow almost to the edge of the beach sands. At Rossiter Bay Yate trees *Eucalyptus cornuta* form a canopy over the picnic area at the edge of the beach. This tree was the first eucalypt species from Western Australia to receive a European scientific name when it was found by French scientists on Observatory Island in 1872. The scientific name *cornuta* means 'having horns' because the buds are shaped like horns.

The Nitre Buch *Nitraria billardierei* is a dense shrub that can be found at Wylie Bay. Its small white flowers are followed by large red fruit that look and taste something like grapes and contain a large woody seed. The fruit are eaten by emus who later deposit the seed in another location. Seed that has passed through the digestive tract of an emu germinates readily. Without this process, seed rarely germinates.

Melaleuca globifera is a large shrub that produces ball-shaped yellow flowers and hard round fruit. It grows almost to the beach at Hellfire Bay where it can be seen around the picnic area.

Cultural Significance

Nyungar Name: Kep Ngaan
Common Name: Salty Bush Grape
Scientific Name: *Nitraria billardieri*
Uses: Food source for Nyungar people. The maroon-coloured salty grapes are a sweet treat (Pictured in figure 2.3 below).

Figure 2. Some large plants that grow next to the beach. 1—Yate *Eucalyptus cornuta.* 2.—flower of the Nitre Bush *Nitraria billardierei.* 3—*Nitraria billardieri* fruit – 4—*Melaleuca globifera.*

Plants of the dunes

Away from the beach, sand dunes are formed as beach sand is gradually piled up by strong winds. The dunes provide some protection from the salt winds so that more plants are able to grow. These range from small plants to medium and large shrubs, many of which produce attractive flowers.

The daisy family includes a number of hardy species that are able to survive in difficult conditions. The family is well represented in the dunes, with three species depicted in figure 3 below.

The Thick-leaved Fan-flower *Scaevola crassifolia* occurs around much of the WA coast. It is a dense spreading bush with large thick leaves with jagged edges. Its flowers have 5 petals arranged like the fingers on a hand. The name *Scaevola* is taken from the name of a Roman hero who burnt his hand in a fire.

The Coastal Banjine *Pimelea ferruginea* is a small shrub that grows on sand dunes and rocky headlands. When it flowers in spring each plant becomes covered in heads of pink flowers. Where many plants grow together, they blanket the ground in a carpet of pink.

Figure 3: Small plants of the sand dunes. 1—Pleated Podolepis *Podolepis rugata.* 2—Cushion Bush *Leucophyta brownii.* 3—Coastal Groundsel *Senecio pinnatifolius.* 4—Thick-leaved Fan-Flower *Scaevola crassifolia.* 5—*Lasiopetalum discolor.* 6—Coastal Banjine *Pimelea ferruginea.*

Acacias

Many larger plants also occur on our coastal dunes. There are over 1,000 species of Acacia in Australia, the most of any genus. They occur in every environment from rainforest margins to the central deserts, including on sand dunes. *Acacia saligna* and *Acacia cyclops* are large fast-growing shrubs that are adept at colonising disturbed areas especially following fire. *Acacia cyclops* takes its name from the one-eyed giants of Greek mythology—its seeds are surrounded by fleshy red tissue (the aril) that makes each seed look like a large red eye, and giving it the common name of Red-eyed Wattle. The colour red is particularly attractive to birds which eat the aril and then disperse the seed in their droppings. The Rigid Wattle *Acacia cochlearis* is a smaller shrub with rigid leaves tipped with sharp spines. This species has adopted a different strategy for the dispersal of its seeds. Each seed has a yellow aril at one end where it was previously connected to the pod. When the seeds fall from the bush they are collected by ants who take them to their nests where the aril is fed to the growing ant larvae. The seeds either remain buried in the nest or are discarded outside where they can germinate and grow.

Cultural Significance

Nyungar Name: Bilbarak
Common Name: Red-Eyed Wattle
Scientific Name: *Acacia cyclops*
Uses: Food source for Wudjari People, the black seeds were ground to make damper.
The wattle seed can be used in a wide range of food dishes – savoury and sweet. It is aromatic and has a delicious flavour.
(Pictured in figure 4.1 and 4.2 below)

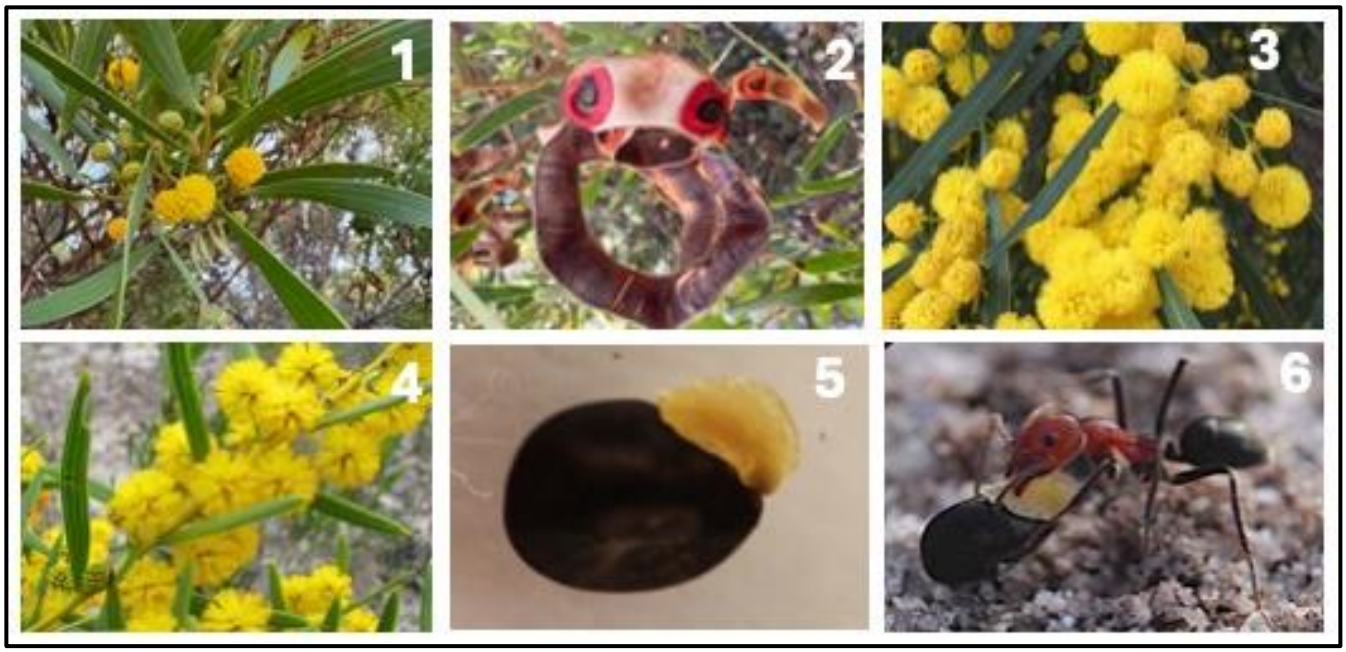

Figure 4: *Acacias* of the sand dunes. 1—Red-eyed Wattle (or Coast Wattle) *Âcacia cyclops* flowers. 2—*Acacia cyclops* seed pod showing the red arils around the seeds. 3—Orange Wattle *Acacia saligna.* 4—Rigid Wattle *Acacia cochlearis.* 5—seed of *Acacia cochlearis* with yellow aril. 6—ant collecting *Acacia cochlearis* seed.

Trees and large shrubs
In some places within the sand dunes nutrients have accumulated from the decomposition of vegetation over many years, which enables the sandy soil to retain more moisture. These conditions make it possible for larger plants to grow. Two species of eucalypt are commonly found in the dunes—the Coastal Moort *Eucalyptus utilis* and the Ridge-fruited Mallee *Eucalyptus angulosa.* Both have flowers that produce nectar which is an important food source for birds such as honeyeaters.

The Common Boobialla or Blueberry Tree *Myoporum insulare* has small white flowers which in turn produce numerous small purple fruit. These are eaten by birds which then distribute the seeds in their droppings.

The Showy Banksia *Banksia speciosa* is the common Banksia that can be seen throughout the coastal areas around Esperance. Like the eucalypts, its flowers provide a source of nectar for both honeyeaters and honey possums.

One of the most common shrubs of the coastal dunes is *Melaleuca pentagona.* Where it grows close to the ocean and exposed to strong winds it is a low shrub that forms dense thickets. When it flowers in late spring it covers the area where it grows in a sea of pink flowers. In more sheltered areas it can grow into a shrub up to three metres in height.

The Rottnest Teatree or Moonah *Melaleuca lanceolata* occurs in all states despite its common name. It is a small tree up to five metres in height that becomes covered in spikes of white flowers in summer.

The Wedding Bush *Ricinocarpos megalocarpus* is spectacular shrub when covered in white flowers during spring. It is particularly prominent at Hellfire Bay. It is also grown as a garden plant.

Broom Ballart *Exocarpos sparteus* is a weeping shrub that has minute flowers just 1mm across, and small red cherry-like edible fruit. It is a hemi-parasite, tapping into the roots of other plants to extract nutrients. It is a member of the same family as both the Quandong and Sandalwood.

Cultural Significance

Nyungar Name: Tulugyee
Common Name: Snowy Banksia
Scientific Name: *Banksia speciosa*
Uses: Food source for Nyungar People the nectar is used for a sweet treat
Fire starter, brown fluff used for lighting the fire
(Pictured in figure 5.5 below)

Nyungar Name: Djuk / Cheerup
Common Name: Native Cherry
Scientific Name: *Exocarpus sparteus*
Uses: Food Source for Wudjari People
(Pictured in figure 5.9 below)

Figure 5: Trees and large shrubs of the dunes. 1—Coastal Moort *Eucalyptus utilis.* 2—Ridge-fruited Mallee *Eucalyptus angulosa.* 3.—Flowers of Common Boobialla or Blueberry Tree *Myoporum insulare.* 4—Fruit of *Myoporum insulare.* 5—Showy Banksia *Banksia speciosa.* 6.—*Melaleuca pentagona.* 7—Rottnest Teatree or Moonah *Melaleuca lanceolata.* 8—Wedding Bush *Ricinocarpos megalocarpus.* 9—Broom Ballart *Exocarpos sparteus.*

Medium sized shrubs
Despite the challenging conditions, the dunes are home to a wide diversity of shrubs.

Cockies Tongues *Templetonia retusa* is a member of the pea family that has large red unusually shaped flowers.

Kangaroo Apple *Solanum symonii* is a member of the tomato family that has large purple flowers. It is one of the first plants to appear after a fire, but is short-lived and becomes uncommon as other shrubs grow and become dominant.

Olax phyllanthi is an erect shrub that has very small and inconspicuous white flowers. The striking feature of this plant is its unusual leaves which are large and grey-green and arranged in an overlapping pattern on each side of the stems.

Coast Beard Heath *Leucopogon parviflorus* is another shrub with small white flowers. These are arranged in clusters, with the petals all being densely woolly. The scientific name '*Leucopogon*' is derived from the Greek words meaning 'white' and 'beard' in reference to the appearance of the flowers.

Common Clematis *Clematis pubescens* is a twining shrub that climbs over other plants for support. It becomes covered in white flowers during winter, after which its fluffy seeds remain on the plant for some time until they are blown away in a strong wind.

Nematolepis phebalioides is an upright shrub to 1.5m with unusual tubular red and yellow flowers. It is a member of the same family as *Boronia.*

Basket Bush *Spyridium globulosum* is a one of the most common shrubs in the dunes, but can escape notice as its flowers are small, cream-coloured and unspectacular. The flowers are in clusters surrounded by small bracts. The name '*Spyridium*' means 'small basket' referring to this arrangement being likened to a miniature basket of flowers.

Yellow Tailflower *Anthocercis littoria* is an uncommon straggling shrub of the dunes. It has yellow flowers with a long narrow petals with the central area striped with maroon.

Andersonia parvifolia is a small shrub with pointed leaves that produces bundles of pink tubular flowers. It is found in a wide variety of habitats including coastal sands such as occur in Cape Le Grand National Park at Rossiter Bay.

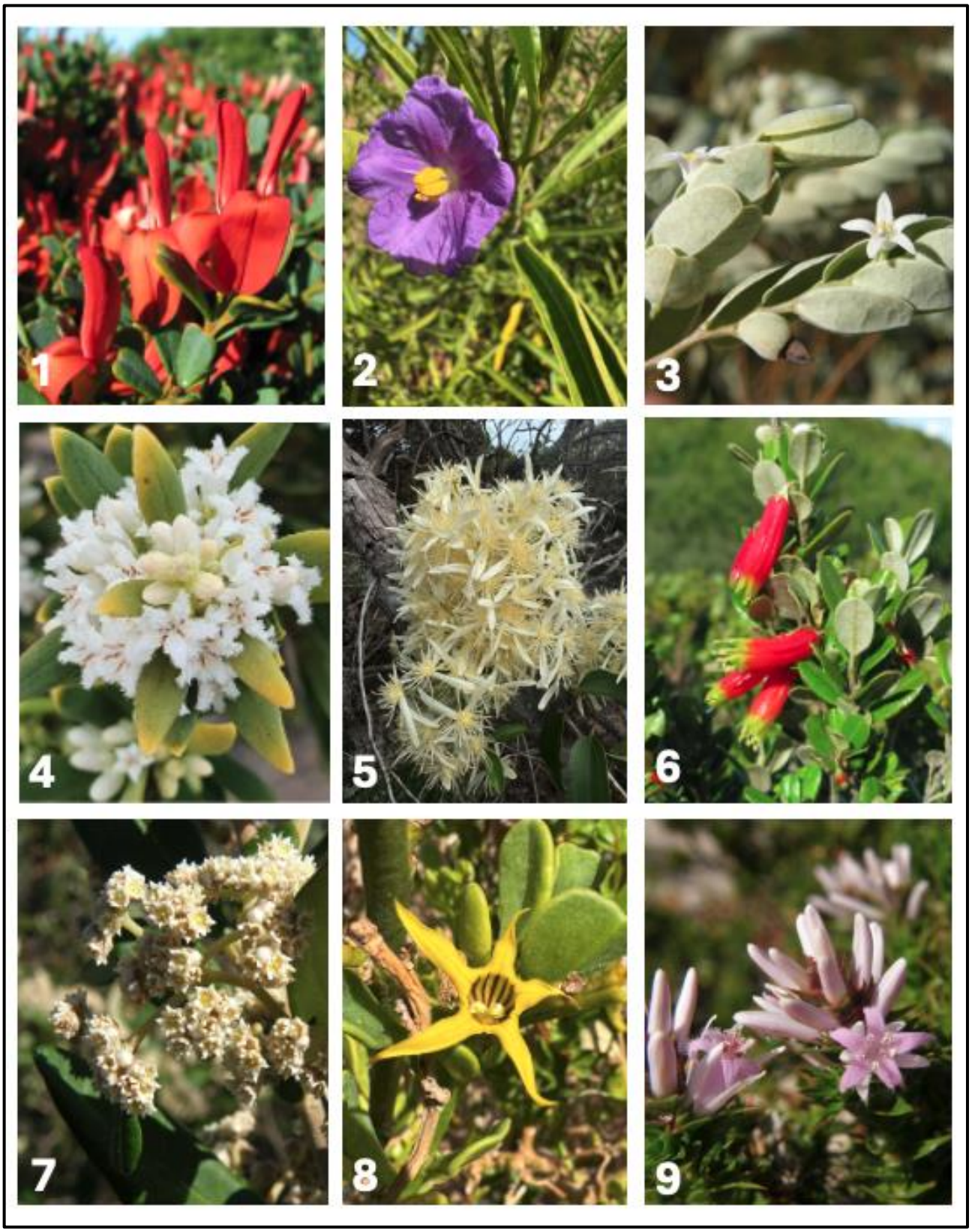

Figure 6: Medium shrubs of the dunes. 1—Cockies Tounges *Templetonia retusa.* 2—Kangaroo Apple *Solanum symonii.* 3—*Olax phyllanthi.* 4—Coast Beard Heath *Leucopogon patviflorus.* 5—Common Clematis *Clematis pubescens.* 6—*Nematolepis phebalioides*. 7—Basket Bush *Spyridium globulosum.* 8—Yellow Tailflower *Anthocercis littoria.* 9—*Andersonia parvifolia.*

Weeds of the beach and dunes

Wherever a bare space provides an opportunity for plants to grow, there are always weeds that will take it. Beaches and dunes contain bare spaces by their very nature, and a range of weeds can be found there.

Sea Rocket *Cakile maritima* is native to Europe and North Africa. It is a spreading plant with succulent stems and small pink flowers that is able to grow on beaches right down to the high tide mark. Its seed is spread by the tides.

Sea Spurge *Euphorbia paralias* originates from the Mediterranean area. It has become a common plant on beaches and dunes since it was first recorded in 1927.

Gazania linearis is a drought tolerant daisy that is native to South Africa. It has become established in a variety of locations including along roadsides, railway lines and on beaches and dunes to where it has spread from domestic gardens. It produces large amounts of seed that is dispersed by wind, enabling it to spread rapidly into other locations.

Hare's Tail Grass *Lagurus ovatus* is a grass of Mediterranean origin that has distinctive soft fluffy flower heads. It occurs in a wide range of habitats including on sand dunes.

Rose Pelargonium *Pelargonium capitatum* is a South African native that is able to grow on beaches and dunes. It has hairy aromatic foliage and produces pink flowers in numerous heads. It has the potential to invade a variety of habitats including woodland and is regarded as a serious environmental weed.

Onion Weed *Asphodelus fistulosus* originates from the Mediterranean. It occurs on both coastal and agricultural areas, spreading both by seeds and underground rhizomes. It has white flowers with narrow purple stripes.

Dune Arctotheca *Arctotheca populifolia* is an African daisy that has become established on beaches and dunes. It is a prostrate plant with large hairy leaves and yellow flowers. It was originally planted to assist with dune stabilisation and has now become established on baches across southern Australia.

Pyp Grass *Ehrharta villosa* is a South African grass that was introduced for use in dune stabilisation. However it has become invasive, spreading into a range of habitats and forming dense mats that exclude other species. It occurs in dunes to the west of Esperance including at Twilight Cove.

Victorian Teatree is a highly invasive shrub introduced from Victoria as a hedging plant for home gardens and as a windbreak for farms. It produces very large numbers of small long-lived seeds, and is spreading rapidly along roadsides and in native woodland where it can forma dense monoculture crowding out native plants. It occurs in a variety of habitats including coastal dunes, making it another significant environmental weed.

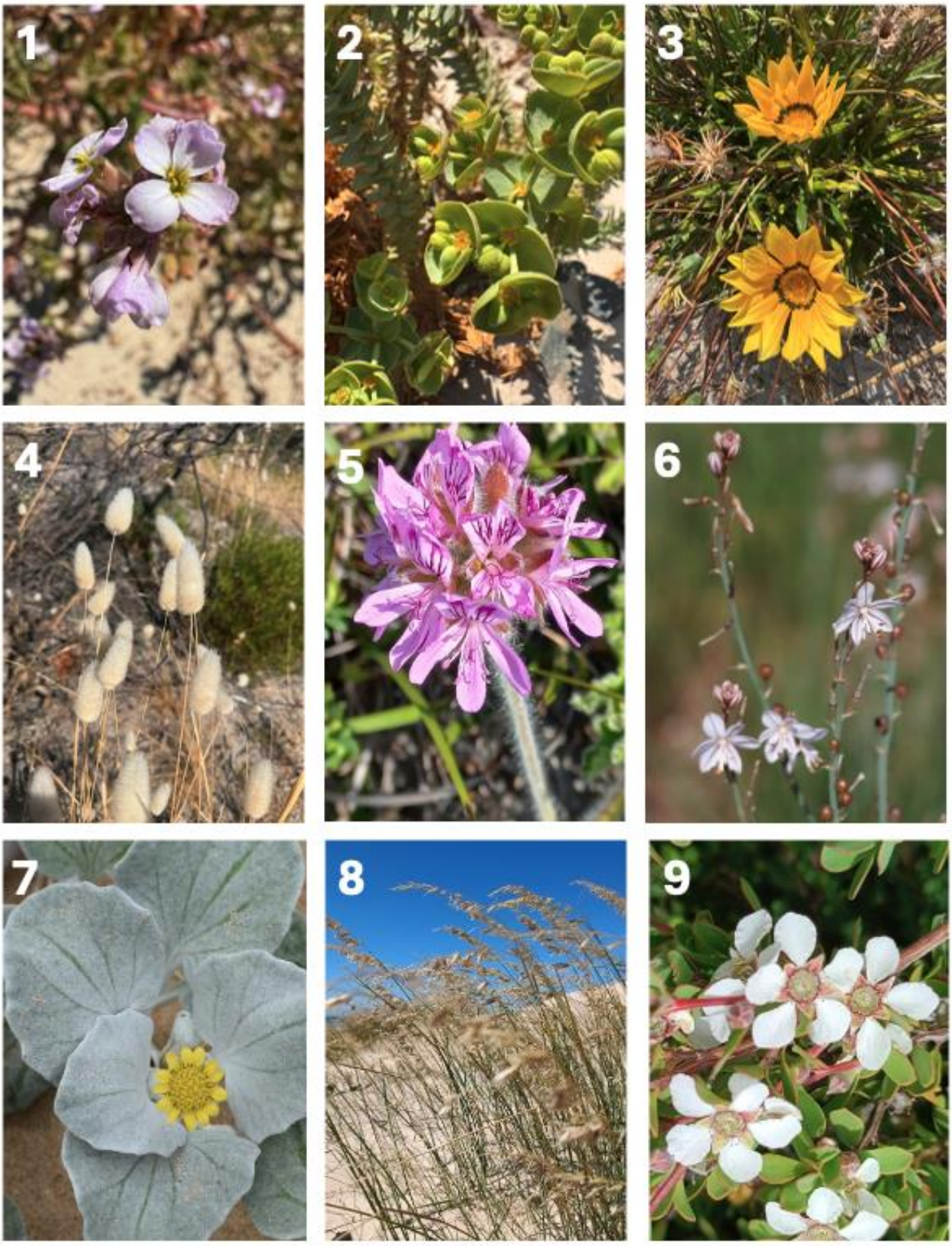

Figure 7: Weeds of the beach and dunes. 1— Sea Rocket *Cakile maritima. 2*—Sea Spurge *Euphorbia paralias.* 3—*Gazania linearis*. 4— Hare's Tail Grass *Lagurus ovatus.* 5—Rose Pelargonium *Pelargonium capitatum.* 6—Onion Weed *Asphodelus fistulosus.* 7—Dune Arctotheca *Arctotheca populifloia.* 8—Pyp Grass *Ehrharta villosa.* 9-Victorian Teatree *Gaudium laevigatum.*

Sources of additional information

Books

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Rippey, Elizabeth and Barbara Rowland, Coastal Plants of Perth and the South West Region. University of WA Press 1995.

Web Resources

Atlas of Living Australia https://www.ala.org.au

Florabase https://florabase.dbca.wa.gov.au

iNaturalist https://www.inaturalist.org

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L. Lavers: 5.6
W. Archer (*esperancewildflowers.blogspot.com*) 4.4
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